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The role of ChatGPT technologies in enhancing the educational performance of teachers in secondary schools in Saudi Arabia

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ABSTRACT

Purpose: This study aims to determine the attitude of secondary school teachers within Al-Ahsa Region, Eastern Province, Saudi Arabia toward integrating ChatGPT into secondary school teaching. Design/Methodology/Approach: The study employed systematic survey techniques in addition to face-to-face interviews. The questionnaire on the secondary school teachers' perceptions of ChatGPT used in this study was adapted from an existing online survey developed by the author. 395 teachers were recruited through stratified random sampling across all the local government areas in the state. After the quantitative phase, 79 teachers who used ChatGPT were interviewed in-depth to understand their experience. Findings: The outcomes reveal a low awareness level of ChatGPT with few respondents claiming to be familiar with the technology only 20%. Specific positive impressions regarding the potential of the tool in enhancing the delivery of teaching and learning of science subjects are moderate. Technical issues such as integration, curriculum integration, and differentiation for individual learning styles present specific difficulties. Conclusion: These findings show the need for continued professional development for teachers to teach using ChatGPT. Practical Implications: The implications of the findings are useful for teachers, policymakers, and technology creators who seek to take learning to the next level using technology-blended instruction.

Contribution/Originality: A study investigates Al-Ahsa Region secondary school teachers' practices alongside their views about implementing ChatGPT in Saudi Arabian classrooms to develop regional and national education policies on AI-assisted teaching tools. The research stands as one of the first investigations of its kind in this specific area.

1. INTRODUCTION

According to a historical perspective, education is the facet of human life that enables a person to lay a sound foundation to face tasks in a complex world (Osakwe et al., 2023). This practice develops the thinker, the creative mind, problem- solving skills, and literacy levels and generates employment. In addition, education has relevance in determining the character and ethical principles of an individual as well as the overall individual and social development (Egara & Mosimege, 2024; Osakwe et al., 2023). Education helps to improve human qualities that have to do with the social, emotional as well as intellectual realms (Upadhyay, 2022). They encourage skills that are so vital for one to succeed in life and at work, including communication and critical thinking skills (Kapur, 2024). Education enables people to think innovatively and boosts the economy resulting in the development of living

standards (Kapur, 2024; Sriatun, Sugiono, Kurniasih, & Hendrizal, 2024). Science subjects give an outline of the method of the phenomenon. Hence, it is important in decision-making (Rahminda & Umairoh, 2023). These vestiges educate individuals about different streams of academics and careers and develop a scientifically literate society (Sriatun, Sugiono, Kurniasih, & Hendrizal, 2024). Most people see education as a tool to transform their lives socially, economically and politically but only if everyone has equal access to it. That is why it is crucial to promote educational policies which will allow everyone to have an opportunity to become the viewers of the educational process and to reveal their potential (Mosimege & Egara, 2023; Okeke, Orga, Chinweike, & Egara, 2023).

Enhancing learning outcomes is not a single and simple process (Etcuban et al., 2019; Mosimege & Egara, 2023). This would comprise individual attention, positive teaching approaches, an environment conducive to learning and self-study and other resources that could support learning (Anshori, 2020). Technology is effectively used in this process which supports the individual learning process and takes care of students' peculiarities (Arthur, Dogbe, & Asiedu-Addo, 2022). Adaptive learning systems can present materials based on the results of the assessments made on students to enable the delivery of relevant materials to a learner (Jadhav & Patil, 2021). To promote the effectiveness of the learning performance, such objectives as the identification of the learning loss, the use of a variety of approaches, goal-setting, the relevance of the lesson, the stimulation of the activity, coaching, constructive feedback, behavioral learning, critical thinking, formative assessment, growth promotion, additional material, positive learning environment, realistic expectations, technology utilization, progress-centered differentiation, and self-reflection (Arthur et al., 2022; Awudi & Danso, 2023; Khadjieva & Khadjikhanova, 2019). Cognitive strategies like practical testing and distributed practice have been shown to improve students' learning in various domains (Dunlosky, Rawson, Marsh, Nathan, & Willingham, 2013). Through AI, a teacher understands studying skills which are best used and which learners may require specialized attention due to learning challenges (Bressane et al., 2024). These strategies help the teachers offer instructions to develop an endearing teaching and learning atmosphere in preparation and delivery of the teachings that facilitate learners to perform well in their educational achievements. These suggested interventions, teacher training and technology application for instruction are the subjects of this research.

Technology improves the academic process by offering ideas, materials and strategies in compliance with the regular curricula (Abedi, 2024; Darling-Hammond, Flook, Cook-Harvey, Barron, & Osher, 2020; Mhlongo, Mbatha, Ramatsetse, & Dlamini, 2023; Singh, Steele, & Singh, 2021). When employed properly, it can help learners to be ready for existence in a world with a lot of technology (Abedi, 2024). The infrastructure and the computing environment needed for deploying for AI to work using the advances in computing to assess information for return decisions and future forecasts (Ahmad et al., 2022; Mikalef & Gupta, 2021). These elements act in concert to perform the process of evolving intelligently posted systems for use in various sectors. Bringing this AI into classrooms and schools has become a common practice to improve both teaching and learning processes (Celik, Dindar, Muukkonen, & Järvelä, 2022; García-Martínez, Fernández-Batanero, Fernández-Cerero, & León, 2023; Sarker, 2022). Huge steps are being made more often to incorporate ChatGPT into schooling environments, creating novel tools for lesson planning, student interactions, and instruction. This AI tool enriches the educational process by offering help to each learner and embodying educative techniques in simple formats and media formats. The next few parts describe some features of the use of ChatGPT in learning. This paper focuses on showing how ChatGPT assists teachers in generating lesson plans and exercises that incorporate student differences, particularly in language acquisition (Stognieva, 2024). It aims to enable the creation of more content that is interesting and suited for different learning needs and preferences (Stognieva, 2024). Research by Wardat, Tashtoush, AlAli, and Jarrah (2023); Javaid, Haleem, Singh, Khan, and Khan (2023); Lo (2023) and Abdulla, Ismail, Fawzy, and Elhag (2024) shows that implementing ChatGPT in computer programming courses leads to a boost in the performance of the students as it is used as an additional resource. Data collected from students include opinion-based

confirmations of the use of ChatGPT in enhancing comprehension and interactions with the coursework (Abdulla et al., 2024). A study among teachers has revealed that ChatGPT means teachers can save time on creating tasks by ChatGPT hence helping eliminate the burden in classrooms and make teaching easier (Dhamija & Dhamija, 2025). Thus, the advantages of ChatGPT in education are numerous but questions that teachers must answer to enhance the use of this tool are critical issues that have yet to be solved, including the problem of academic integrity and the question about the reliability of the content (Wahit & Rossli, 2024).

