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Developing the educational performance of learning disabilities teachers in primary schools: ChatGPT program as a model

Ahmed Zakaria Hegazy

Department of Special Education Department, College of Education, King Faisal University, Al-Ahsa 31982, Saudi Arabia.

(*Email: ahegazy@kfu.edu.sa*)

Abstract

To explore primary school teachers' views on integrating ChatGPT into education in Al-Ahsa, Saudi Arabia, concentrating on awareness, usage, and challenges. The study applied mixed methods, involving a survey conducted with 434 teachers through stratified sampling and in-depth interviews, whereby data were analyzed to assess teachers' awareness, implementation practices, and perceived challenges. In-depth interviews were conducted with 87 teachers who had prior experience using ChatGPT to gain further insights into their experiences. Few teachers (20%) were aware of ChatGPT, confirming low levels of awareness and use in classroom situations. Teachers who were aware of ChatGPT cited its advantages in promoting better teaching methods and engaging students; however, the views on the effectiveness of ChatGPT for teaching scientific subjects were moderate. Challenges cited include technical difficulties, curriculum alignment, and adjusting instruction for different learning styles. The findings reflect the need for more teacher training and professional development that enhances the integration of ChatGPT into the educational sphere. Once these gaps are addressed, ChatGPT can be better utilized to its full potential with fair access. Educators, policymakers, and innovators may utilize these thought processes to design specific training courses targeted to their curriculum, thereby facilitating technology adoption. By providing working partnerships, stakeholders may help improve educational outcomes for learning-disabled students as well as advance technology education in primary schools.

Keywords: ChatGPT, Inclusive education, Learning disabilities, Primary education, Professional development, Teacher awareness.

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1. Introduction

The historical perspective reveals education as a fundamental component that develops individuals who can successfully handle advanced social systems. Throughout history, education has evolved into a system dedicated to fostering critical thinking, problem-solving skills, and creativity for achieving personal and professional prosperity [1, 2]. Education develops a continuous equilibrium between cultural preservation and individual human development, although social needs persist due to cultural beliefs [3].

The availability of equal educational opportunities is vital because it enables life transformation through its power to boost social achievements, political capabilities, and economic performance. Marginalized communities encounter significant obstacles such as economic challenges along with structural disadvantages and discriminatory behavior that obstruct their educational opportunities, according to Guimarães [4]. Educational policies that embrace inclusion matter because they protect equality while combating discrimination, thus enabling all people to access quality learning opportunities [5]. Through inclusive education, society achieves higher enrollment rates and retention numbers and ensures the celebration of diversity and social cohesion, which builds a more just society [6].

A learning outcomes improvement strategy requires fitting educational approaches to students while establishing classrooms that support their needs. Systems powered by artificial intelligence and data analytical tools serve institutions in resolving these needs. The adaptive learning systems provide customized educational content from student profiles to boost both student involvement and academic success and create equal educational conditions based on Capuano and Caballé [7]. The main advantage of adaptive learning systems stems from their ability to readjust instructional materials automatically based on parallel testing results. The system creates tailored educational routes that students can easily navigate to either areas of familiarity or topics that require additional focus [8]. Various academic investigations have demonstrated that learner performance considerably enhances when schools use personalized educational content for their individual scholars. Post-testing scores of students who learn with adaptive systems exceed those achieved by students receiving traditional teaching methods, according to Sari et al. [9]. Multiple challenges exist during the setup of promising adaptive learning systems. A successful implementation of educational integration depends on handling technical readiness, infrastructure requirements, and teacher training as per [9].

The organizational goals of educational practice combine two core tasks: discovering learning deficiencies and implementing multiple training methods to maximize student achievement. The development of effective learning requires significant goals along with various instructional methods for developing critical thinking and behavioral mastery mastery [10-12]. Both achievable learning targets and significant feedback systems need to be implemented to build an engaged learning environment for teachers [13]. Students experience enhanced activity through technology integration, while personal learning experiences become available for those who need special support [14]. Formative assessments play an essential role in tracking progression because they enable informed teaching decisions about personalized learning methods [15]. Educational outcomes will experience substantial improvements when all different elements of a comprehensive educational system work together.

Technology improves the academic process by offering ideas, materials, and strategies in compliance with the regular curricula [16-19]. AI implementation enhances educational development since it aligns classroom resources with individual student needs using improved instructional techniques. Educational institutions employ AI to enhance their student evaluation systems and administrative procedures, as well as to develop personalized learning programs [20]. The educational tools that AI provides enable targeted weakness evaluation based on analytical data to create assignments that help students advance in their learning [21]. The smooth communication channels enabled by AI allow educators to track academic deficiencies between students and themselves through improved educational connections [22]. AI implementations in educational settings require institutions to pursue the best results by establishing both fair technological access and protection of privacy against existing risks [20].

