




ChatGPT as a New Frontier in Arabic Education Technology

ChatGPT كجبهة جديدة في تكنولوجيا تعليم اللغة العربية

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ABSTRACT

Artificial intelligence is a technology that is believed to be capable of emulating human intelligence, and one area where its potential is being explored is the use of ChatGPT in the Arabic language education sector. Therefore, this study aims to analyze the challenges and opportunities of using ChatGPT in Arabic language education as a form of actual educational technology. This study uses the library research method, with primary and secondary data sources obtained from previous literature relevant to the research topic. Data collection was carried out by editing, organizing and founding techniques. Data analysis was carried out using data reduction techniques, data presentation, and drawing conclusions. The results of this study show that ChatGPT has the potential to be a valuable tool for developing Arabic language education, but there are challenges that must be addressed to ensure its effective use by students and teachers, and to avoid any negative implications. This research provides insights for the future development of learning technologies, enabling the use of ChatGPT in education to provide maximum benefits for students and teachers.

KEYWORDS: ChatGPT; Education Technology; Arabic Education

مستخلص البحث

لا يزال الذكاء الاصطناعي، الذي يعتقد أنه قادر على محاكاة الذكاء البشري، خطاباً لم تتم مناقشته بالكامل، أحدها هو استخدام ChatGPT في قطاع تعليم اللغة العربية. على هذا الأساس، تم إجراء هذا البحث لتحليل تحديات وفرص استخدام ChatGPT في تعليم اللغة العربية كشكل من أشكال تكنولوجيا التعليم الفعلية. تستخدم هذه الدراسة طريقة دراسة الأدب، مع مصادر البيانات الأولية والثانوية التي تم الحصول عليها من المؤلفات السابقة ذات الصلة بموضوع البحث. تم جمع البيانات من خلال تقنيات التحرير والتنظيم والتأسيس. تم إجراء تحليل البيانات باستخدام تقنيات تقليل البيانات وعرض البيانات واستخلاص النتائج. تشير نتائج هذه الدراسة إلى أن ChatGPT هي إحدى التقنيات الفعلية التي يمكن استخدامها لتطوير تعليم اللغة العربية، على الرغم من وجود العديد من التحديات التي يجب مراعاتها من أجل تجنب الآثار السلبية التي يمكن أن تنشأ من استخدامها من قبل

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الطلاب والمعلمين. يوفر هذا البحث رؤى قيمة للتطوير المستقبلي لتقنيات التعلم ويضمن أن استخدام ChatGPT في التعليم يوفر أقصى قدرًا من الفوائد للطلاب والمعلمين.

الكلمات الرئيسية: ChatGPT ؛ تكنولوجيا التعليم؛ تعليم اللغة العربية

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Introduction

Arabic language education is a complex learning process that takes a long time. This is because the Arabic language has many complex rules and grammar and there are many words that must be memorized (Blanchete & Mourchid, 2023). In addition to its complex grammar and vocabulary, learning Arabic can also be challenging because it uses a different script than most Western languages. The Arabic script consists of 28 letters, each with several different forms depending on its position in a word, and it is written from right to left (S & Baroroh, 2020). However, despite its complexities, learning Arabic can be a rewarding experience. In recent years, there has been an increased interest in learning Arabic as more people recognize its importance in global politics, business, and culture (Mohammed, 2022). There are many resources available for those who want to learn Arabic, including language schools, online courses, and language exchange programs (Sellman, 2016). With dedication and persistence, anyone can learn this beautiful and fascinating language.

Nowadays, as we enter the 5.0 era, advancements in technology have made learning Arabic more accessible and convenient than ever before. Technology has enabled Arabic language education to become more engaging, interactive, and personalized (Pikri, 2022). With the use of artificial intelligence (AI), machine learning (ML), and natural language processing (NLP), language learning platforms can now adapt to the learning needs and preferences of individual learners. For example, language learning apps can use AI algorithms to analyze a learner's performance and provide personalized feedback and recommendations for improvement (Mokhtar, 2021). Furthermore, technology has also made it possible to create more engaging and interactive learning materials for Arabic language education. Multimedia resources, such as videos, podcasts, and interactive games, can help learners to develop their language skills in a more enjoyable and immersive way (Elawadi et al., 2019).