ChatGPT is an innovative educational resource that helps teachers improve lesson plans and design interesting lessons. ChatGPT helps teachers to come up with lesson plans and activities targeted at the learners that enable individualized learning (Stognieva, 2024). AI helps students practice inquiry-based learning as it provides instantaneous feedback for students and this is essential in understanding or conceptual knowledge (Kotsis, 2024). There is a possibility to reduce the problem-solving skills that are needed in students learning too much dependency on ChatGPT (Oranga, Matere, & Ndaita, 2024). AI in assessments provides concerns concerning the integrity of students where requests for help during tests may be sought (Abdulla et al., 2024). Because questions over the credentials of AI-generated material may have implications for the quality of learning experiences (Wahit & Rossli, 2024).

1.1. Benefits of ChatGPT in the Educational Process

The advantages of using ChatGPT in the educational process include that the attendees and students can save time as ChatGPT can design creatives such as creating teams to share instant ideas (Dilmegani, 2023; Moore, 2023). It assists in generating tests, lesson plans and other time-consuming activities and freeing the teachers to teach (Kotsis, 2024; Oranga et al., 2024). Individual interaction is highly efficient for learning due to the AI's ability to provide feedback based on each learner's progress. This is helpful in subjects like physics and programming (Abdulla et al., 2024; Kotsis, 2024). It also offers unique and specific education procedures applicable to user preferences and learning abilities (Dilmegani, 2023). ChatGPT enhances learners' interactional learning, making it encourage critical thinking of students as well as supporting teamwork. It also has features involving grammar explanation, spoken word learning, and conversation instruction which assist language learning (Dilmegani, 2023; Kotsis, 2024; Oranga et al., 2024).

1.2. Challenges of ChatGPT in the Educational Process

This paper argues that employing ChatGPT during examinations creates issues of cheating and academic dishonesty (Abdulla et al., 2024; Oranga et al., 2024). These challenges include that the output given by a ChatGPT solution may not be accurate or sufficient because the responses of the solutions depend on the equation and input data (Wardat et al., 2023). It also has implications for the reliability of the information produced by AI for students, which is misleading at times (Oranga et al., 2024; Wahit & Rossli, 2024). Lack of critical thinking means they rely on AI and stand a high risk of developing a speech impediment (Anchapaxi-Díaz et al., 2024; Oranga et al., 2024). For this reason, we should consider the ethical issues associated with the integration of ChatGPT to offer advancements in education and learning while seeking to consolidate, modify or even advance educational practices. This makes certain that students can benefit from the help that AI offers while at the same time strengthening their problem-solving abilities in a proper progression environment (Egara & Mosimege, 2024).

1.3. Reviewed Studies

Research has been carried out with various subject disciplines concerning teachers' engagement experience with AI-based ChatGPT. The work that can be compared to the present study in terms of employed methodology was the qualitative work by Iqbal, Ahmed, and Azhar (2022) who used the technology acceptance model to investigate the university teachers' attitudes towards ChatGPT. This study includes the quantitative data collected

through semi-structured interviews with 20 teachers employed at a private university in Pakistan. Teachers' experience from these interviews revealed that there is a certain level of alertness regarding the use of ChatGPT. This indicated that the students developed a negative perception and attitude towards successful adoption by highlighting perceived risks that include cheating and plagiarism but the teachers also identified some perceived advantages of such preparation, including making the processes of lesson planning and assessment more convenient. Nevertheless, teachers seemed not to be well-informed or educated enough about ChatGPT and consequently, needed better enlightenment so they could make better decisions about its applicability to their teaching and learning processes. Similarly, Mai, Van Da, and Van Hanh (2024) used survey research to establish the language teachers' attitudinal stance toward the use of ChatGPT in both teaching and assessment contexts in Vietnamese universities. 43 language teachers were the subject of this study. They answered questionnaires to gauge their level of knowledge, concerns, and difficulties with implementing conversational AI in their classrooms. The study established the fact that although the participating teachers had some level of acquaintance with ChatGPT. This knowledge seems to be partial which could have affected the research participants and their teaching practices. However, the current paper found that the participants have an insightful outlook on ChatGPT as a helpful tool and its challenges with slightly more negative than positive perceptions. The changes we observed regarding the teachers' perceptions did not correspond to the groups of students they addressed but to the extent of their effectiveness in the use of ChatGPT. These concerns illustrate the importance of embracing training and staff development regarding the use of ChatGPT as well as how to overcome the issues related to the formulation of proper instructions to properly address questions that would concern the usage of the tool in a learning environment.

However, Sumin and Hyeongjong (2023) provide a systematic review of ChatGPT centered on elementary school teachers' attitudes toward using ChatGPT in education. The survey and statistical analysis study carried out among 143 elementary teachers revealed the gap between the teachers' awareness of ChatGPT and its practical application in education. Nonetheless, its usage for educational purposes remained so familiar but was used sparingly. Challenges identified the state of AI of teachers, AI usage by teachers and how much teachers can handle possible ethical issues like leakage of personal details. This investigation has highlighted the following recommendations: first, there is the matter of ethical issues. Second, the questions of how educational use might be done. Third, technical concerns and last and perhaps most importantly, the need to ensure teachers and students have the right perceptions about the opportunities that ChatGPT opens for education.

The use of chatbots has given an opportunity for redesigning teaching and learning (Gentile, Città, Perna, & Allegra, 2023; Wu & Yu, 2024). For instance, in the meta-analysis of 24 studies, Wu and Yu (2024) observed that AI chatbots are important for learner outcomes though they point to their usefulness when used for the short-term as opposed to the long-term. However, their analysis points to several possibilities and a tendency to ask many questions and rely much on statistics from a rather small population.

On the perception of ChatGPT by teachers, Widianingtyas, Mukti, and Silalahi (2023) reported that teachers had a positive perception of ChatGPT's integration into their instruction. In terms of the challenges of ChatGPT, Chinonso, Theresa, and Aduke (2023) and Memarian and Doleck (2023) revealed in their studies that some of the problems of ChatGPT are the results produced by ChatGPT are not cited or referenced, plagiarism, deception, misuse, lack of learning, and inaccurate responses are sometimes offered to individuals or learners. Nevertheless, in terms of the usefulness of ChatGPT, Mondal, Marndi, Behera, and Mondal (2023) revealed in their study that teachers use ChatGPT in the preparation of presentation slides, formulating essay-type, multiple-choice, and viva questions, answering students' queries, marking, evaluation of answers, planning a lesson, or creating contents for blended learning. In another study, Yilmaz, Maxutov, Baitekov, and Balta (2023) aimed to determine students' attitudes toward the use of ChatGPT depending on gender, year in school, area of study, and prior experience in using the tool. In this study, 239 participants from a science and mathematics education program in Almaty,

Kazakhstan using quantitative research showed a generally positive view of ChatGPT.