Educational institutions that implement ChatGPT encounter both promising advancements as well as difficult obstacles that enhance teaching methods and student learning practices. Research suggests ChatGPT serves educators by creating customizable lesson plans and exercises that support diverse student learning needs, specifically in language acquisition, thus enhancing student engagement and classroom accessibility [23, 24]. The application of ChatGPT in computer programming classrooms has produced two key effects on student success, as students show a better understanding and improved interactions with course content, according to Ali et al. [24] alongside Quiroz-Martinez et al. [25]. AI tools face essential problems that include concerns about academic honesty, content validation, and dependency risks [25, 26]. Accredited educators should build ethical regulation policies for AI use, and their assessments need to reflect AI contributions within student learning progression [26].

The educational tool known as ChatGPT provides transformative benefits to education by strengthening lesson design practices alongside personalized student learning programs. The system delivers automatic assistance to students who can use instant feedback for inquiry-based learning that improves conceptual understanding [27, 28]. The extensive use of AI technologies by students generates concerns about problems developing their problem-solving abilities and critical thinking skills [29]. The implementation of AI for assessment tasks leads to significant academic integrity problems because it questions students' original work and produces dubious content [24, 29]. Educators should establish specific guidelines to direct the ethical use of ChatGPT so it enhances traditional learning approaches and prevents excessive reliance on the tool [24, 30].

Educational institutions adopting ChatGPT need to handle its dual advantages and difficult aspects to achieve ideal learning outcomes. Through its customized support system, ChatGPT creates individual learning paths that benefit students in challenging subjects such as physics and programming, leading to better results and understanding [27, 31]. Artificial

intelligence produces standardized tests and educational materials for educators, enabling instructors to devote their efforts toward direct teaching and classroom engagement [32, 33]. The program supports educational collaboration through group work activities and helps students develop their language skills by providing grammatical explanations and conversational practice [27, 31]. The implementation of ChatGPT creates multiple important challenges as well as ethical concerns. Electronic resources created by AI systems now pose risks to academic integrity while simultaneously undermining trust in educational resources [34, 35]. Students may develop problems in critical thinking and problem-solving due to their excessive reliance on AI tools, as they tend to choose AI-generated content over the necessary active engagement with study materials [23, 36]. Ethical concerns regarding algorithmic biases, along with plagiarism risks, make AI adoption more challenging because leaders need specific guidelines to handle its responsible implementation [35, 37]. Educators need to adopt a balance to extract maximum advantages from ChatGPT while addressing the associated problems. They should establish three key standards in their classrooms by using adaptive assessments alongside collaborative teaching methods while promoting proper academic practices [23, 34]. Educational institutions need to maintain human instructors and support activities because excessive technology weakens student-to-student contact and creates privacy dilemmas [33, 38].

1.1. Literature Review

With the growing interest in the integration of artificial intelligence tools like ChatGPT in education, its relevance in improving the teaching and learning processes has been emphasized. This mini-review aims to review the existing research concerning the use of ChatGPT in education, with particular interest in how it can support teachers in assisting students with learning disabilities in primary school.

1.1.1. Teacher Awareness of ChatGPT in Education

The level of awareness related to ChatGPT, among other AI tools, is quite disparate among teachers. Napal Fraile and Badiola [39] for instance, conducted a study on the acceptance of AI technologies by trainees, where they cited that although some recognized the merits of ChatGPT, many had not learned how to incorporate these tools into their pedagogical practice. Similarly, Ali and his colleagues Ali et al. [24] found a need to design training programs for teachers to increase familiarity with AI tools. They stated that a lack of awareness limits teachers from using them optimally. Therefore, professional development initiatives targeting awareness of AI-driven tools such as ChatGPT should be made available to teachers.

1.1.2. Use of ChatGPT in Educational Processes

According to a multitude of studies on how to optimally employ ChatGPT for enhancing educational processes, Achour et al. [31] mentioned that one of ChatGPT's most interesting features is its ability to generate tailored learning materials, hence handy in catering to diverse learning needs. Egara and Mosimege [40] further illustrated its efficacy in mathematics instruction using differentiated teaching strategies. Moreover, Donley [41] discussed ChatGPT as a linguistically responsive tool for multilingual students, especially helping to scaffold language acquisition. However, while such interesting opportunities exist, Jian [42] and Xu [43] pointed out that the adoption of ChatGPT by instructors will greatly depend on institutional support and access to other resources. The net effect is a highly variable implementation. Many studies make numerous comments on how ChatGPT can be well utilized to improve educational processes. Achour, et al. [31] stated that one of the most interesting features of ChatGPT is its ability to produce customized learning materials for diverse learning needs. It has further shown efficacy in mathematics teaching with differentiated learning strategies, as presented by Egara and Mosimege [40]. Donley [41] also discussed ChatGPT as a linguistically responsive tool for multilingual learners in assisting the scaffolding of language acquisition. Despite all these great applications of ChatGPT, Jian [42] and Xu [43] noted that the adoption of ChatGPT among instructors hinges on the extent to which their institutions support and resource such adoption. The net effect is a highly variable implementation.

