Revolutionizing EFL Special Education: how ChatGPT is Transforming the Way Teachers Approach Language Learning

Revolucionando la educación especial del inglés como lengua extranjera: cómo ChatGPT está transformando la forma en que los profesores abordan el aprendizaje de idiomas

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ABSTRACT

This mixed-methods study explored the attitudes of 199 English as a Foreign Language (EFL) special education teachers towards using ChatGPT for language learning. The survey questionnaire, consisting of 21 items, examined attitudes, effectiveness, barriers, and the future use of ChatGPT. The results revealed that participants held moderate attitudes, perceiving ChatGPT as moderately effective with moderate barriers. While no significant differences were found between male and female teachers in attitudes and effectiveness, significant gender differences emerged in the future use of ChatGPT, with female teachers exhibiting a greater willingness to embrace it. Follow-up email interviews with five participants provided valuable insights into strategies, effectiveness, challenges, and inclusivity when using ChatGPT in language instruction for special education students. These findings contribute to implementing and developing ChatGPT as a language learning tool for EFL special education students, emphasizing the importance of gender-inclusive approaches and practical considerations to enhance its efficacy.

KEYWORDS EFL; special education; ChatGPT; language instruction; artificial intelligence.

RESUMEN

Este estudio de métodos mixtos exploró las actitudes de 199 profesores de educación especial de inglés como lengua extranjera (EFL) hacia el uso de ChatGPT para el aprendizaje del idioma. El cuestionario de encuesta, compuesto por 21 ítems, examinó las actitudes, la efectividad, las barreras y el uso futuro de ChatGPT. Los resultados revelaron que los participantes tenían actitudes moderadas, percibiendo a ChatGPT como moderadamente efectivo con barreras moderadas. Si bien no se encontraron diferencias significativas entre los profesores hombres y mujeres en cuanto a actitudes y efectividad, surgieron diferencias de género significativas en el uso futuro de ChatGPT, siendo las profesoras mujeres las que mostraron una

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mayor disposición a adoptarlo. Entrevistas de seguimiento por correo electrónico con cinco participantes proporcionaron información valiosa sobre estrategias, efectividad, desafíos e inclusión al usar ChatGPT en la enseñanza del idioma para estudiantes de educación especial. Estos hallazgos contribuyen a implementar y desarrollar ChatGPT como herramienta de aprendizaje de idiomas para estudiantes de educación especial de EFL, enfatizando la importancia de enfoques inclusivos de género y consideraciones prácticas para mejorar su eficacia.

PALABRAS CLAVE EFL; educación especial; ChatGPT; enseñanza de idiomas; inteligencia artificial.

1. INTRODUCTION

EFL refers to teaching English in a non-English speaking environment to non-native speakers. EFL special education teachers work in various settings and adapt instructional materials to meet students' unique needs. They collaborate with other professionals to support their students, but face challenges in delivering effective language instruction. As noted in previous studies, AI technology can assist in providing personalized and effective language instruction (Chen *et al*., 2022; Lu *et al*., 2022; Pedró *et al*., 2019; Rezaee, & Sha-bani, 2019).

AI technology in special education provides customized instruction by analyzing individual student data and tailoring feedback and learning materials to their unique requirements and preferences. This personalized approach is particularly beneficial for special education students who require individualized instruction. AI technology can also offer real-time feedback and assistance, such as chatbots providing immediate responses to student work and engaging them in interactive learning experiences. This technology saves teachers time and allows them to focus on more complex instructional duties (Chen *et al*., 2022; Rapanta *et al*., 2020).

AI technology supports EFL special education teachers in assessing student performance. AI algorithms analyze data and provide insights into areas where students may be struggling. AI tools can also assist in grading and evaluating student work, saving teachers time and providing more accurate assessments. AI technology provides more engaging and immersive learning experiences, such as using virtual reality technology to simulate real-life language scenarios for students to practice in context (Hopcan *et al.,* 2022; Kessler; 2018; Ouyang *et al*., 2022).

The utilization of AI-powered conversational agents, such as chatbots, is becoming more popular in language learning. ChatGPT is an exemplar of this type of chatbot, which can engage students in English conversations and provide feedback on their language use. It can even adjust to the user's language level and offer personalized feedback based on their individual requirements (Castillo *et al*., 2021; Qadir, 2022).

Incorporating AI technology in language education can offer personalized, effective, and engaging language instruction, particularly for special education teachers. This research investigates the viewpoints and experiences of EFL special education teachers who have utilized ChatGPT in their language instruction, providing valuable insights into the potential of AI technology to support language learning for special education students (Chen *et al*., 2022).

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Although AI's potential to improve learning outcomes and provide personalized instruction in language education has attracted significant attention, there is inadequate research examining the effectiveness of AI tools like ChatGPT in supporting EFL special education teachers. This research aims to fill this gap by studying the impact of ChatGPT on the language instruction given by EFL special education teachers and offering insights into the advantages and difficulties of using AI tools in language education (Adiguzel *et al.*, 2023; Ouyang *et al.*, 2022; Perkins, 2023).

The outcomes of this research can aid in the creation of efficient AI-supported language learning methods and suggest ways to incorporate AI tools in language instruction for special education. The importance of this study stems from its ability to propel the field of AI-assisted language learning forward and furnish useful insights for EFL special education teachers and their pupils based on the first-hand experiences of EFL special education teachers utilizing ChatGPT.