Existing research shows that there is a serious research gap in the literature regarding the knowledge and application of ChatGPT by teachers within the Saudi Arabian context, let alone incorporating the use of ChatGPT in the educational process. ChatGPT has been employed in several areas of endeavor. There is little research conducted in the field of teaching. I discovered a lack of literature regarding teachers' knowledge of ChatGPT and how they use it in this area of the study. This study seeks to fill this gap and establish teachers' awareness, usage, and perception of ChatGPT and the challenges that accompany this tool in education to examine the level of awareness among teachers, to identify the extent of ChatGPT use, to understand the perception of teachers regarding the opportunities offered by ChatGPT to teach and to investigate the major difficulties faced in using ChatGPT by teachers.

1.4. Research Questions

The research questions that guided this study were as follows:

1. To what extent are teachers aware of ChatGPT as their tool in the teaching-learning process?
2. To what extent do the teachers integrate ChatGPT into their classes?
3. How do teachers evaluate the effects of using ChatGPT in the context of their professional activity?
4. What kind of issues exist for the teachers when it comes to adopting ChatGPT into functioning teaching pedagogy?

2. MATERIALS AND METHODS

2.1. Design and Participants

The choice of method for this study is a sequential exploration mixed-method design. It is a purposeful process of gathering, assembling and analyzing both quantitative and qualitative data in planned consecutive steps to provide a broad understanding of a problem or phenomenon (Creswell, 2018; Egara & Mosimege, 2024). The design adopted in this study employs a quantitative component first to gather data to form the basis for the subsequent qualitative component to discover more about the issue. This sequential design enables examining the use of ChatGPT among secondary school teachers in the Al-Ahsa Educational District in detail. The decision to use mixed-methods was made by the author to combine the quantitative and qualitative approaches of the teacher questionnaire and individual interviews.

The participants were purposefully selected from secondary school teachers in the Al-Ahsa Educational District of the Eastern Region of Saudi Arabia. A stratified random sampling technique is applied to obtain a cross-sectional sample of the defined population. The distribution of the strata is based on the different local government areas within the Al-Ahsa Educational District. We ensure that each Local Government Area (LGA) has the same number of participants to ensure that the program allows for possible equal variations in demographic status and teaching conditions in the region. The final sample is made up of 395 teachers who teach across the seven LGAs within the Al-Ahsa Educational District. However, only 20% of the samples are familiar with ChatGPT which comprises about 79 teachers in this study.

2.2. Methods

Participants filled out a survey questionnaire that was developed using Google Forms to assess their understanding and feelings towards ChatGPT and its usefulness and challenges. The questionnaire was divided into two parts. The first one was a consent form to ensure participation and demographic information, years of teaching experience and past experiences with ChatGPT. The second part comprised questions that sought to elicit participants' impressions of ChatGPT and its application in their teaching, learning, and testing processes. Some teachers took the pilot test which confirmed the importance of the questionnaire and

its utility. The survey questionnaire used in this study was administered to 400 teachers in different secondary schools in the Al-Ahsa Educational District, out of which 395 responded and 5 teachers did not respond. The questionnaire consists of two sections: In section A, the respondents are asked questions about themselves: gender and geographic location of the respondent's home country. Section B consists of four axes (awareness of ChatGPT, integration of ChatGPT in classrooms, evaluation of ChatGPT's impact, challenges in adopting ChatGPT) where each axis contains 8 items related to teachers' awareness of ChatGPT, usage patterns, and challenges with respondents evaluating each item on a five-point scale(very low, low, middle, high and very high) (See Appendix A). The questionnaire was validated through personal interviews by professors from the faculty of education, specialists in measurement and evaluation, technologists, and researchers with an interest in the use of artificial intelligence in the education process. These experts reviewed the instrument to assess the content validity of the instrument. Each of them was used to improve and supplement the questions given that the instrument had to meet the objectives of the research as well as address a broad scope of issues. The researchers decided to pilot the identified instrument among 50 teachers working in various education districts before widely using the instrument. In the pilot test, Cronbach's alpha scale was employed to determine the internal consistency of the data obtained which is the basis of the presented questionnaire. The values of Cronbach's alpha coefficient were 0.82, showing quite reasonable internal consistency. The researcher personally distributed and collected the completed questionnaires from the teachers and obtained a 395-questionnaire response rate of 98.75% percent indicating the effectiveness of the tool in the completion of the study. For the qualitative aspect, teachers were engaged through face-to-face interviews to get a better understanding of the deeper messages that ChatGPT has to offer. In detail, out of all 79 teachers who seemed to have the basic level of knowledge about ChatGPT, we managed to receive consent to participate in the interviews given from 15 of them. The interview guide by Egara and Mosimege (2024) was adopted with some amendments by the researcher considering the findings from the literature and theoretical framework review. The initial guide comprised nine questions. After validation by a panel of experts, their number was reduced to four fundamental themes that correspond with the research questions of the study. These experts also checked the questions for clarity, relevance, and their inclusion of enough detail to be useful and offered their comments on how the guide could be enhanced. The interview guide was pre-tested with a pilot sample of 5 respondents to avoid ambiguity of the questions and to assess whether meaningful responses could be obtained. The results of the pilot study were that slight changes were made to the phrasing and the arrangement of the questions. The last interview schedule for the study was developed from closed-ended questions aimed at eliciting detailed information in specific areas of concern such as the teachers' perception, use, difficulties, and recommendations (see Appendix B). For the purpose of establishing reliability of the interview guide, inter-observer reliability was conducted where different researchers interviewed a sample of the participants (n = 5) and results were compared. Inter-observer reliability was further established to be significant at 0.86. This made the interview guide very reliable and valid to the extent that it captured far-reaching information. The last sets of interview questions were then asked to the teachers (n = 15) who volunteered to be interviewed during the interview session. The questionnaires and personal interviews were administered between August 19 and October 10, 2024.

2.3. Statistical Analysis

Quantitative Analysis: The quantitative data collected from the survey were analyzed using the Statistical Package and Social Science (SPSS) tool version 26. Data analysis consisted of using the mean, standard deviation, percentages, chi-squares, and Pearson's Cronbach's alpha in ascertaining a detailed descriptive analysis of the data set. All analysis was run on IBM Corporation's SPSS 26 statistical social science software, which gave further credence to results since it is widely known in the field. Furthermore, $p<0.05$ was upheld

as the level of statistical significance. This affirmed the strings from the research study and the general soundness of the research. The response scores were as follows: a score of 1 indicated very low while score 2 meant low, score 3 was middle, score 4 meant high, and score 5 meant very high.