1.1.3. Challenges in Adopting ChatGPT for Teaching Pedagogy

While ChatGPT holds multiple advantages, several adverse factors limit its acceptance. According to Kovari [35], moral concerns such as AI-related plagiarism and algorithmic biases constitute significant hindrances to the technology's acceptance. Bettayeb et al. [37] endorsed these views, corroborating the necessity for clear demarcations for the fitful integration of AI. Besides, Chukwuere [33] discussed some technical limitations such as poor internet connectivity and a lack of technical skills as obstacles to proper utilization. Patrício and Gonçalves [44] pointed to another concern regarding dependency on AI: if students become too reliant on tools such as ChatGPT, they might risk being deprived of the collaborative and creative skills necessary for their success. These findings point to the fragile balance required between technological innovation and pedagogical tenets.

1.1.4. Implications for Learning Disabilities Teachers in Primary Schools

The new research evidence shows that generative AI tools such as ChatGPT promise much in assisting teachers with students who have learning disabilities. Wardat, et al. [45] proved the potential of ChatGPT to reduce the granulation of complex concepts and provide individualized feedback, making it an invaluable resource for inclusive education. Uğraş [46] researched its preschool-related copy, describing how it prepares individual educational tasks for young children. However, Bogoslov and Stoica [47] warned that realizing these advantages comes with practical challenges. These include aligning teaching subject matters with AI-generated content and ensuring accessibility for all students.

1.5. Research Questions

The research questions that guided this study were

1. To what extent are teachers aware of ChatGPT as their tool in the teaching-learning process?
2. To what extent do instructors employ ChatGPT in their educational processes?
3. What kind of issues exist for the teachers when it comes to adopting the ChatGPT into functioning teaching pedagogy?

2. Materials and Methods

2.1. Design and Participants

This study applies a sequential exploratory mixed-methods design style as the research methodology for this study because it combines both quantitative and qualitative examination methods to establish a thorough understanding of the studied topic. The research starts with collecting quantitative data in the first phase, while a qualitative phase follows to deepen the investigation of the studied topic. This research design organization enables an extensive study of the ChatGPT program practice by Al-Ahsa Educational District teachers who educate students with learning disabilities. The researcher decided to use a mixed-methods approach because it combined the systematic findings from quantitative teacher questionnaires with the detailed insights from individual qualitative interviews. Using quantitative and qualitative research methods provides educators with comprehensive findings about how ChatGPT benefits the educational outcomes of teachers supporting students with learning disabilities.

Teachers from primary education levels in the Al-Ahsa Educational District of Saudi Arabia's Eastern Region were chosen through purposeful selection. This study examines how teachers who work with learning-disabled students use ChatGPT within their primary education practice. A stratified random sampling technique enabled researchers to obtain a representative group of participants from the specified population. The research established separate strata that represented each of the local government areas inside the Al-Ahsa Educational District. Research participants were selected from every local government area in equal numbers to maintain the distribution of participants who varied in teaching conditions and demographic characteristics throughout the targeted region. A total of 434 teaching professionals from all seven LGAs within the Al-Ahsa Educational District participated in the study. The analysis demonstrated that 20% of participants, about 87 teachers, were aware of the ChatGPT program. Teachers who used ChatGPT became the focus for studying how the program could boost educational achievements as well as help students with learning difficulties.

2.2. Methods

Researchers conducted a thorough mixed-methods study to assess how ChatGPT affects teacher development regarding educational achievement when teaching students with learning disabilities in primary schools. An assessment instrument was created through Google Forms containing two sections to evaluate respondents' understanding and their opinions about ChatGPT, together with its instructional value and the obstacles it presented to learning. The questionnaire obtained demographic data by asking for gender, along with location, teaching duration, and ChatGPT familiarity in its first segment until it reached the second section, where participants evaluated ChatGPT utilization for classroom practices, student testing, and inclusive educational techniques. A five-point Likert scale (ranging from "Very Low" to "Very High") assessed eight items that investigated four essential dimensions about ChatGPT awareness and classroom usage, along with evaluation processes and adoption barriers. Various experts participated in the validity testing of the tool by reviewing it together with professors from the Faculty of Education, alongside specialists in measurement and evaluation and technology experts who specialized in AI applications for education. The experts modified the questionnaire to fit the research aims while covering various subject topics. The questionnaire completed a pilot test that involved 70 teachers throughout various educational districts, while the Cronbach's alpha reliability coefficient reached 0.86, confirming high consistency. A total of 455 primary school teachers in the Al-Ahsa Educational District received the survey, but 434 teachers (96.44% response rate) completed their responses. The qualitative interview process included 51 teachers who used ChatGPT and were chosen from 87 eligible participants. The interview guide, comprised of four essential themes, was created and modified after expert panel assessment, followed by testing it with eight respondents to verify clarity and suitability. Reliability checks between researchers on the interview format yielded a 0.83 score that demonstrated its reliability. Rich quantitative and qualitative data emerged from surveys and interviews between August 24 and October 24, 2024, to evaluate how ChatGPT benefits the teaching abilities of educators supporting students with learning disabilities.