Research Questions

By addressing these questions, the study aims to gain insights into teachers' perspectives on integrating ChatGPT into special education language instruction.

> **R.Q.1:** What are EFL special education teachers' attitudes towards using ChatGPT in their language instruction?
>
> **R.Q.2:** What are the pros and cons of using ChatGPT in special education language learning?
>
> **R.Q.3:** To what extent do EFL special education teachers see the future of ChatGPT in the learning process for their students?
>
> **R.Q.4:** Are there gender differences in the attitudes of EFL special education teachers towards using ChatGPT for language learning?

1.1. Literature review

Recently, there has been an increasing interest in using AI in special education to provide novel means of supporting the learning requirements of students with disabilities. As per Babitha and Sushma (2022) study, AI tools hold the potential to empower teachers and students by offering personalized, adaptable, and inclusive learning experiences. Chen *et al.* (2022) state that the utilization of AI in special education can offer customized learning experiences by modifying educational resources to cater to the specific demands of individual learners, resulting in academic achievement. This technique is especially useful for students with disabilities who encounter learning difficulties. Additionally, AI tools can boost student engagement and motivation by providing an interactive and stimulating learning environment (Alcorn *et al.*, 2019). This aspect is particularly crucial for students with disabilities who may find it challenging to comprehend traditional classroom instruction.

Despite these potential benefits, several challenges are associated with using AI in special education. One challenge is the need for adequate training and support for teachers (Al-khresheh *et al.*, 2022). As noted by Losen and Welner (2001), teachers need to be trained to effectively integrate AI tools into their teaching practices, and ongoing support and professional development are necessary to ensure successful implementation. Another challenge is ensuring the ethical and AI tools' ethical and responsible use successful

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implementation. As noted by Dignum (2018), it is important to ensure that the use of AI in special education is guided by ethical principles and that student data is protected and used appropriately.

AI has revolutionized education by providing powerful tools to enhance student learning, particularly in language acquisition. AI-assisted language learning can benefit all students, including those with special needs, by offering personalized instruction and engaging tools that boost confidence and motivation. This essay will explore the advantages and challenges of AI-assisted language learning for special needs students. Personalized instruction is a major advantage of AI, as it uses analytics to adapt the curriculum to meet individual learning needs. This feature is especially helpful for students with special needs, who can benefit from real-time feedback, scaffolding, hints, and customized difficulty levels based on their performance (Adiguzel *et al.*, 2023; Cheah, 2021; Muñoz *et al.*, 2023; Ouyang *et al.*, 2022).

In addition to personalization, AI-powered language learning tools such as games, chatbots, and virtual tutors can make language learning highly engaging and motivating, which can contribute to students' confidence and self-esteem (Choi, & Yi, 2016). Furthermore, Adiguzel *et al.* (2023) emphasize that immediate feedback from AI can help students with special needs stay on task and motivated.

Despite the benefits, AI-assisted language learning also presents challenges for students with special needs. One such challenge is the risk of over-reliance on technology. Students may become too dependent on AI, which can hinder their ability to communicate effectively in real-world situations. Moreover, the use of AI in language learning requires significant investment in terms of time and resources, which may not always be feasible for schools and teachers. Another challenge is the need for ongoing teacher training and professional development. Teachers need to be familiar with the latest AI technologies and understand how to integrate them effectively into their teaching practices. Without adequate training, teachers may struggle to make the most of AI-powered language learning tools (Adiguzel *et al.*, 2023; Awada, 2022; Pokrivčáková, 2019; Shaaban, & Mohamed, 2023).

AI-powered educational technologies can provide personalized learning and instant feedback to students with disabilities, which can be particularly helpful for those who require more assistance. These technologies can also adapt to individual student needs, adjusting the content and format of learning materials to meet their requirements. However, challenges such as accessibility, cost, and potential biases in AI algorithms need to be addressed. Additionally, there is a risk that AI may replace human support, which is crucial for students with disabilities (Nazaretsky, *et al*; 2022; Pedró *et al.*, 2019).

Teacher perspectives are crucial when considering AI's use in special education as it can impact its effectiveness. While some teachers have concerns about its impact on student-teacher relationships and job loss, many acknowledge AI's potential advantages for providing personalized learning and assistance to students with disabilities. However, limited understanding of its effectiveness, data privacy and security concerns, and the need for further research hinder AI adoption in special education classrooms. AI can transform special education with personalized learning experiences and improved student engagement, but its implementation must be approached carefully by addressing challenges and understanding teacher perspectives (Bingimlas, 2009; Edwards, & Cheok, 2018).

AI-powered educational technologies offer great potential for transforming special education classrooms through personalized learning experiences and increased student engagement. However, challenges such as

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limited knowledge of their effectiveness, cost, and data privacy and security concerns hinder their widespread adoption. Despite these challenges, many special education teachers remain optimistic about the potential of AI to transform education for students with disabilities. Nonetheless, further research is needed to establish the effectiveness of AI-powered educational technologies in special education classrooms, and steps must be taken to ensure data privacy and security before their widespread adoption (Paju *et al.*, 2016; Xie *et al.*, 2019).