Qualitative analysis: Qualitative data were analyzed qualitatively through semi-structured personal interviews using a thematic approach. This process commenced with the writing of a literal interview guide to avoid any compromise on accuracy. The texts were read through first to develop preliminary codes that would summarize information and useful in answering the research questions. These initial codes were then categorized into potential themes based on patterns that could be seen and themes were mentioned in the interviews. These were then compared and elaborated to present the data in an appropriate manner about the following themes: This review focused on topics concerning the selected data mining process and the entire data set. After the themes were recognized and coded according to the nature and importance of the research questions, the last themes were employed to produce the qualitative results. Various quotes from consumption participants were used to offer relevant contextual evidence to the research findings.

2.4. Ethical Considerations

Regarding ethical considerations, administrative approvals were obtained from the Al-Ahsa Educational District. Subsequently, school principals explicitly permitted the research to be conducted within their institutions. In addition, carefully informed consent was obtained from all participants with an emphasis on a firm commitment to maintaining ethical standards throughout the study period. The procedure was approved by the Ethical Committee of the King Faisal University, Saudi Arabia on 11 MAR 2024 (Ref. No. KFU-2024-MAR-ETHICS2158).

3. RESULTS

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

Research Question 1. To what extent are teachers aware of ChatGPT as their tool in the teaching and learning process?

The results in Table 1 show that the participant teachers' awareness regarding the artificial intelligence-based ChatGPT was very low with an average of 1.70 (SD = 0.79) and a 34% response rate.

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

No.	Phrases	Mean	Std. deviation	Response (%)	Chi-square	Sig.
Awareness of ChatGPT (AC)						
1	I am aware of what ChatGPT is and its functions in education.	1.51	1.05	30.13	748.05	0.001
2	I understand the potential applications of ChatGPT in the teaching and learning process.	1.64	1.10	32.71	600.63	0.001
3	I have received training or professional development focused on using ChatGPT in the classroom.	2.03	1.15	40.61	258.99	0.001
4	I believe that ChatGPT can be a valuable tool for enhancing student learning.	1.62	0.96	32.30	304.58	0.001
5	I actively seek out information about ChatGPT and its uses in education.	1.43	0.78	28.51	545.45	0.001
6	I feel confident in explaining what ChatGPT is to others.	2.26	0.94	45.16	308.81	0.001
7	I stay updated on advancements and features related to ChatGPT in educational settings.	1.42	0.70	28.30	251.76	0.001
8	I recognize ChatGPT as a legitimate resource in my teaching practice.	1.72	0.85	34.43	75.20	0.001
	Total	1.70	0.79	34.02	994.34	0.001

MT2: During a professional development session on technology integration, I learned about ChatGPT for the first time. One of them that I found interesting was ChatGPT. I find the convenience of gaining information within a short period of time and the differentiation of learning that enables one to attend to the needs of each learner in mathematics and sciences useful."

MT4: I first learnt about ChatGPT when I was searching for materials to use in class through the internet. When I came across an article that pointed out some of the uses of Minecraft in teaching and learning, I felt that it would be very useful in my class. That is why I used the tool. I discovered that ChatGPT aids me in crafting engaging quizzes and assists students in enhancing their writing abilities. It has made my teaching process less time-consuming and more fun for me.

MT5: Initially, I discovered information through training called innovative teaching techniques that incorporated the usage of ChatGPT. They noted it helps in group study and learning and is helpful to students with learning disorders or physical disabilities. It has been helpful in the development of students' essay writing skills and language enhancement. Hence, it is very useful in language arts.

Research Question 2. To what extent do the teachers integrate ChatGPT into their classes?

In accordance with Table 2, most of the teachers do not frequently use ChatGPT in planning or in the delivery of very low-rated lessons receiving a mean rating of 1.66 (SD = 0.80) and a response rate of 33.10%. This conclusion is further supported by qualitative data where many of the teachers used during the initial briefing described their impression of integrating ChatGPT into their class.

Table 2. Teachers' integration of ChatGPT in classrooms.

No.	Phrases	Mean	Std. deviation	Response (%)	Chi-square	Sig.
Integration of ChatGPT in classrooms (ICC)						
9	I regularly incorporate ChatGPT into my lesson plans.	1.55	0.79	30.94	346.58	0.001
10	I encourage my students to use ChatGPT as a resource for their assignments.	1.67	0.87	33.37	292.54	0.001
11	I modify my teaching strategies to include the use of ChatGPT.	1.40	0.75	28.00	550.41	0.001
12	I find that integrating ChatGPT enhances classroom engagement.	1.93	1.18	38.53	404.76	0.001
13	I use ChatGPT to assist with lesson content development.	1.32	0.67	26.48	602.46	0.001
14	I have successfully implemented ChatGPT in collaborative learning activities.	1.71	0.85	34.23	83.40	0.001
15	I observe that students respond positively to the use of ChatGPT in learning.	1.94	1.17	38.84	358.61	0.001
16	I feel that integrating ChatGPT has improved my teaching effectiveness.	1.72	0.84	34.43	66.69	0.001
	Total	1.66	0.80	33.10	1726.49	0.001

MT1: In my case, the primary use has been creating lesson plans and ideas for classroom or learning activities. For instance, in my English language class, I engage myself in generating writing topics based on the advanced capabilities of ChatGPT for various classes. This not only helped me save a few minutes but also created ideas in my students' brains. The improvement I have seen is that the students take much more part and interest in completing writing activities as they feel like they have ownership over the process.

MT3: I used ChatGPT in my class so that students could practice using the language during our foreign language lessons. For example, I would get my students to converse with ChatGPT so that they might improve their speaking fluency. The AI was conversational which gave them a feeling of free play whereby they could try out things with language while feeling safe that they would not be penalized for it. The result has been an

enhancement of students' confidence in speaking since they receive feedback on language use and grammar in the process.

MT4: I employ ChatGPT as a teaching aid to counteract this trend when giving students instruction on how to learn with open education resources known as OERs. When teaching literature, I make my students form groups to write character profiles and then take turns asking the ChatGPT questions about the characters. This helps them to learn other perceptions and thus make a better understanding of a text. In my experience, ChatGPT saved me the time of having students analyze certain narratives and forced deeper conversations in the classroom. They can give a new spin to the characters and the scenario.

Research Question 3. How do teachers evaluate the effects of using ChatGPT in the context of their professional activity?