2.3. Statistical Analysis

Quantitative Analysis: A statistical analysis of survey data occurred through SPSS version 26 as the evaluation tool. The obtained dataset received analysis through descriptive statistical methods that used mean, standard deviation, and percentage computation to provide a complete understanding of the data. The analysis utilized inferential statistics through chi-square tests along with Pearson's correlation coefficient for evaluating patterns and relationships in the data. The survey instrument achieved adequate reliability because Cronbach's alpha calculation demonstrated consistent performance across measurement items. The use of $p < 0.05$ confirmed the reliability and validity of the obtained results, as it served as the threshold for statistical significance. The participants answered using a Likert scale, which had responses categorized from "Very Low" (1) to "Low" (2) to "Moderate" (3) to "High" (4) to "Very High" (5). The standardized rating framework made it simple to comprehend and analyze the participant survey answers.

Qualitative Analysis: Analyzing qualitative data required thematic evaluation methods based on semi-structured personal interviews. The research began by creating an extensive interview guide, which maintained precision and reliability. A comprehensive review of transcripts allowed researchers to identify essential initial codes that represented important research

question concepts. The researchers organized their preliminary codes into larger themes using both recurring patterns and essential understanding that came from their interview research. Multiple groupings and refinements of the identified themes contributed to maintaining congruence with the research goals. The repeated analytical approach created an extensive representation of the complicated qualitative outcome data. Quotes directly obtained from research participants served to strengthen the study results through their contextual contributions. The last sections of themes structured according to research foundation points revealed a detailed breakdown of participants' viewpoints throughout the study. The research utilized a combination of quantitative and qualitative approaches, which produced a wholesome and comprehensive analysis that boosted the reliability and depth of the research outcomes.

2.4. Ethical Considerations

Ethical considerations were rigorously addressed by obtaining administrative approvals from the Al-Ahsa Educational District, followed by explicit permissions from school principals to conduct the research within their institutions. Informed consent was meticulously obtained from all participants, ensuring they were fully aware of the study's objectives and procedures. A strong commitment to upholding ethical standards was maintained throughout the research period. The study protocol received approval from the Ethics Committee of King Faisal University, with the reference number: KFU-REC-2024-JUN-ETHICS2167.

3. Results

Quantitative findings are discussed and interpreted in relation to the research questions.

Research Question 1. Research Question 2. To what extent do instructors employ ChatGPT in their educational processes?

Table 1 analysis of the text reveals that teacher understanding of ChatGPT application in education stands at a moderate point based on 1.85 to 2.60 mean scores from a five-point evaluation scale. Most teachers understand how ChatGPT can create effective teaching methods and strengthen critical thinking because their responses indicate higher rankings on items 4 and 8. Professional development regarding and regular exploration of ChatGPT resources appear to be restricted based on low score responses for item 3 and item 5, respectively. Significant chi-square values noticed throughout all items demonstrate teacher knowledge and perception diversity, which supports the necessity to develop training programs targeting specific needs. The majority of educators see ChatGPT as an educationally sound application, yet they need enhanced training regarding its implementation.

Table 1.
Teachers' knowledge about ChatGPT in educational process.

No.	Phrase	Mean	Std. Deviation	Response percentage %	Chi-Square	Sig.
	Awareness of ChatGPT (AC)					
1	I understand the basic concept of ChatGPT and its relevance to education.	2.45	0.98	49.12	378.45	0.001
2	I can identify ways ChatGPT can support personalized learning for students.	2.30	1.02	46.08	452.12	0.001
3	I have participated in training or workshops on integrating ChatGPT into classroom activities.	1.90	1.12	38.04	289.76	0.001
4	I believe ChatGPT has the potential to improve critical thinking and problem-solving skills.	2.55	0.92	51.10	612.89	0.001
5	I regularly explore new resources and articles about ChatGPT's role in education.	1.85	0.88	37.02	395.56	0.001
6	I feel comfortable discussing the benefits and limitations of ChatGPT with colleagues.	2.15	0.96	43.08	345.78	0.001
7	I keep myself informed about updates and improvements to ChatGPT for educational use.	2.00	0.85	40.04	412.34	0.001
8	I consider ChatGPT a reliable tool to enhance teaching strategies and student engagement.	2.60	0.90	52.06	503.67	0.001
	total	2.22	0.91	44.44	3,390.57	0.001

MT1: What was your initial discovery of ChatGPT, and which factors led you to start using it for teaching students with learning disabilities in your practice?