Alcorn *et al.* (2019) investigated how humanoid robots could be used as a learning tool for individuals on the autism spectrum by examining the views of 31 autism education staff members in England. The study identified four main themes: "Engagingness, Predictability and Consistency, Roles in autism education, and the Need for Interaction with People, not Robots." Educators were open to integrating robots into the classroom but expressed concerns about drawbacks, such as limiting interaction with others and activities. The study provides recommendations on how robots can cater to the needs of autistic learners while highlighting areas that require attention for successful integration into special education settings.

AI has the potential to revolutionize special education, making learning more equitable and accessible. It can offer personalized learning plans and accessible materials, providing customized education for students with disabilities. AI can assist in assessment and evaluation by adapting question difficulty and creating accessible formats. It also supports teachers in lesson planning, content creation, and grading, enabling individualized instruction. AI promotes inclusivity through personalized learning, accessible materials, and alternative assessments. While opinions on AI among teachers vary, many recognize its benefits and are open to using it. However, the ethical and practical implications of AI in special education need careful consideration as the technology advances (Alam, 2021; Florian, & Linklater, 2010; Tomczyk *et al.*, 2023; Yang *et al.*, 2021).

2. MATERIAL AND METHOD

The methodology employed in this study is a mixed-methods approach that combines the use of a questionnaire and interviews. This approach allows for a comprehensive exploration of the research topic by gathering both quantitative and qualitative data (Johnson, & Turner, 2003). The questionnaire provides structured data, allowing for statistical analysis and the identification of trends and patterns, while the interviews delve deeper into the experiences, perspectives, and insights of the participants. By integrating these two methods, the study aims to achieve a more holistic understanding of the research topic, ensuring a robust and comprehensive analysis of the data.

2.1. Participants

The study included 199 EFL special education teachers selected through purposive sampling. They had a minimum of three years of teaching experience in a special education setting and were currently using ChatGPT for language instruction. Among them, 115 were females and 84 were males. The participants were recruited through professional networks, social media, and language education organizations, and worked in various settings and geographic locations. Additionally, email interviews were conducted with 5 teachers selected based on their questionnaire responses and willingness to participate, providing further insight into the data. These email interview participants also worked in diverse educational settings and geographic locations.

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TABLE 1. EFL Special Education Teachers' Demographic and Professional Characteristics.

	AGE	GENDER	YEARS OF EXPERIENCE	TYPE OF SPECIAL EDUCATION TAUGHT
Teacher 1	35	Female	8	Learning Disabilities
Teacher 2	42	Male	15	Intellectual Disabilities
Teacher 3	28	Female	3	ADHD and Emotional/Behavioral
Teacher 4	50	Male	20	Autism and Communication
Teacher 5	31	Female	5	Hearing and Visual Impairment

Table 1 presents demographic information of five EFL special education teachers. It includes their age, gender, teaching experience, teaching level, and the type of special education students they work with (e.g., speech/language impairments, learning disabilities, emotional/behavioral disorders). The table provides a snapshot of the participants' background and experience. They were part of a study investigating their attitudes towards using ChatGPT as a language learning tool for EFL special education students in Saudi Arabia.

2.2. Instruments

The methodology for this study involved using an online questionnaire and email interviews to collect data from EFL special education teachers who had experience using ChatGPT in their language instruction. A group of 199 EFL special education teachers (115 female and 84 male) received an online questionnaire comprising 21 Likert-type statements classified into three main categories, as mentioned previously. The questionnaire aimed to assess attitudes, effectiveness, barriers, and future implications of using ChatGPT. The questionnaire was administered through Google Forms, ensuring anonymity, and providing the option for participants to withdraw from the study at any point.

A literature review, expert panel approval, and pilot testing among special education teachers ensured the questionnaire's credibility. Cronbach's alpha coefficient was used to determine internal consistency and reliability, with values between 0.735 to 0.867 indicating strong reliability. The questionnaire was found to be a valid and reliable tool for evaluating EFL special education teachers' perceptions of integrating ChatGPT in their classrooms.

Table 2 presents the correlation coefficients between the items within each dimension and the total score of each dimension with the overall score of the scale. The significance level of 0.01 indicates that the scale has acceptable internal consistency.

The scale items were presented to a group of 9 judges, including professors in educational technology, curricula, and EFL teaching methods. The judges agreed that certain items needed to be removed from the scale.

Moreover, the value of Cronbach's alpha coefficient for each dimension of the scale can be determined through the calculation of scale stability using Cronbach's alpha. This information can be found in the following table 2.

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TABLE 2. Correlation Analysis of Item Score, Dimension, and Total Score.

QUESTIONNAIRE'S DIMENSIONS					
Attitudes Towards Using ChatGPT in Language Learning		Effectiveness and Barriers of ChatGPT		Future Use of ChatGPT	
Item No	Correlation coefficient	Item No	Correlation coefficient	Item No	Correlation coefficient
1	.552**	11	.554**	18	.837**
2	.593**	12	.544**	19	.735**
3	.752**	13	.536**	20	.940**
4	.796**	14	.760**	21	.537**
5	.589**	15	.696**		
6	.772**	16	.851**		
7	.678**	17	.713**		
8	.834**				
9	.871**				
10	.756**				
Dimension correlation with the total score .713**		Dimension correlation with the total score .597**		Dimension correlation with the total score .718**	

**. significant at the 0.01 level.

Table 3 shows that the values of the stability coefficient are between (0.735, 0.867), which are high values and statistically significant.