According to the teachers, using ChatGPT can be helpful in enhancing the teachers' skills and in managing students' needs. It is worth noting that concern is frequently raised about the utility of the tool in enhancing people's comprehension of various subjects and enhancing students' engagement. The results in Table 3 show that the perceived ethical maturity was 2.36 (SD = 0.41) and the response rate was calculated to be 47.26%. As a result, some other teachers suggest the idea of using ChatGPT. It indicates that they appreciate this tool as an educational platform that provides support for successful educational processes.

Table 3. Perceptions of the teachers of the impacts of incorporating ChatGPT in the teaching process.

No.	Phrases	Mean	Std. deviation	Response (%)	Chi-square	Sig.
Evaluation of ChatGPT impact (ECI)						
17	I have noticed an increase in student participation since using ChatGPT.	1.62	0.88	32.41	200.89	0.001
18	Students demonstrate a better understanding of complex subjects when using ChatGPT.	1.58	0.85	31.70	187.71	0.001
19	I believe that using ChatGPT positively influences students' academic performance.	2.31	0.64	46.23	101.72	0.001
20	ChatGPT has made it easier for me to address individual student needs.	2.23	0.92	44.61	127.18	0.001
21	I feel that my teaching skills have improved through the use of ChatGPT.	2.71	0.50	54.21	311.17	0.001
22	I would recommend the use of ChatGPT to other educators based on my experiences.	2.71	0.55	54.21	330.96	0.001
23	I evaluate the effectiveness of ChatGPT in enhancing student outcomes.	2.42	0.82	48.32	154.18	0.001
24	I consider ChatGPT a significant contributor to my teaching success.	2.58	1.03	51.70	458.28	0.001
	Total	2.36	0.41	47.26	388.89	0.001

MT2: I think ChatGPT makes teachers more efficient in delivering lessons by being an additional tool they can use. For instance, I could apply it for creating the quizzes and some other educational material instantly. It helps to change the lesson immediately according to the students. These conditions make the classroom learning environment more flexible. However, I am careful not to overuse it without some form of direction because not all students would grasp concepts as they do when I am directly involved.

MT3: ChatGPT has the possibility to enhance the process of teaching by increasing the speed and output of feedback from students to teachers and vice versa. For instance, students can talk to ChatGPT for further clarification after class which reduces my time spent answering student questions frequently. This not only makes me more productive but also enhances the students' autonomy. However, I will have concern over relying heavily on the AI and very little on the students developing the critical thinking on their own.

MT4: ChatGPT improves teaching effectiveness by providing a wealth of knowledge and additional resource options for different topics. It is also useful when I want to come up with discussion questions after a text or present an opposing view to what students may be used to, in the case of studying literature. Nonetheless, there is a worry that it might act as an efficiency enhancer only if the teachers do not critically appraise the content received because it might contain wrong or biased information. Thus, it is important to use it carefully, but if used effectively, it offers a competitive edge to develop.

Research Question 4. What kind of issues exist for the teachers when it comes to adopting ChatGPT into functioning teaching pedagogy?

The results in Table 4 speak of many issues such as technical issues, lack of practice, concerns with quality education, and balancing the curriculum. As a result, there is a dire need to offer special training, funding, and policy directives that anchor the use of ChatGPT in learning properly. Participants had a mean classification of 3.09 (SD = 0.72) and the response rate was 61.75%.

Table 4. The challenges which teachers encountered in applying ChatGPT in the learning process.

No.	Phrases	Mean	Std. deviation	Response (%)	Chi-square	Sig.
Challenges in adopting ChatGPT (CAC)						
25	I experience technical difficulties when using ChatGPT in my instruction.	3.02	0.86	60.35	265.61	0.001
26	I feel there is a lack of training and support regarding ChatGPT from my school district.	3.02	0.86	60.35	265.61	0.001
27	I have concerns about the accuracy of the information provided by ChatGPT.	3.24	0.93	64.86	330.56	0.001
28	There are limited resources available at my school for utilizing ChatGPT effectively.	3.22	1.08	64.30	288.03	0.001
29	I worry that reliance on ChatGPT may undermine critical thinking skills in my students.	3.35	1.01	67.04	394.61	0.001
30	I face challenges in aligning ChatGPT usage with curriculum standards.	3.33	0.94	66.53	308.63	0.001
31	I find it difficult to assess the effectiveness of ChatGPT in my teaching.	2.71	0.97	54.13	388.96	0.001
32	I believe that addressing issues related to ChatGPT usage is essential for effective teaching.	2.75	1.02	55.04	137.52	0.001
	Total	3.09	0.72	61.75	414.88	0.001

MT2: Some of the students rely on ChatGPT to provide answers to homework and other assignments' questions without ever exerting individual efforts into the problem-solving process. I ensured that students understood the need to increase their competency and not rely on technology. I also developed activities in which output generated by ChatGPT had to be combined with my ideas and other data; thereby, the students' critical and creative thinking was being tested.

MT3: I struggled somewhat to integrate ChatGPT into Saudi curricula, specifically to the Islamic or local subject content areas because it tends to provide generic and often incorrect information. I allowed students to source materials for curriculum in their region and only allowed the use of ChatGPT as an aid in the process. I asked students to check if this information was included in their textbooks.

MT5: Some schools and students have barriers associated with internet connections or technical devices that make ChatGPT challenging to use in daily practices. I used recorded lessons and supported these with paper exercises that can incorporate the AI outputs. For the convenience of the students, I produced web links of videos in simple clips and included PDF copies for sharing.

4. DISCUSSION

This research aims to identify whether teachers are familiar with ChatGPT, how they use it, what they think of it, the difficulties they encounter and their suggestions about it in the context of the teaching-learning process according to their point of view. The outcome of the study revealed a low level of awareness of the ChatGPT technology in the learning environment among teachers. Thus, these findings suggest that the overwhelming portion of the teachers in this study did not gain the necessary knowledge about this technology. More broadly, this technology was not commonly incorporated into the practices of the teachers who participated in the research. This low awareness can be attributed to a set of main factors such as the absence of training and practice programs in the context of AI technology in general and ChatGPT in particular. New instructional technology adopted in a learning environment and its exposure to students. The absence of not only verified information and materials can help to increase the popularity of ChatGPT among the communities participating in the educational process. There is a lack of knowledge and recognition of the role and value, weak visibility of AI to enhance the quality of education through lack of awareness campaigns or no workshops and seminars about the application of AI. This is in consonance with Adarkwah et al. (2023) who revealed that many Ghanaian teachers were yet to know about ChatGPT and could not conceptualize its usage for learning, teaching, and enhancement of personal portfolios.