Artificial intelligence (AI) has been a topic of great interest in language education, and there has been a growing interest in the application of AI in language education (Khalatia & Al-Romanyb, 2020). One example of AI in language education is the development of chatbots that can interact with learners in various languages, such as ChatGPT. ChatGPT is an advanced language model developed by OpenAI that utilizes Natural Language Processing (NLP) technology to understand human language and generate appropriate responses. The use of ChatGPT has become an interesting topic during recent years as it provides a unique opportunity to provide instant feedback, corrections, and explanations (Shidiq, 2023). The use of AI in language education, including chatbots like ChatGPT, has great potential in providing learners with personalized and interactive learning experiences. However, it is essential to acknowledge the limitations of AI and the importance of human instruction in language learning.

There have been several studies examining ChatGPT's role in the field of education. These studies tend to focus on three main aspects: *First*, the concept of ChatGPT as artificial intelligence (artificial intelligence), the accuracy and quality of the responses generated by ChatGPT. *Second*, the effectiveness of ChatGPT in facilitating language learning. *Third*, the potential ethical concerns related to the use of AI in language learning sectors. In terms of accuracy and quality of responses, studies have found that ChatGPT is capable of generating high-quality responses that are contextually relevant and grammatically correct (Bitzenbauer, 2023; Levine et al., 2023; Wenzlaff & Spaeth, 2022). As for the effectiveness of ChatGPT in facilitating language learning, studies have found that it can be a useful tool for learners to practice their language skills in a conversational context, providing instant feedback, corrections, and explanations (Fauzi et al., 2023; Haensch et al., 2023; Macdonald et al., 2023). Studies have also evaluated ChatGPT's performance on standardized admission tests, such as the United States Medical Licensing Examination and UK Standardized Admission Tests, to understand its potential as an innovative tool for education and test preparation (Giannos & Delardas, 2023; Gilson et al., 2023). Furthermore, studies have found that potential ethical concerns related to the use of AI in various sectors must be addressed (Jiawen Deng et al., 2023; Hosseini et al., 2023; Zohny et al., 2023).

This study also explores the three aspects mentioned above. However, this study specifically examines the use of ChatGPT in the field of Arabic language education. In terms of the accuracy and quality of responses generated by ChatGPT, the study

examined how well the model performs in understanding and responding to Arabic language prompts. The study also evaluated the model's ability to provide contextually relevant and grammatically correct responses in Arabic. Regarding the effectiveness of ChatGPT in facilitating Arabic language learning, the study investigated how well the model can help learners practice their Arabic language skills in a conversational context. The study also explored how ChatGPT can be integrated into existing Arabic language education programs and how it can be used to supplement traditional classroom instruction. In addition, the study identified potential ethical concerns related to the use of ChatGPT in Arabic language education. These concerns include the potential for bias and discrimination in the training data used to develop the model, as well as concerns related to data privacy and security. The study suggested ways to address these concerns and ensure that the use of ChatGPT in Arabic language education is ethical and effective.

The position of this study among previous studies is significant, as it focuses specifically on the use of ChatGPT in the field of Arabic language education. The study contributed valuable insights to the existing body of knowledge, that significantly contributed to the ongoing discussions and advancements in the field of Arabic language education and the use of AI technologies for language learning. This study also filled a gap in the literature by providing specific findings and recommendations tailored to the unique challenges and opportunities present in Arabic language education. Its findings can inform educators, curriculum developers, and policymakers in making informed decisions about the integration of ChatGPT and other AI technologies into Arabic language learning programs.

Therefore, this study aims to provide a comprehensive analysis of the challenges and opportunities associated with the use of ChatGPT in Arabic language education, considering it as a practical form of educational technology. By exploring these issues, this study provides a comprehensive understanding of the practical implications and considerations for using ChatGPT in Arabic language education. It serves as a valuable resource for educators, administrators, and policymakers to make informed decisions about the integration and utilization of ChatGPT as an actual educational technology in the Arabic language learning environment. The findings of this study can also be used to inform the development and implementation of other artificial intelligence-based language learning technologies in Arabic language education.

This study departs from the argument that ChatGPT has the potential to revolutionize the way Arabic language education is delivered. However, the

implementation of this technology in the Arabic language learning environment comes with its own set of challenges and opportunities. The main objective of this study is to conduct a comprehensive analysis of these challenges and opportunities. By doing so, the study provide a valuable insights that can help educators, administrators, and policymakers make informed decisions about the integration and utilization of ChatGPT in Arabic language education. The study's findings can also serve as a valuable resource for the development and implementation of other artificial intelligence-based language learning technologies in Arabic language education. Ultimately, this study contributes to the ongoing discussion on the integration of technology in education and its potential to enhance the learning experience.