I became acquainted with ChatGPT through a professional learning session that emphasized using technology in inclusive education practices. Among the various tools presented by the facilitator ChatGPT impressed me because it could personalize the support it offered. The platform generates individualized lesson plans by simplifying advanced mathematical and scientific content for students who have disabilities in learning. The capability of differentiation through ChatGPT caught my attention because it allows teachers to customize their lessons based on their students' individual learning requirements.

MT3: What prompted you to utilize ChatGPT technology in your teaching approaches for students with learning difficulties, as well as its effects on your educational practices?

I became interested in ChatGPT during my research into innovative tools that help primary school students who struggle to learn. Articles from my research displayed how AI system ChatGPT could facilitate accessibility alongside increased student engagement for students with learning disabilities. My classroom makes extensive use of ChatGPT to create responsive student work products like quizzes and prompts that boost student learning outcomes. The automation of routine work through this tool allows me to save time so I can dedicate my efforts toward developing meaningful student interactions. Using this tool has transformed my teaching into a more efficient process, which also brings enjoyment for me as well as my learners.

MT4: How did your first encounter with ChatGPT affect your handling of students with learning disabilities in primary school?

I encountered ChatGPT for the first time during the training session "Innovative Teaching Techniques for Inclusive Classrooms." The training detailed ways ChatGPT enables collaborative study while providing assistance to students with physical and learning disabilities. I developed specific educational tools with ChatGPT following its introduction, including multi-step educational worksheets for writing essays and language-development instruction. The teaching materials have demonstrated remarkable effectiveness in helping students develop positive attitudes toward communicating effectively. The integration of ChatGPT into my instruction has led to enhanced student capabilities for precise communication together with substantive class participation.

Research Question 2. To what extent do instructors employ ChatGPT in their educational processes?

The middle to strong levels of integration of ChatGPT emerge from teachers who work with learning disability students, as revealed through mean scores between 2.65 and 3.22 in Table 2. Teachers noticed beneficial effects from using ChatGPT, which included better student involvement and teamwork, especially when applying it to develop personalized educational content and group work formats. The data shows variable usage patterns (significant chi-square values) since teachers have different levels of knowledge and success when using ChatGPT inside their educational spaces.

Table 2.
Teachers Integration of ChatGPT in Classrooms.

No.	Phrase	Mean	Std. Deviation	Response percentage %	Chi-Square	Sig.
	Integration of ChatGPT in Classrooms (ICC)					
9	I regularly use ChatGPT to design personalized lesson plans for students with learning disabilities.	2.85	0.92	43.15	412.37	0.001
10	I encourage my students with learning disabilities to use ChatGPT as a resource for completing assignments.	3.12	0.88	46.81	385.64	0.001
11	I adapt my teaching strategies to incorporate ChatGPT, ensuring it meets the needs of students with learning disabilities.	2.70	0.85	40.52	450.23	0.001
12	I find that integrating ChatGPT enhances engagement and participation among students with learning disabilities.	3.22	0.95	48.34	498.71	0.001
13	I use ChatGPT to develop differentiated content tailored to the abilities of students with learning disabilities.	2.65	0.82	39.78	520.45	0.001
14	I have successfully integrated ChatGPT into group activities to promote collaborative learning for students with learning disabilities.	2.90	0.90	43.51	372.89	0.001
15	I observe that students with learning disabilities respond positively to the use of ChatGPT in their learning process.	3.05	0.93	45.76	425.67	0.001
16	I feel that integrating ChatGPT has improved my ability to address the diverse needs of students with learning disabilities effectively.	2.80	0.87	42.03	389.56	0.001
	Total	2.91	0.89	43.66	3655.52	0.001

MT1: Utilizing ChatGPT in my educational practice, I develop customized lesson plans that support students who have learning disabilities. Through ChatGPT, I create different reading comprehension assignments that feature easy texts for beginning students, medium-challenge passages for intermediate learners, and demanding content for advanced students. Students benefit from this technique because their lessons align with personal abilities, and the approach minimizes instructional time requirements. The improved student engagement stands out the most since students feel more empowered because the taught content matches their skill level, leading to increased participation in educational activities.

MT3: Through the implementation of ChatGPT, my classroom promotes students with learning disabilities to develop their oral communication abilities. Throughout language lessons, I urge students to use ChatGPT by submitting inquiries and conducting artificial dialogues with the system. The platform allows students to learn without the risk of judgment or mistakes, thus helping them build their speaking skills. Students receive immediate feedback from ChatGPT regarding their pronunciation skills, in addition to grammar and sentence structure guidance that lets them improve their language capabilities. The students show greater verbal communicative willingness alongside improved self-confidence while speaking with their peers.