On the other hand, the conclusion of Dhamija and Dhamija (2025) and Bateman (2024) noted that many teachers find ChatGPT useful for assigning tasks and teaching planning which can reduce the time needed for preparation and improve the availability of resources. Some of the issues teachers raised included upcoming cases of cheating and whether content produced by the AI was original or not, therefore the need for guidelines that will be used when it comes to ethical use of AI in teaching. The conclusion is drawn by Widianingtyas et al. (2023). According to the survey conducted, most of the teachers are aware of ChatGPT and are aware that it can potentially be used in educational setups. Similar conclusions can also be made in the research of Kim, Park, Song, and Kim (2023) and Arguello, Banda, Chamorro, and Jiménez (2024). Therefore, teachers need professional development to expose them to new technologies. As observed from the semi-structured interview responses from respondents—technology-savvy teachers at secondary schools—their awareness and understanding of the existence of AI-based ChatGPT is gained through various sources such as individual study, online training sessions, and suggestions from their peers. Noster, Gerber, and Siller (2024); Uğraş (2024) and Zhu (2024) identified the growing necessity of using AI tools for teachers and pointed out that while acknowledging the limitations and challenges faced, there is a need to enhance training on the use of these technologies.

This research shows that the rate of using ChatGPT in educational processes is still insignificant which can be explained by low teacher awareness of how they can leverage AI, including ChatGPT in learning contexts. Multiple strategies can be adopted, including purchasing training sessions related to the tool for teachers to increase their productivity in utilizing these tools; promoting the sharing of experiences with peers as well as coming up with simple interfaces that help the teachers in incorporating ChatGPT into practice to promote the effective and frequent use of these technologies. On the other hand, the responses from the masters of learning through semi-structured interviews were more specific, showing actual positive impacts of this ChatGPT integration among effective teaching approaches. Some of these achievements are an increase in the quality of explanation methods, the introduction of new informative instruments, and brief, efficient solutions for backing up the educational process which prove the huge creation potential of ChatGPT when the corresponding conditions are created, and the teachers are endowed with suitable opportunities to interact with it. This aligns with the studies conducted by Wardat et al. (2023); Egara and Mosimege (2024) and Donley (2024) which showed teachers' experience of ChatGPT which was attributed to the effectiveness of increasing educational success through providing users with useful knowledge in various fields. ChatGPT was implemented successfully in helping in the communication and sharing of structured lessons in a supportive framework with multilingual learners in concomitance with cross-linguistic teaching.

Stognieva (2024) and Abdulla et al. (2024) also proved the positive impact of ChatGPT for students using them in computer programming courses because they experience an improvement in academic performance level, so it proves ChatGPT as a complementary educational tool as ChatGPT can produce the relevant educational content according to student's requirements and their level of learning, thus making individual learning easier. However, Jian (2023) and Xu (2024) both established that if adopted and incorporated properly, AI implements productivity and improves student especially classroom interaction and learning.

According to the study findings, teachers' estimate of changes in teaching and learning was low since they have some doubts about the capabilities of ChatGPT to foster the efficiency and effectiveness of learning processes. To these issues, one could offer pragmatic and realistic proof of the enhanced educational performance ChatGPT can bring while actively engaging teachers to conduct experiments on the tool, thereby boosting their efficacy and knowledge of its value-added contribution to the teaching process. Nevertheless, based on the available negative attitudes among teachers, it is possible to identify several positive impacts of ChatGPT revealed through quasi-interviews with teachers who have used the tool. Such effects were evidenced by boosting the teaching efficiency through offering different new and favorable educational materials, combining the possibilities of correcting homework and students' evaluation as well as helping to prepare the lessons faster and more systematically. However, only some advantages were reported concerning the difficulties of applying ChatGPT and the most crucial problem was reported to be the facilitation of addressing the students' variety of learning styles and the concern of losing the direct teacher and student relationship because of over-reliance on this tool which may negatively impact learners' socialization skills. Chen, Wang, Hu, and Yang (2024) found the kindergarten teachers expressed positive attitudes towards ChatGPT perceiving it as useful in education, improving teachers ' self-efficacy and student's learning attitudes. According to the study of Uğraş (2024), preschool teachers underlined that the most beneficial features of ChatGPT were the generation of individual educational tasks and the recommendation of appropriate material for preschool age. The finding also supports the study by Wang and Demszky (2023) where the authors reported teachers' assessment of the performance of ChatGPT in their classrooms. According to Zaiarna, Zhyhadlo, and Dunaievska (2024) and Bateman (2024) the authors noted that the professors professed the usefulness of ChatGPT in creating lesson plans as well as content which improves lesson creation and student learning although it has certain limitations due to concerns regarding the principles of intellectual dishonesty.

Furthermore, the recent research of Rustandi, Ansori, Fahlepi, Iriansyah, and Marliat (2024); Gou, Li, Shao, and Zhang (2024); Egara and Mosimege (2024) and Urazbayeva, Kussainova, Aibergen, Kaliyeva, and Kantayeva (2024) highlighted the importance of teaching and training teachers on the use of these technologies, especially on how to address the problems that accompany the use of ChatGPT. These works are focused on the development of teachers' technological competencies not only for using technologies and tools but also for comprehending the nature of these educational technologies and considering their possibilities in the construction of suitable new modes of teaching. This process is also the opportunity to prepare teachers for the incorporation of AI instruments into practice as well as designing appealing methods of interaction and optimizing the process of information provision. Constructing such digital literacy is the vital stage in reaching the equilibrium between the technical and professional use of modern tools and trying to overcome the challenges and improve the results of the educational process.

5. CONCLUSION

This study shows that the level of total acquaintance with ChatGPT and positive attitudes of teachers is relatively low. However, the reflective and semi -structured data obtained give a more detailed view as teachers who have the knowledge and experience in using it express their tips and appreciation towards this tool as a way of improving lessons' effectiveness and increasing the interest of students in the educational process. At the same time, the identified challenges directly point to the need for the development of specific recommendations concerning the

technical and pedagogical dimensions connected to the application of ChatGPT in education, including the provision of specific ideas which can be used to create the necessary flexible requirements concerning the use of discussed technologies in different educational settings according to the needs of the teachers. This paper forms a solid ground for further research that would focus on identifying the right model as well as creating an all-round support system that would enhance the integration of ChatGPT into educational institutions. However, it is the teachers, administrators', and policymakers' duty to advocate for this technology and educate themselves and those they teach on the proper use of this technology to enhance the quality of the educational process and not to the detriment of the core educational values.