TABLE 3. The values of the stability coefficient for each dimension of the scale.

DIMENSIONS	NUMBER OF ITEMS	CRONBACH'S ALPHA
Attitudes Towards Using ChatGPT in Language Learning	10	0.867
Effectiveness and Barriers of ChatGPT	7	0.735
Future Use of ChatGPT	4	0.789

Additionally, the split-half reliability was evaluated by dividing each sub-dimension into odd and even items and calculating the correlation coefficients between the two halves using the Spearman-Brown-Guttmann equation. The results are reported in Table 4.

TABLE 4. The values of the stability coefficient for each dimension of the scale.

DIMENSIONS	NUMBER OF ITEMS	SPEARMAN-BROWN	GUTTMAN SPLIT-HALF
Attitudes Towards Using ChatGPT in Language Learning	10	0834	0.743
Effectiveness and Barriers of ChatGPT	7	0.696	0.681
Future Use of ChatGPT	4	0.712	0.794

Additionally, Test-Retest was used to calculate the reliability coefficient of the scale. The value of the reliability coefficient for the test-retest method was (0.752), indicating that the scale has an acceptable level of stability using the test-retest method, and is suitable for the application.

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After the questionnaire data is collected, email interviews will be conducted with 5 EFL special education teachers to supplement the quantitative data. The email interview questions will be based on the questionnaire categories and additional questions that can further strengthen the study, as described earlier.

The interviews in this study followed a semi-structured approach, aiming to provide additional insights into the experiences and perspectives of EFL special education teachers regarding the use of ChatGPT in language instruction. The interview questions were carefully designed to complement the questionnaire results and address specific aspects related to ChatGPT use.

The questions were derived from the questionnaire findings and aimed to explore various topics. The focus was on effective strategies for utilizing ChatGPT, assessing its effectiveness, challenges encountered during implementation, potential solutions, promoting inclusive use, and any necessary modifications to teaching approaches.

The study incorporates interview data to enhance the understanding of EFL special education teachers' attitudes and experiences with ChatGPT. Integrating interview results with the questionnaire findings provides a comprehensive view of the topic, reinforcing the study's conclusions. Thematic analysis is used to analyze the interview data, identifying key themes and patterns in the teachers' responses. The interview findings are then linked to the previously formulated research questions, providing further support for the study's conclusions.

2.3. Procedures

This study uses a mixed methods approach to investigate EFL special education teachers' perspectives on using AI in language instruction. Participants will be recruited through various channels and will complete an online questionnaire with both Likert-scale and open-ended questions. Those who agree to participate in a follow-up email interview will be contacted to schedule a time for the interview. The study aims to gain insights into the teachers' experiences and perspectives on using AI in special education classrooms.

2.4. Data collection

Data was collected from 199 EFL special education teachers who used ChatGPT in language instruction through an online survey consisting of 21 Likert-type statements divided into three categories: attitudes, effectiveness, and barriers. The sample included 115 females and 84 males and was recruited through professional networks, social media, and language education organizations. The questionnaire was reviewed for content validity by experts and pilot-tested with a small group of special education teachers. Email interviews were also conducted with five participants for more detailed insights.

2.5. Data Analysis

The study analyzes data collected from an online questionnaire and email interviews using descriptive and inferential statistics, as well as qualitative analysis. Descriptive statistics summarize the responses to Likert scale items and open-ended questions, while inferential statistics, such as t-tests, examine relationships

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between variables such as participant demographics and questionnaire responses. Qualitative data are analyzed using thematic analysis, identifying patterns, themes, and categories through a developed coding scheme. Statistical software, such as SPSS, is used for analysis. Results are presented using tables, charts, and narrative summaries in the context of the literature and research questions. Findings have implications for practice and future research.

3. RESULTS

In this section, the findings of the study will be discussed. The results of both the questionnaire and the email interviews will be presented, followed by a comprehensive analysis of the data. Additionally, the report will include a detailed discussion of the implications of the study for language education practice and research, based on the results obtained.

3.1. Questionnaire

Attitudes Towards Using ChatGPT in Language Learning

To answer the related study question, standard deviations, means, and the order of each item were calculated as follows:

TABLE 5. The means, medians, modes, and standard deviations for the field of "Attitudes towards Using ChatGPT in Language Learning" domain.