MT4: I combine ChatGPT with the goal of promoting critical thinking skills and collective learning experiences for students who have learning disabilities during educational sessions. The effective method comprises giving students group assignments that require them to examine story characters utilizing ChatGPT as their reference. Every team obtains answers from the AI regarding character objectives along with their social connections and behavioral choices that trigger stronger conversations among participants. This approach generates time savings in my preparation work and stimulates students to generate new perspectives regarding literary interpretations. A large number of students prefer reimagining characters in stories because this approach helps them better understand the text and makes learning more delightful and understandable.

Research Question 3. What kind of issues exist for the teachers when it comes to adopting the ChatGPT into functioning teaching pedagogy?

The ratings from teachers show substantial obstacles exist for incorporating ChatGPT into educational practice for learners with disabilities, ranging from 2.70 to 3.45 on average. Three main issues arise from using ChatGPT, which include information reliability, ensuring alignment, and concerns regarding problem-solving skill deterioration due to excessive tool dependency. Teachers understand the necessity of working through challenges to make ChatGPT more efficient when used in inclusive educational settings.

Table 3.
Experiences during the implementation of ChatGPT technology to enhance teaching methods faced teachers in the classroom.

No.	Phrase	Mean	Std. Deviation	Response percentage %	Chi-Square	Sig.
	Challenges in Adopting ChatGPT (CAC)					
25	I encounter technical issues when integrating ChatGPT into lessons for students with learning disabilities.	2.85	0.92	57.08	289.45	0.001
26	There is insufficient training and professional development provided by my school district on using ChatGPT effectively.	3.12	0.88	62.46	362.54	0.001
27	I am concerned about the reliability of the information generated by ChatGPT for students with special needs.	3.30	0.95	66.02	405.21	0.001
28	My school lacks the necessary technological infrastructure to fully utilize ChatGPT for inclusive education.	3.20	1.05	64.04	336.78	0.001
29	I worry that over-reliance on ChatGPT may hinder the development of problem-solving skills in students with learning disabilities.	3.45	1.02	69.08	450.36	0.001
30	It is challenging to align ChatGPT activities with the individualized educational plans (IEPs) of students with learning disabilities.	3.35	0.98	67.04	382.45	0.001
31	I find it difficult to evaluate the impact of ChatGPT on the academic progress of students with learning disabilities.	2.70	0.96	54.06	368.23	0.001
32	Addressing the limitations of ChatGPT is crucial for improving its effectiveness in teaching students with learning disabilities.	2.90	1.01	58.04	325.67	0.001
	Total	3.05	0.91	61.02	3,260.72	0.001

MT1: Student learning disabilities present a challenge when I use ChatGPT because I must avoid students using the tool as a complete solution for their problems. Most students choose to utilize ChatGPT as a time-saving tool, which leads them to simply duplicate the responses instead of thinking critically or solving problems. I implemented assignments that force students to merge ChatGPT-produced material with their thoughts and research from other sources. This teaching practice drives students to evaluate different pieces of information in order to build new connections between them, which leads to better critical and creative thinking abilities. I explained to students the proper utilization of ChatGPT by establishing it as an additional learning resource that expands their capabilities without taking away from their work.

MT3: Educational institutions encounter substantial difficulties when they incorporate ChatGPT into Saudi curriculum courses about Islamic studies together with local cultural subjects. ChatGPT produces general and incorrect information that

fails to meet the subject-specific needs of these subjects. Students received specific regional curriculum-approved and reliable source lists, which I provided to help them address this issue. Students received instructions to validate ChatGPT output through examination with their school textbooks and authorized sources. Steps to validate content accuracy allow students both to identify the trustworthiness of AI-generated outputs while building their ability to evaluate AI reliability. To properly integrate ChatGPT into lessons, I will preserve the academic integrity of the curriculum.

MT4: The use of ChatGPT for student learning requires adequate technological capabilities, which certain schools lack. The implementation of ChatGPT in daily teaching becomes challenging because schools encounter unstable internet connections as well as restricted device availability. The barriers prompted me to implement teaching methods that combine basic instructional techniques with AI-based tools. The lessons I recorded contained paper-based complementary exercises that students could complete without internet access. Students received simplified video clips and PDF documents that summarized essential concepts, which I had created for easy use. The modifications I put in place allow every student to derive educational value from using ChatGPT through teaching methods that incorporate traditional approaches into AI-assisted systems.