Method

This study uses the library research method, that is a research methodology that involves reviewing and analyzing existing literature on a particular topic to gain a comprehensive understanding of the subject matter. The library research is used in various fields, including healthcare, psychology, education and etc, to develop a consensus definition, identify research gaps, and propose solutions.

Data Collection

Data collection was carried out electronically on national and international scientific articles and books, as well as other data sources relevant to the research topic that published in the last six years (2018-2023). The data in this study were collected from several sources such as Google scholar, Sciencedirect, ERIC, Emerald and Springerlink. Data collection techniques used were editing techniques, organizing, and founding: 1) The editing technique is used to collect and check data to ensure accuracy and completeness; 2) The organizing technique is used to record and present data clearly and organized; 3) The founding technique is used to analyze data findings to draw conclusions and provide recommendations.

Data Analysis

Data analysis techniques used were from Miles and Huberman's theory. The process involves several steps, including data reduction, data display, and conclusions drawing: 1) Data reduction involves the process of selecting, focusing, simplifying, abstracting, and transforming data from the raw form into a useful and manageable format; 2) Data display involves organizing, condensing, and summarizing data in a

meaningful way that facilitates interpretation; 3) Conclusion drawing involves synthesizing and integrating the findings to generate insights and implications that are relevant to the research question.

Results and Discussion

What Is ChatGPT?

ChatGPT or Chat Generative Pre-trained Transformer is a language model developed by Open AI that uses machine learning techniques to generate human-like text. Studies provides information about ChatGPT, as an advanced language model developed by OpenAI that utilizes machine learning techniques to generate human-like text. The model is trained on large amounts of open source data and can perform a variety of natural language processing tasks such as text generation, translation, and summaries. Open AI released the most advanced version of the ChatGPT language model in November 2022, which is a neural network-based method for processing natural languages. This model has proven to be a very successful conversational AI-based tool, providing services with high accuracy and efficiency in a concise amount of time (Iu & Wong, 2023; Rahaman et al., 2023). Studies also highlights Open AI's top research company that lists AGI achievements in its mission statement, leading to many breakthroughs in the past. Open AI also surprised the world by training GPT-3 with 175B parameters, which was more than 100x larger than the next largest publicly trained model at the time. Although the algorithm innovation was minimal, the model quality consistently improved as the model size increased. For models of this size, not much customizing data for downstream tasks is required as they have been pre-trained with masked tokens on unattended data. This sparked a competition among pocket companies to train the biggest model (Sun, 2022). Then, it can be known that ChatGPT and Open AI's research have contributed significantly to the field of natural language processing and have set a benchmark for model size and quality in the industry.

ChatGPT as a new AI chatbot built on top of GPT-3.5, advanced natural language processing model using a transformer architecture that combines the benefits of a generative model with scalability. It creates natural language using the mechanism of self-attention, which allows it to learn more accurately the context of dialogue and counter-offers. Models are pre-trained on large data sets, enabling them to create language that is coherent, context-appropriate, and often indistinguishable from human-written stuff (Aydın & Karaarslan, 2023; Kocaballi, 2023). Studies provides that ChatGPT is able to precisely follow complex instructions, generate detailed answers with common sense knowledge, and remember

previously asked questions as context. We can find a ton of examples of dialogue between humans and ChatGPT, some use it to create stories, to solve system design problems with coding examples and to exploit its weaknesses with all kinds of questions that currently free to try (Sun, 2022). Studies also found that ChatGPT has taken the world by storm since its release, where its capabilities are based on artificial intelligence (AI) technology and trained on data from the internet written by humans, including conversations (Patel & Lam, 2023). The emergence of advanced language models such as ChatGPT paves the way for innovative and exciting human-AI collaboration opportunities. This model is capable of generating human-like texts, which can be utilized to support a variety of tasks ranging from language translation to debriefing (Adesso, 2022). It suggests that ChatGPT is a promising tool that can be utilized in various language, include Arabic language to provide instant feedback, corrections, and explanations to learners.