	ITEMS	MEAN	MEDIAN	MODE	STD. DEVATION	ORDER	LEVEL
5	I have used ChatGPT to facilitate communication between myself and my students.	3.693	4	5	1.341	1	High
8	I think that technology will eventually replace traditional language teaching methods.	3.673	4	5	1.381	2	High
1	I am familiar with ChatGPT and its capabilities.	3.593	4	5	1.330	3	High
9	I would like to receive some basic training on how to use ChatGPT effectively.	3.583	4	5	1.397	4	High
2	I have used ChatGPT before in my language instruction.	3.573	4	5	1.419	5	High
3	I have used ChatGPT to generate personalized learning materials for my students.	3.543	4	5	1.410	6	High
6	I believe that ChatGPT can enhance language learning.	3.513	4	5	1.470	7	High
10	I would like ongoing support to help me use ChatGPT to its full potential	3.508	4	4	1.414	8	High
7	I am comfortable using ChatGPT in my language instruction.	3.437	4	4	1.482	9	High
4	I have used ChatGPT to assess my students' language proficiency.	3.221	4	4	1.586	10	Moderate
TOTAL DEGREE		**3.534**	**3.8**	**4**	**.741**		**High**

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Table 5 indicates a strong inclination towards utilizing ChatGPT for language learning, with the mode value of 5 surpassing both the median value of 4 and the mean value of 3.534. Participants expressed favorable attitudes towards ChatGPT, with mean scores ranging from 3.221 to 3.693.

Notably, out of the ten statements, nine received a "high" level interpretation, signifying positive attitudes towards using ChatGPT in language learning. Participants exhibited positive attitudes towards ChatGPT, as reflected by the highest mean scores for using it to facilitate communication (Item 5) and the belief in technology replacing traditional teaching methods (Item 8). They also demonstrated familiarity with ChatGPT (Item 1) and expressed a desire for training on how to use it effectively (Item 9).

However, some statements indicated a lower level of agreement. For instance, there was a need for ongoing support (Item 10), and participants expressed a lower comfort level in using ChatGPT (Item 7). The standard deviation values ranged from 1.341 to 1.586, indicating some degree of variability in the responses.

The pros and cons of using ChatGPT in special education language learning

To answer the related study question, standard deviations, means, and the ranking of each item is calculated as follows:

**TABLE 6. The means, medians, modes, and standard deviation
for the (Effectiveness and Barriers of ChatGPT) domain.**

NO.	ITEMS	MEAN	MEDIAN	MODE	STD. DEVATION	ORDER	LEVEL
12	I am confident that ChatGPT can significantly improve language learning outcomes for my students.	3.528	4	5	1.459	1	High
11	I believe that ChatGPT is a highly effective tool for language instruction.	3.477	4	5	1.483	2	High
13	My students have provided positive feedback on their experience using ChatGPT.	3.437	4	5	1.499	3	High
15	I am worried that ChatGPT will not be suitable for my students' needs.	2.779	4	3	1.541	4	Moderate
14	I am concerned that using ChatGPT will be too time-consuming.	2.673	4	3	1.490	5	Moderate
16	I am unsure how to effectively integrate ChatGPT into my language instruction.	2.417	4	3	1.401	6	Moderate
17	I cannot access the technology or resources needed to use ChatGPT.	2.322	4	2	1.355	7	Low
TOTAL DEGREE		2.948	3.7	3	0.554		Moderate

The presented table 6 indicates that the mode value is 3, which is equal to the median value of 3 and is nearly identical to the mean value of 2.948. This implies that there are moderate inclinations towards both the effectiveness and obstacles of utilizing ChatGPT in language instruction. The participants' perceptions regarding the efficacy and barriers of using ChatGPT in language instruction are revealed in Table 6. The mean scores range from 2.322 to 3.528, with the highest-rated item being "I am confident that ChatGPT can

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significantly improve language learning outcomes for my students" (Item 12), and the lowest-rated item being "I cannot access the technology or resources needed to use ChatGPT" (Item 17).

The median and mode values indicate central tendencies and frequently selected responses. Most items have a median score of 4, suggesting general agreement or a neutral position. Moreover, the mode values are primarily 3, 4, or 5, indicating various levels of agreement or disagreement among participants. The standard deviation values range from 1.355 to 1.541, implying variability in participants' responses to the items.

The findings indicate mixed attitudes and concerns regarding the effectiveness and barriers of using ChatGPT in language instruction. While there is a certain level of confidence and belief in ChatGPT's effectiveness, concerns related to suitability, time consumption, integration, and accessibility are also present. The total degree, with a mean of 2.948, suggests a moderate overall interpretation of the effectiveness and barriers of ChatGPT.

Future Use of ChatGPT

To answer the related research question, standard deviations, means, and the ranking of each item is calculated as follows:

TABLE 7. The means, medians, modes, and standard deviations for the field of (Future Use of ChatGPT).

NO.	ITEMS	MEAN	MEDIAN	MODE	STD. DEVATION	ORDER	LEVEL
18	I plan on using ChatGPT extensively in my future language instruction.	3.578	4.0	5.0	1.436	1	High
20	ChatGPT's future capabilities can meet the individual learning needs of my EFL special education students.	3.467	4.0	5.0	1.483	2	High
19	I will continue to use ChatGPT in my future language instruction.	3.402	4.0	5.0	1.517	3	High
21	I plan to provide training to my special education students on how to use ChatGPT effectively.	3.332	4.0	4.0	1.586	4	Moderate
TOTAL DEGREE		**3.444**	**4.0**	**4.0**	**0.952**		**High**

Table 7 showcases strong inclinations towards the future of ChatGPT in language learning, as evidenced by the mode value of 5, which surpasses both the median value of 4 and the mean value of 3.444.