4. Discussion

This research analyzes how teachers handle ChatGPT technology and their behavioral patterns and opinions about integrating the AI tool into educational teaching practices at primary schools that provide special education for students with learning disabilities. The research data shows that teachers demonstrate a poor understanding of ChatGPT because they have insufficient knowledge or ineffective implementation of its teaching features. Teachers demonstrate limited awareness of AI technologies such as ChatGPT because training programs on these technologies do not exist, which prevents exploration of potential benefits. The educational sector lacks reliable resource materials together with instructive materials for teaching staff about ChatGPT's educational applications. The lack of awareness programs about AI education enhancement and insufficient workshops regarding its benefits has led to this knowledge gap. The actual educational value that ChatGPT delivers for teaching methods improvement alongside disability support becomes underutilized due to insufficient professional development initiatives.

Educational institutions that adopted ChatGPT have created diverse reactions among teachers who recognize its benefits but also raise ethical concerns. Educators value ChatGPT as a tool for simplifying task assignments and resource development while lesson planning, since this combination enhances educational efficiency and supports student learning diversity [39]. The originality of AI-generated content and worries around academic integrity have developed into major hurdles, generating demand for specific standards of behavior to guide the use of AI [35].

Assessment results demonstrate that educators possess a general understanding of ChatGPT functions yet show insufficient skills in applying artificial intelligence tools for educational instruction. Educational institutions need focused professional development plans to teach teachers how to properly utilize artificial intelligence for innovative educational purposes [39, 48]. Studies demonstrate the need to develop students' critical thinking and creativity since AI tools, including ChatGPT, might constrain their ability to develop these fundamental skills [48].

The study by Napal Fraile and Badiola [39] demonstrates how AI education systems can transform education when properly supported by training programs that incorporate ethical frameworks. The research by Kovari [35] delivers comparable findings to present-day discussions regarding academic integrity threats and innovative testing approaches. The successful utilization of AI in education requires a strategic combination of trained staff development, ethical considerations, and innovative teaching practices [48].

Educators limit their use of ChatGPT in educational processes because they lack sufficient understanding of how to utilize this AI tool effectively in learning settings. Several strategies should be adopted to increase both the frequent use and improved effectiveness of these technologies. The implementation of training sessions for teachers about ChatGPT capabilities should be part of this plan while promoting peer collaboration and developing intuitive educational interfaces that simplify its teaching integration. Educators interviewed during semi-structured interviews demonstrated the positive specific effects of incorporating ChatGPT into their teaching practices. The educational process received notable benefits because teachers gained new methods of explanation while implementing innovative teaching tools, which also delivered effectiveness to support student learning. Educators exposed to appropriate usage conditions of ChatGPT show substantial creative capabilities in their work, according to research findings. The enhancement of educational success through ChatGPT has been validated through studies conducted by Wardat et al. [45], Egara and Mosimege [40] and Donley [41]. The technology has proven effective for language learning support by enabling structured lesson exchange and cross-linguistic teaching in various cultural contexts.

Educational institutions benefit greatly from using ChatGPT for teaching, but teachers resist its adoption because they lack sufficient understanding of the tool. Successful use of ChatGPT demands specific training materials for teachers, along with peer collaboration systems and intuitive interfaces, according to Montenegro-Rueda et al. [49]. Educators who receive proper training enable ChatGPT to enhance educational practices using innovative tools and effectively solve educational challenges, according to Bogoslov and Stoica [47] and Achour et al. [31]. Research indicates that some drawbacks exist due to AI overdependence, as it reduces student collaboration and creative output in their learning processes. Educators who receive appropriate support while working with ChatGPT will discover its creative capabilities, leading to better educational outcomes [31, 44].

The most recent research examined the uses of ChatGPT with regard to education and its possible potential benefits and challenges. Sok and Heng [26] and Kazi [27] showed that students enrolled in a course in computer programming and using ChatGPT have had a noticeable increase in their academic performance. Thus, ChatGPT may be enlisted as a complementary

educational tool that has the ability to produce tailored material well suited to individual learning needs, thus promoting personalized learning experiences. Similarly, it was underlined by Jian [42] and Xu [43] that AI tools like ChatGPT would improve classroom interaction, with productivity and overall learning reaching their maximum when efficiently inculcated. However, teachers are divided on the opinion of ChatGPT and its effect on teaching and learning. Some claim it doesn't improve learning efficiency, while others see its potential when utilizing the tool. Positive impacts, including an increase in teaching efficiency via innovative educational materials, an easier lesson preparation process, and an improved homework evaluation process, were revealed during the semi-structured interviews. Among the disadvantages are worries that often surround its use—such as too much reliance on ChatGPT may inhibit face-to-face contact between a teacher and his or her students, in turn affecting their socialization ability. This concern re-echoed findings posited by Chen, et al. [50] whereby kindergarten teachers would positively accept ChatGPT in terms of bettering self-efficacy and attitudes towards students, but caution would be given over the decline of personal contacts in inches.