The present research aims to describe the educational implications of using AI tools, namely ChatGPT, as a part of the educational process in the Al-Ahsa region of the Kingdom of Saudi Arabia. The findings denote several shortcomings of the coverage of the topic studied in the teachers' work: their awareness of the uses of ChatGPT and its efficiency, as well as the problems that they encounter. They represent an important field in understanding how to positively address educational performance through technology where intervention is possible. Therefore, there is the need to encourage the professionals involved to design and embark on research-informed professional development programs focusing on increasing teachers' knowledge and skills on how to use ChatGPT. Among such practices, it is now possible to single out carefully planned workshops/seminars/training as well as offering effective cooperative learning experiences that help teachers brush up on their digital literacy and instructional competencies alongside tackling cognitive overload knowledge gaps that prevent them from effectively using AI tools. The study also suggests that there should be frequent cooperation between teachers and developers to strive at creating simple and unproblematic interfaces for ChatGPT that decrease the technical and psychological variables that prevent teachers from embracing this tool with confidence in the learning environment. This paper aims at focusing on the following strategies that would help teachers to build confidence and have some positive perception towards ChatGPT for effectiveness of the tool in teaching and learning: Case studies and successful demonstrations show the positive impacts of using ChatGPT in education. The study focuses on the need to create combined and extensive training plans that would help teachers be prepared and come up with solutions to potential issues the application of ChatGPT may have in teaching practices. As a result, equipping the teachers with the right competencies and knowledge still boosts the quality of teaching as well as helps in enhancing the use of technology in the development of the teaching and learning process to suit the future needs of learners as well as the teaching fraternity.

5.1. Limitations and Future Research

The study has some limitations, including that the study targeted only one geographic region of KSA, the Al-Ahsa region, which may restrict the generalization of the findings about educational benefits of using technological education resources in other educational regions that may have different educational and technological conditions. This limitation suggests that similar studies ought to be done in other regions to determine the general reliability of results in different settings. Some of the teachers also complained about technical limitations such as poor network connection and no technical know-how, which may skew the results they gave on ChatGPT and how useful it is in teaching. Therefore, we encourage future research to center on technology solutions and technology assistance that can help teachers surmount these difficulties. Moreover, unlike other similar work, the study does not include students or administrators which may result in a rather narrow picture of the submitted work and give a rather one-sided view of the effects of ChatGPT on the educational process. Thus, future research recommends a more extended and more detailed study, raising the scope of participants to students and administrators. Lastly, since ChatGPT and other AI-based tools are relatively new, the lack of enough experience by some teachers in employing the AI tools is deemed a limitation to their assessment. Therefore, it is suggested that future

investigations refer to long-term training initiatives that would increase the efficiency of teachers and increase their competencies to utilize such technologies effectively.

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APPENDIX

Appendix A. A survey on ChatGPT technologies in enhancing teachers' educational performance in the educational process.

No.	Phrase	Very low	Low	Middle	High	Very high
	Section 1: Awareness of ChatGPT (AC)					
1	I am aware of what ChatGPT is and its functions in education.					
2	I understand the potential applications of ChatGPT in the teaching-learning process.					
3	I have received training or professional development focused on using ChatGPT in the classroom.					
4	I believe that ChatGPT can be a valuable tool for enhancing student learning.					
5	I actively seek out information about ChatGPT and its uses in education.					

No.	Phrase	Very low	Low	Middle	High	Very high
6	I feel confident in explaining what ChatGPT is to others.					
7	I stay updated on advancements and features related to ChatGPT in educational settings.					
8	I recognize ChatGPT as a legitimate resource in my teaching practice.					
	Section 2: Integration of ChatGPT in classrooms (ICC)					
9	I regularly incorporate ChatGPT into my lesson plans.					
10	I encourage my students to use ChatGPT as a resource for their assignments.					
11	I modify my teaching strategies to include the use of ChatGPT.					
12	I find that integrating ChatGPT enhances classroom engagement.					
13	I use ChatGPT to assist with lesson content development.					
14	I have successfully implemented ChatGPT in collaborative learning activities.					
15	I observe that students respond positively to the use of ChatGPT in learning.					
16	I feel that integrating ChatGPT has improved my teaching effectiveness.					
	Section 3: Evaluation of ChatGPT's impact (ECI)					
17	I have noticed an increase in student participation since using ChatGPT.					
18	Students demonstrate a better understanding of complex subjects when using ChatGPT.					
19	I believe that using ChatGPT positively influences students' academic performance.					
20	ChatGPT has made it easier for me to address individual student needs.					
21	I feel that my teaching skills have improved through the use of ChatGPT.					
22	I would recommend the use of ChatGPT to other educators based on my experiences.					
23	I evaluate the effectiveness of ChatGPT in enhancing student outcomes.					
24	I consider ChatGPT a significant contributor to my teaching success.					
	Section 4: Challenges in adopting ChatGPT (CAC)					
25	I experience technical difficulties when using ChatGPT in my instruction.					
26	I feel there is a lack of training and support regarding ChatGPT from my school district.					
27	I have concerns about the accuracy of the information provided by ChatGPT.					
28	There are limited resources available at my school for utilizing ChatGPT effectively.					
29	I worry that reliance on ChatGPT may undermine critical thinking skills in my students.					
30	I face challenges in aligning ChatGPT usage with curriculum standards.					
31	I find it difficult to assess the effectiveness of ChatGPT in my teaching.					
32	I believe that addressing issues related to ChatGPT usage is essential for effective teaching.					

Appendix B. Interview questions and respondents' answers to semi-structured questions.

1. What was your level of awareness about ChatGPT, and how did you get introduced to the tool?

MT1: The way I was introduced to ChatGPT was by seeing a post on social media and recognizing that it was shared by a co-worker. At first, I doubted its application in the field of education, but upon learning about all that it can do, I understood that when it comes to increasing student interest and giving feedback instantly, it is

irreplaceable. I use ChatGPT to generate ideas for lessons and to help with the practice of language in my English classes.

MT2: ChatGPT was mentioned in my ear first when I participated in a PD session discussing technology in the classroom. The facilitator presented several tools to us, and one of them that I found interesting was ChatGPT. I find the convenience of gaining information within a short period of time and the differentiation of learning that enables one to attend to the needs of each learner in mathematics and sciences useful."

MT3: From my friends from the teaching profession and while discussing the usage of educational technologies, I came to know about ChatGPT. I found it interesting how it can converse with people and help with lesson plans and with regards to research. I've also been using it for creating writing prompts and topics for discussion among literature students, and that makes the classes more engaging for the participants.

MT4: I first learnt ChatGPT when I was searching for materials to use in class through the internet. When I came across an article that pointed out some of the uses of Minecraft in teaching and learning, I felt that it would be very useful in my class. That is why I used the tool: I discovered that ChatGPT aids me in crafting engaging quizzes and assists pupils in enhancing their writing abilities. It has made my teaching process less time-consuming and more fun for me.