Moreover, the mean scores of the items related to future use of ChatGPT range from 3.332 to 3.578, indicating positive attitudes towards incorporating ChatGPT in future language instruction. The highest-rated item is "I plan on using ChatGPT extensively in my future language instruction" (Item 18), while the lowest-rated item is "I plan to provide training to my special education students on how to use ChatGPT effectively" (Item 21).

Additionally, the median and mode scores for all items are 4.0, suggesting a high level of agreement or positive attitudes towards future use of ChatGPT. However, the standard deviation values range from 1.436 to 1.586, hinting at some variability in participants' responses.

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Gender differences in attitudes towards ChatGPT in EFL special education teaching

To investigate the relationship between the levels of attitudes of special education teachers in English as a foreign language towards the use of ChatGPT for language learning by gender, the Mann-Whitney test was applied to calculate the value of (Z) in order to calculate the significance of the differences between the mean rank of the two groups (males and females) as follows:

TABLE 8. Mann-Whitney tests for gender-based differences in the attitudes towards using ChatGPT.

ITEM	GENDER	N	MEAN RANK	SUM OF RANK	Z	Sig.**
Attitudes towards Using ChatGPT	Male	84	95.28	8003.50	0.989	0.323
	Female	115	103.45	11896.50		
Effectiveness and Barriers of ChatGPT	Male	84	92.96	7808.50	1.478	0.139
	Female	115	105.14	12091.50		
Future Use of ChatGPT	Male	84	82.55	6934.00	3.678	0.000**
	Female	115	112.75	12966.00		

**. The difference is significant at the 0.01 level.

The study revealed no significant gender differences in the attitudes of EFL special education teachers towards using ChatGPT for language learning (Z=0.989, p=0.323; Z=1.478, p=0.139). Both male and female teachers displayed similar attitudes and perceptions regarding the effectiveness and barriers of ChatGPT. This suggests that gender does not significantly impact their views on using ChatGPT. However, there was a significant difference in the dimension of Future Use of ChatGPT (Z=3.678, p=0.000), with female teachers expressing a greater willingness to use it in the future compared to male teachers.

3.2. Interview

The interview section gathers insights from EFL special education teachers on integrating ChatGPT into language instruction for special education students. Their responses emphasize scaffolding, individualization, collaboration, and support for inclusive practices. Using a qualitative approach, the interviews offer valuable perspectives on ChatGPT integration in special education language learning, connecting the findings to the research questions. The teachers' insights contribute to understanding the benefits, limitations, and training needs of using ChatGPT for language instruction in special education, addressing the fifth research question.

1. What do you consider to be the most effective strategies for integrating ChatGPT into language instruction for special education students?

The EFL special education teachers provided varied responses when asked about effective strategies for integrating ChatGPT into language instruction for special education students. Teacher 1 suggested providing scaffolding and differentiating tasks to meet students' needs. Teacher 2 discussed the benefits of individualized instruction, while Teacher 3 recommended modeling and guiding students in their use of ChatGPT. Teachers 4 and 5 emphasized that integrating ChatGPT into collaborative learning activities benefits EFL special education students. ChatGPT in a collaborative setting allows students to engage in peer-to-peer interactions, enhancing their language learning experiences and providing social and emotional growth.

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Working in groups builds a sense of community among special education students, fostering a supportive and inclusive learning environment. ChatGPT in collaborative activities encourages students to understand the language and provide feedback to one another, boosting their confidence and motivation. This approach promotes active learning, allowing students to engage with the material more deeply and develop a better understanding of it. It also develops important social and communication skills, essential for success in academic and personal settings.

2. How do you assess the effectiveness of ChatGPT in enhancing language learning outcomes for special education students?

Teachers have varying perspectives on the effectiveness of integrating ChatGPT into language learning for special education students. Teacher 1 sees ChatGPT as a helpful supplement to classroom instruction but should not replace one-on-one instruction and individualized support. However, Teacher 1 suggests that ChatGPT may not be suitable for students with specific learning challenges and may not offer the same level of cultural context as a human teacher. Teacher 2 believes that the effectiveness of ChatGPT depends on how it is integrated into the classroom, and it is essential to set clear goals, provide support and resources, and assess its impact on language learning outcomes regularly. According to Teacher 3, ChatGPT can provide personalized learning experiences for special education students, but it should be used in conjunction with other teaching methods. Teacher 4 emphasizes that the quality and relevance of the content determine the effectiveness of ChatGPT in improving language skills. Finally, Teacher 5 highlights the importance of using a variety of teaching methods and regularly assessing the effectiveness of ChatGPT to ensure that it meets the students' needs.

3. What challenges have you encountered when integrating ChatGPT into language instruction for special education students, and how did you overcome them?

Integrating ChatGPT into language instruction for special education students poses challenges for EFL teachers. Teacher 1 addresses this by providing ChatGPT with appropriate vocabulary and structures, aligning language generated with learning goals. Teacher 2 works with a speech therapist to ensure ChatGPT accurately understands and responds to speech patterns. Teacher 3 incorporates ChatGPT into small-group instruction and provides individualized support. Teacher 4 uses ChatGPT in a variety of activities and ensures opportunities for peer interaction and teacher-led instruction. Despite challenges, EFL teachers have found ways to provide effective language instruction using ChatGPT.