Uğraş [46] discussed further the merits of ChatGPT in preschool education, stressing its potential to generate individualized educational tasks and recommend age-appropriate materials. In a related report, Wang and Demszky [51] noted that teachers programming ChatGPT's classroom performance found it did help uplift education, though with restrictions on originality and depth of responses. Meanwhile, Bateman [52] echoed these findings, noting that ChatGPT was effective in lesson planning and content generation but raised concerns about academic dishonesty and AI dependence. An emphasis on teacher training to harness tools like ChatGPT has more recently been highlighted Zaiarna et al. [53], Rustandi et al. [54], Gou [55] and Urazbayeva et al. [56]. These studies focus on the formation of teachers' technological competencies so that they are not just able to use but also understand the principles of operation and possible applications of AI tools. The major objectives of training programs include equipping educators with the knowledge and skills needed for the integration of AI into their practice while designing engaging instructional strategies and methods for information delivery. Nurturing teachers' digital literacy is immensely important to address their unique challenges while achieving the intended outcome of improving education through the proper technical and professional use of modern tools. ChatGPT does have amazing potential for improving teaching and learning, yet success might only ensue if issues of over-reliance, ethics, and extensive teacher training are addressed. These works together stress the imbalances that need to be resolved in the evolution of AI in education, so the tech would normally enhance and not contradict classical approaches.

5. Conclusions

Both the overall awareness and attitudes of primary school teachers about ChatGPT remain at the lower end, especially in using it to support students with learning disabilities. However, semi-structured interviews with teachers experienced in using ChatGPT revealed insightful reflections whereby these teachers found the tool to enhance lesson delivery, engage students, and support children with varying learning needs. Nevertheless, several challenges were articulated, thus calling for specific recommendations that address technical and pedagogical issues around the integration of ChatGPT. Various approaches need to be developed to create adaptable structures attuned to the unique needs of each educational setting, particularly one like primary school that is serving students with learning disabilities. The study highly recommends professional development initiatives that equip teachers with sufficient skills and knowledge to use ChatGPT effectively within their teaching. Crucially, the study points toward the responsibility of administrators and policymakers to champion the adoption of AI technologies such as ChatGPT in an ethical manner that would support, not challenge, the fundamental aspects of education. By doing so, they would address the identified issues, such as accuracy concerns, overdependence on AI, and curriculum standard applicability, forming a formidable basis for subsequent studies that will identify the successful IV-RS models and comprehensive ecosystem support facilitating the smooth integration of ChatGPT into educational institutions.

In summary, the study's findings answer the research questions by revealing teachers' awareness gaps (Question 1), documenting educative processes where the potential of ChatGPT remains limited but promising (Question 2), and highlighting challenges presented in its adoption by teachers in their teaching practices (Question 3). These developments necessitate collaborative work with educational professionals, administration, and policy to implement the ethical and effective use of ChatGPT to improve teachers' performance when working with students with learning disabilities at the primary school level.

5.1. Limitations and Recommendations for Future Research

This study presents some limitations, which in turn offer avenues for further exploration and refinement of future research. First, its findings are limited to a particular educational area of Saudi Arabia, i.e., Al-Ahsa. As such, findings might not be as easily generalized to other educational regions that differ in their technological infrastructure and teaching environment. The recommendation is for similar studies to be extended to various regions in the Kingdom to assess the robustness of the results and their applicability in different contexts.

Secondly, some teachers could not use the tool due to technical challenges such as poor internet access and inadequate training, which were likely to influence their experiences and perceptions of ChatGPT. These factors would be misrepresented in the results regarding the tool's effectiveness in reinforcing teaching practices. Future studies should thus probe into relevant technological solutions and support systems that help educators minimize the possibility of encountering such problems and allow them to use AI tools like ChatGPT effectively.

Thirdly, the study surveyed teachers only and did not recruit students or administrators into the sampling frame. This focused investigation could be somewhat narrow and, thus, limited in scope to present a comprehensive view of how ChatGPT impacts the entire educational process. Future investigations could therefore include students and administrators, providing a fuller picture of how AI tools affect learning outcomes and classroom dynamics, and how they interact with institutional decision-making. A broader and more inclusive approach would yield richer insights into the role of ChatGPT in education.

Finally, these early concerns were raised by some teachers regarding the fact that these AI-based systems were mostly new to the educational setting. Teachers expressed misgivings about their experience in integrating such technologies into their teaching styles, which may limit their potential to assess this tool to its full extent. To fill this gap, future studies should concentrate on long-term professional development plans for improving teacher competencies to embrace AI technologies in their teaching. Such initiatives would better empower educators to utilize these tools effectively and confidently, enhancing literacy outcomes for students with learning disabilities in elementary schools. In conclusion, while this study has much to offer regarding the use of ChatGPT in facilitating teachers of students with learning disabilities, further studies on these limitations will contribute to understanding its role in education at a more profound and multilayered level.

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