One of ChatGPT's main features is its ability to generate coherent and fluid text. This is achieved through the use of a technique called unsupervised pre-training, in which the model is trained on a large corpus of text data without any specific task in mind. The model learns to understand statistical patterns in data and develop a general understanding of the structure and meaning of language. This general understanding is then adapted to specific tasks using a smaller amount of task-specific data (Iu & Wong, 2023). In addition to the main text of the paper, references and bibliographies are also generated automatically by the GPT model (in some cases, the author files have provided input to the model, especially for newer articles not part of the ChatGPT training set. GPT uses large sets of unannotated text data to trains a language model that can produce coherent and fluent sentences. One of the main advantages of GPT is its ability to handle long distance dependencies in natural languages. This makes it possible to produce coherent and fluent texts that are difficult to produce by other models. large capacity for learning and well-tuned for a variety of natural language tasks, such as language translation, summaries, and answering questions (Adesso, 2022). ChatGPT's design and algorithms allow it to produce long, rich content. ChatGPT has great potential and is already being used in various industries. ChatGPT can be used to develop complex applications in any sector, such as medicine, education, finance and others. Possible areas of use will be discussed in the literature survey section. ChatGPT has reached a lot of users around the world today, and it is increasing in popularity day by day as the hype goes (Aydin & Karaarslan, 2023).

Therefore, studies above suggest that ChatGPT is a powerful language model that is capable of generating coherent and fluid text through unsupervised pre-training on large text corpora. ChatGPT can handle long-distance dependencies in natural languages, which allows it to produce coherent and fluent texts that are difficult for other models to create. Furthermore, ChatGPT's design and algorithms enable it to generate long and rich content, making it a useful

tool in various industries. As ChatGPT gains more popularity, it has the potential to be used in developing complex applications in sectors such as medicine, education, finance, and others. This indicates that ChatGPT is a promising technology that can be utilized in a variety of fields, including language education. As researchers and developers continue to explore its capabilities, we can expect to see even more exciting applications emerge in the coming years.

The Discourse About ChatGPT In Multidisciplinary Sectors

In a study conducted by Owens (2023), the majority of respondents (57%) said they used ChatGPT or similar tools for creative fun unrelated to research. 27% of respondents indicated that they use it for science, and brainstorm research ideas. Nearly 24% of respondents said they used generative AI tools to write computer code, and about 16% each said they used these tools to help write research papers, produce presentations or conduct literature reviews. Only 10% said they used it to help write grant applications and 10% to produce graphics and images. Some predict that the tool will have the greatest beneficial impact on research by assisting with tasks that may be tedious, onerous, or repetitive, such as crunching numbers or analyzing large data sets; write and debug code; and perform a literature search (Owens, 2023). This shows that, generative AI tools like ChatGPT are being used for a variety of purposes, both in research and for creative fun. While a majority of users are using the tool for non-research related activities, a significant percentage are utilizing it for scientific research and related tasks. The study also suggests that generative AI tools could be particularly useful for researchers in tasks that can be tedious or repetitive, such as data analysis or literature reviews. Additionally, these tools can assist with writing and debugging code, which could save researchers a significant amount of time and effort.

Some people also believe that ChatGPT can help solve problems in various fields of science, including in the fields of health, technology, marketing, and others (Qin et al., 2023). This is in line with several studies on the use of ChatGPT in many disciplines, here are some examples: 1) Literature and Linguistics: ChatGPT can be used to analyze and understand human language and study the differences between different languages. ChatGPT can be used as a tool for building narratives, generating creative content and creating realistic fictional characters (Gilat & Cole, 2023; HS Kumar, 2023); 2) Libraries: The integration of ChatGPT into traditional libraries has the potential to significantly improve the user experience, improve efficiency, and enhance the overall effectiveness of library services. So that it can understand and respond to user questions in a natural, human-like way, ChatGPT can provide users with fast and accurate answers to their questions and help them navigate its library and resource collections with ease (Balnaves et al., 2023; Verma, 2023); 3) Health: ChatGPT can be used to analyze human language in a psychological context and assist in the development of therapies

and problem solving. ChatGPT could revolutionize medical writing by making it a fast and time-saving process. It can extract information, assist in literature searches, and create rough drafts for medical writers to work on further (Arif et al., 2023; Blanco-Gonzalez et al., 2022; Patel & Lam, 2023); 4) Computer Science: ChatGPT can be used to develop and improve artificial intelligence (AI) technologies, including machine learning models and natural language recognition (Adamson, 2023; Sokullu et al., 2022; Stokel-Walker, 2023; Tabone & Winter, 2023); 5) Economy: ChatGPT is a powerful new tool that has the potential to revolutionize digital marketing. This technology uses natural language processing (NLP) and machine learning algorithms to create conversational AI chatbots that can understand what customers want, help them solve their problems automatically, and even help them buy things (George et al., 2023); 6) Education: ChatGPT can be used as a tool to enhance teaching and learning, including in the creation of adaptive and personalized learning programs (Jalil et al., 2023; Mogali, 2023; Setiawan & Luthfiyani, 2023; Zhai, 2023).