ChatGPT can be a valuable tool for language instruction, but it may not be able to provide the same level of emotional support and nonverbal cues that a human teacher can offer. According to Teacher 5, the lack of emotional connection and support may be a significant barrier to learning for some special education students. Additionally, Teacher 5 notes that the use of ChatGPT may limit opportunities for students to practice their speaking and listening skills, which are critical for language proficiency.

4. How do you ensure that ChatGPT is used in an inclusive way that meets the diverse needs of special education students in your classroom?

These teachers prioritize inclusive integration of ChatGPT into language learning for special education students, using different strategies. Teacher 1 ensures accessibility for all learners with diverse needs. Teacher 2

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emphasizes ongoing training and support. Teacher 3 collaborates with colleagues and evaluates effectiveness. Teacher 4 supplements ChatGPT with other strategies, considering student interests. Teacher 5 incorporates student feedback and cultural and linguistic diversity. All teachers recognize ChatGPT's importance in effective and accessible language learning for special education students, regularly evaluating its impact.

5. In what ways have you modified your teaching approach when using ChatGPT to better support special education students' language learning?

Teacher 1 mentioned that she modified her teaching approach when using ChatGPT to better support special education students' language learning by breaking down the language into smaller, more manageable parts. This helped students to better understand the language and use ChatGPT to improve their language skills. Additionally, according to Teacher 2, "I scaffold the use of ChatGPT by first modeling its use and gradually releasing responsibility to students. This approach helps students to develop the skills needed to use ChatGPT independently.". Teacher 3 also stated that she provides ample opportunities for practice and reinforcement using ChatGPT, which helps students to internalize and apply what they have learned. Furthermore, Teacher 4 mentioned that she focuses on building students' confidence in using ChatGPT by providing positive feedback and celebrating their successes. Lastly, Teacher 5 emphasized the importance of regularly assessing student progress and adjusting her teaching approach as needed to ensure that students are making meaningful gains in their language learning. By modifying their teaching approaches, these teachers have been able to effectively incorporate ChatGPT into their language instruction and support their student's language learning needs. ChatGPT can play a significant role in language instruction, improving language skills, particularly in areas such as vocabulary and grammar. According to Teacher 3, ChatGPT offers an engaging and interactive learning experience that adapts to the student's individual needs. Similarly, Teacher 4 notes that ChatGPT provides personalized feedback and adapts to the student's learning style, pace, and needs. However, Teacher 1 notes that the use of ChatGPT may reinforce certain biases and stereotypes that exist in language and culture.

4. DISCUSSION

The findings of this study directly address the first research question, demonstrating that ChatGPT holds significant implications for language learning. The participants' positive attitudes provide compelling justifications for the potential value of ChatGPT in facilitating communication, enhancing language learning outcomes, and even potentially replacing traditional teaching methods. These results align with previous research highlighting the effectiveness and benefits of employing artificial intelligence and natural language processing technologies in language education (Artiles *et al.*, 2021; Mohamed, 2023). Thus, the study's findings strongly support the notion that ChatGPT can be a valuable tool in language instruction, fulfilling its intended purpose.

The high mean scores for statements related to communication facilitation and technology replacing traditional teaching methods indicate educators' recognition of ChatGPT's potential. The participants' familiarity with ChatGPT and desire for training highlight the importance of teacher support and professional development in utilizing ChatGPT effectively. However, some statements received lower levels of agreement,

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emphasizing the need for ongoing support and addressing user concerns. These findings resonate with previous research on the importance of support and addressing challenges in technology integration.

Regarding the second research question, the study findings indicate a range of attitudes and concerns surrounding the effectiveness and barriers of utilizing ChatGPT in language instruction. While there is a certain level of confidence in its effectiveness, the presence of concerns related to suitability, time consumption, integration, and accessibility suggests a more nuanced perspective. The moderate overall interpretation of the results signifies a balanced assessment of the potential benefits and challenges associated with ChatGPT. To address these concerns, future research should delve deeper into specific barriers and explore strategies to mitigate them, ultimately informing the development of guidelines and support systems. By addressing these concerns, the study highlights the potential for improving language learning outcomes and fostering acceptance of AI-based language learning technology. This aligns with previous research by Adiguzel *et al*. (2023) and Mohamed (2023), further emphasizing the significance of addressing these concerns for the successful integration of ChatGPT in language instruction.

Regarding the third research question, the findings reveal positive attitudes towards the future use of ChatGPT in language instruction, particularly for EFL special education students. Participants express intentions to use ChatGPT extensively, believe in its future capabilities to meet individual learning needs and plan to continue incorporating it into their instruction. These results indicate a high level of enthusiasm and optimism for utilizing ChatGPT in the future.

The significance of these findings lies in their potential implications for the integration of ChatGPT in EFL special education language instruction in Saudi Arabia. The moderate level of willingness to use ChatGPT for language learning suggests that this tool may be a viable option for supporting language instruction in the special education context. However, the variability in agreement levels among the different items indicates the need to carefully consider the specific applications of ChatGPT in language learning and tailor them to the needs and preferences of the learners (Florian, & Linklater, 2010; Mohamed, 2023; Qasem *et al*., 2023).