MT5: Initially, I discovered information via training called Innovative Teaching Techniques incorporated the usage of ChatGPT. They noted it helps in group study and learning and is helpful to students with learning disorders or physical disabilities. It has been particularly helpful in the development of students' essay writing skills and language enhancement; hence, it is very useful in language arts.

2. If you have applied for ChatGPT in your teaching practice, can you provide me with examples or lessons you incorporate ChatGPT, and what impact or result do you find?

MT1: In my case, the primary use has been creating lesson plans and ideas for classroom or learning activities. For instance, in my English language class, I engage myself in generating writing topics based on the advanced capabilities of Chat GPT for various classes, be it easy, medium, hard, and so on. This not only helped me save a few minutes but also created ideas in my students' brains. The improvement I have seen is that the students take much more part and interest in completing writing activities as they feel like they have ownership over the process.

MT2: For example, in my science classes, I used ChatGPT to help students find information about their projects. For example, when we were learning about ecosystems, I urged the students to ask ChatGPT questions about different ecosystems to get information. This approach seemed to improve students' research skills, and as I progressed through the year, I noticed that students were more self-reliant in their study yet also engaged with the research. It also assisted the students with poor prior knowledge or information, as they wanted more to be taught to them.

MT3: I used ChatGPT in my class so that students could practice using the language during our foreign language lessons. For example, I would get my students to converse with ChatGPT so that they might improve their speaking fluency. The AI was conversational, and that gave them a feeling of free play whereby they could try out things with language while feeling safe that they would not be penalized for it. The result has been an enhancement of students' confidence in speaking since they receive feedback on language use and grammar in the process.

MT4: I employ ChatGPT as a teaching aid to counteract this trend when giving students instruction on how to learn with open education resources known as OERs. When teaching literature, I make my students form groups to write character profiles and then take turns asking the ChatGPT questions about the characters. This helps them to learn other perceptions and thus make a better understanding of a text. In my experience, ChatGPT saved me the time of having students analyze certain narratives and forced deeper conversations in the classroom. They like that point that they can give new spin to the characters and the scenario.

MT5: When teaching mathematical concepts, I have asked ChatGPT to offer further clarification on matters which I have discussed in my classes. For example, when I am done with a lesson on quadratic equations or any other lesson, learners may turn to ChatGPT to solve particular problems or to get enlightened on parts they did not understand. They point out that this use has contributed to better understanding for many students since they can gain explanations depending on their preferred mode of learning. The level of engagement has also risen, and learners get more involved when they have to seek assistance.

3. How, in your opinion, does ChatGPT either increase or decrease teachers' teaching efficiency when it comes to education?

MT1: To my mind, ChatGPT can greatly enhance teaching effectiveness." They are useful for providing inspiration on what lesson to plan and resources that can be used when the user is short on time. In my case, being an instructor, I get more time for interacting with my students and giving individual attention regarding their education with the help of using ChatGPT. But there is a caveat: First, the content must be relevant and credible, as sometimes it offers data to which I need to respond.

MT2: Based on this, I think ChatGPT helps make teachers more efficient in delivering lessons by being an additional tool they can use. For instance, I could apply it for creating the quizzes and some other educational material instantly; it helps to change the lesson immediately according to the students. These conditions make the classroom learning environment more flexible in that. However, I am careful not to overuse it without some form of direction because not all students would grasp concepts as they do when I am directly involved.

MT3: ChatGPT has the possibility to enhance the process of teaching by increasing the speed and output of feedback from students to teachers and vice versa. For instance, students can talk to ChatGPT for further clarification after class, which reduces my time spent answering student questions frequently. This not only makes me more productive but also enhances the students' autonomy. However, I will have concern over relying heavily on the AI and very little on the students developing the critical thinking on their own.

MT4: For what it's worth, ChatGPT improves teaching effectiveness by providing a wealth of knowledge and additional resource options for different topics. It is also useful when I want to come up with discussion questions after a text or present an opposing view to what students may be used to, in case we are studying literature. Nonetheless, there is a worry that it might act as an efficiency enhancer only if the teachers did not critically appraise the content received because it might contain wrong and/or biased information. Thus, it is important it is used carefully, but if used effectively, it offers a competitive edge to develop.

MT5: To my mind, ChatGPT becomes a tool that can significantly improve the work efficiency of a teacher, mostly due to assisting in such activities as grading and recommending individual learning trajectories to learners. It helps the teachers to monitor students' performance and make the right decisions for the learners by using results. While I think it has cut down on many factors, I raise an issue with trying to replace interaction among people, which is very important in education. Therefore, as much as it improves efficiency, the human factor should not be overlooked in the teaching process.

4. If you have come across some difficulties in incorporating ChatGPT into the teaching process, please describe these difficulties in details and also state how the difficulties mentioned have been solved or best met?

MT1: Challenges of linguistic understanding and expression: This was because the use of ChatGPT was not easy on the students due to the Arabic language. In some cases, the linguistic understanding section was incorrect, or the answers did not relate to the students' environment. To counter this, I undertook several measures and focused on the training of students on how to ask questions correctly and coherently with the right kind of diction. I also gave guidelines that the dialogue with ChatGPT should be as uncomplicated as possible, while the questions should be directed in standard Arabic as much as possible.

MT2: Over-reliance among students: Some of the students, for instance, relied on ChatGPT to provide answers to homework and other assignments' questions without ever exerting individual efforts into the problem-solving process. To avoid this, I ensured that students understood the need to increase their competency and not totally rely on technology. I also developed activities in which output generated by ChatGPT had to be combined with own ideas and other data; thereby the students' critical and creative thinking was being tested.

MT3: Challenges of adapting to Saudi curricula: I struggled somewhat to integrate ChatGPT into Saudi curricula, specifically to the Islamic or local subject content areas, because it tends to provide generic and often incorrect information. To avoid this, I gave the students allowed sources for curriculum in their region and only allowed the use of ChatGPT as an aid in the process. I asked students to check if this information was any that was included in their textbooks.

MT4: Technical issues and difficulty of access: For some schools and students, internet connectivity or technical devices pose challenges that affect the day-to-day use of ChatGPT. To counter this, I ensured that I use recorded lessons and supplemented these with paper exercises that can employ the AI outputs. I also provided students with web links to the videos in simple clips, as well as PDFs for easy sharing.

MT5: Technical issues and difficulty of access: Some schools and students have barriers that are associated with internet connections or technical devices that make ChatGPT challenging to use in daily practices. In response to this, I made sure I used recorded lessons and supported these by paper exercises that can incorporate the AI outputs. I also, for the convenience of the students, produced web links of videos in simple clips and included pdf copies for sharing.