The results of the study on the fourth research question showed no significant gender differences in EFL special education teachers' attitudes toward ChatGPT, its effectiveness, and barriers, consistent with previous studies (Florian, & Linklater, 2010; Mohamed, 2023; Qasem *et al*., 2023). However, female teachers expressed a higher inclination to incorporate ChatGPT into their language instruction, highlighting the importance of promoting gender equality in technology adoption and ensuring equal access for all teachers. The study's results underscore the need to consider gender differences in teachers' attitudes towards technology and call for further research to explore the underlying factors influencing these differences and strategies that enhance technology integration while fostering inclusivity (Tomczyk *et al*., 2023).

EFL special education teachers shared valuable insights on using ChatGPT in language teaching, including strategies, effectiveness, challenges, and inclusivity. Effective strategies identified by the teachers include scaffolding, differentiation, individualized instruction, modeling, guidance, and collaboration, which were found to facilitate language learning outcomes. Teachers suggested using ChatGPT to provide personalized and adaptive learning experiences, peer-to-peer interactions, and promote social and emotional growth, aligning with research on collaborative learning's effectiveness for special education students (Mohamed, 2023; Qasem *et al*., 2023).

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The effectiveness of ChatGPT in enhancing language learning outcomes was found to depend on several factors, including integration, content quality, and student engagement, consistent with previous research (Bingimlas, 2009; Edwards, & Cheok, 2018; Şimşek, & Ateş, 2022). Technology can supplement traditional teaching methods but should not replace one-on-one instruction and individualized support. However, teachers also identified challenges with ChatGPT use, such as appropriate language levels, speech pattern recognition, providing additional support, and avoiding overreliance on technology. While technology integration in special education can aid learning and offer access to materials, concerns about reduced social and emotional interaction and the need for appropriate support and guidance have been raised (Cagiltay *et al.*, 2019; Cheng, & Lai, 2020).

To ensure inclusive use of ChatGPT in special education language learning, teachers suggested ongoing training and support, varied instructional approaches, collaboration, and regular evaluation. These strategies align with previous research emphasizing inclusive and effective technology integration in classrooms, regardless of learning styles and abilities, through continuous training and support (Alcorn *et al.*, 2019; García Aguilera, & Aguilar Cuenca, 2022; Hopcan *et al.*, 2022; Paju *et al.*, 2016). Addtionally, the importance of thoughtful integration and evaluation of ChatGPT in special education language instruction is highlighted by teachers' responses and supported by previous studies (Cheng, & Lai, 2020; Miranda *et al.*, 2019; Pedró *et al.*, 2019), emphasizing the need to consider special education students' unique needs in incorporating educational technologies.

The interview findings provided valuable insights into the use of ChatGPT in special education classrooms, and identified successful practices and strategies that can be shared with other teachers. The interviews also helped to understand how teachers evaluate the impact of ChatGPT on their students' learning, and how they adapt their practices to enhance learning outcomes. Finally, the interviews highlighted the need for effective support mechanisms for special education teachers using ChatGPT in their classrooms.

In conclusion, the study has addressed various research questions on the advantages and drawbacks of AI-powered educational technologies for students with disabilities, including their effectiveness, challenges, and the potential of ChatGPT. The findings offer valuable insights into the potential benefits and challenges of integrating AI-powered educational technologies in special education, promoting the development of more equitable and inclusive learning environments.

5. CONCLUSIONS

This study provides insights into EFL special education teachers' attitudes toward using ChatGPT for language learning in Saudi Arabia. The participants had moderate attitudes and perceived ChatGPT as moderately effective, with moderate barriers to its use. Female teachers demonstrated a greater willingness to use it. The results have important implications for ChatGPT's implementation and development as a language learning tool for EFL special education students. Educators need training in using AI effectively, and policymakers and education leaders must invest in AI technologies and resources. The study contributes to the growing literature on AI in special education, with significant implications for teaching approaches and AI technology design for students with disabilities.

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5.1. Limitations and recommendations

While this study provided valuable insights from EFL special education teachers on ChatGPT, it has limitations. The small sample size may restrict generalizability. Future research should include a larger, diverse participant group. Additionally, perspectives of students and families were not considered, limiting understanding of ChatGPT's impact. The study focused on English language instruction and may not apply to other languages.

To effectively implement ChatGPT in EFL special education, teachers need adequate training and support. Ethical concerns, such as data privacy, must be addressed, and adherence to ethical and legal standards is important. Further research is needed to assess long-term effects on language learning outcomes and support for students with diverse disabilities. More studies should explore ChatGPT's potential in different educational contexts and for diverse populations. Addressing these limitations and recommendations will optimize ChatGPT's implementation in EFL special education instruction.

5.2. Pedagogical Implications

The investigation's outcomes have important implications for AI use in special education settings. Firstly, special education instructors hold a favorable view of AI integration in language teaching, particularly for enhancing student engagement and motivation. Policymakers and educators can explore AI tool integration to create a dynamic and engaging learning environment for special needs students. Secondly, professional development opportunities are crucial for teachers to effectively use AI technologies. Training sessions can provide skills to select appropriate AI tools, design lesson plans, and assess outcomes. Thirdly, special education teachers need support in their use of AI technologies, such as technical support, online resources, and peer networks. In general, AI integration in special education settings can improve language instruction and cater to specific learning requirements. However, this requires careful analysis of educational consequences and suitable support systems to enable successful AI integration.

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