So, it can be known that the potential applications of ChatGPT or other generative AI tools are vast and varied, with benefits spanning multiple fields and industries. From literature and linguistics to libraries, health, computer science, economy, and education, ChatGPT has the potential to transform the way we work and learn. The use of ChatGPT in literature and linguistics could help researchers gain a deeper understanding of human language and storytelling, while its integration into libraries could enhance the user experience and improve efficiency. In health, ChatGPT could help researchers develop new therapies and improve medical writing, while in computer science, it could be used to improve artificial intelligence technologies. ChatGPT's potential to revolutionize digital marketing and enhance teaching and learning also make it a valuable tool in the economy and education fields. As generative AI tools continue to evolve and improve, it is likely that we will see even more innovative and exciting applications in a wide range of fields.

By using ChatGPT, intelligent systems can be developed that can provide solutions to complex problems. However, there are also those who think that the use of ChatGPT is still limited to areas that have been studied previously. Because even though ChatGPT is a very sophisticated intelligent system, it still depends on the data provided. If the data provided is inaccurate or incomplete, then the results generated by ChatGPT cannot be relied upon (Gozalo-Brizuela & Garrido-Merchan, 2023). This is in line with several studies of the controversies raised by ChatGPT, including: 1) Security and privacy: There are concerns about the possibility of using ChatGPT to collect personal and sensitive data from users. For example, if ChatGPT is used to perform text analysis on medical data, patient personal information can be stored and accessed by unauthorized parties (Dash & Sharma, 2023; Jeblick et al., 2022; Lubowitz, 2023; Mijwil et al., 2023; Wang et al., 2023); 2) Quality and reliability: There have

been concerns about the quality and reliability of ChatGPT in generating accurate answers and recommendations, especially when used in complex and sensitive contexts such as in health or finance. Many experts and scientific journals reject ChatGPT because it lacks critical thinking and presents excessive and irrational information (Arif et al., 2023; Diaz-Arce, 2023; Else, 2023); 3) Bias: ChatGPT can produce biased answers, especially when trained on unequal or unrepresentative data from different groups in society. This can exacerbate existing inequalities and discrimination in society (King, 2023; Kleebayoon & Wiwanitkit, 2023; Kutela et al., 2023; Mitrović et al., 2023); 4) Unethical use: ChatGPT can be used for unethical purposes, such as to commit counterfeiting or fraud, or to spread messages of hate and discrimination (Hosseini et al., 2023; Jabotinsky & Sarel, 2022; Riad, 2023; Susnjak, 2022; Thagard, 2021; Zhuo et al., 2023; Zohny et al., 2023).

Then, it can be known that while ChatGPT has great potential for various applications, there are also valid concerns and controversies surrounding its use. These include issues related to security, privacy, quality and reliability, bias, and ethical considerations. It is important for researchers, developers, and policymakers to address these concerns and work towards ensuring that the use of ChatGPT is ethical, responsible, and transparent. Some efforts may need to be made to improve security and privacy, improve quality and reliability, reduce bias, and ensure the ethical and responsible use of ChatGPT. This can be done by conducting supervision, regulation, and developing better and more representative models. It is important to carry out careful evaluation and proper testing before using ChatGPT to solve problems in various disciplines. In addition, it is also important to be aware of the limitations of ChatGPT and see it as a tool, not as a final solution. Furthermore, as the development and deployment of ChatGPT continue, it is crucial to involve diverse groups of experts and stakeholders in the process. This can help ensure that its use is equitable and does not exacerbate existing social and economic inequalities. For example, this can involve engaging linguists, psychologists, ethicists, lawyers, and representatives from marginalized communities in the development and deployment of ChatGPT.

In addition to the inclusion of diverse perspectives and expertise, it is essential to establish ethical guidelines and standards for the development and use of ChatGPT. These guidelines can help ensure that ChatGPT is developed and used in ways that are transparent, fair, and beneficial for society as a whole. Examples of ethical guidelines include ensuring that data used to train ChatGPT is representative and unbiased, establishing transparency and accountability mechanisms for ChatGPT-generated content, and preventing the use of ChatGPT for malicious or harmful purposes. Education and awareness-raising efforts can also play a critical role in promoting responsible and ethical use of ChatGPT. This can involve providing training and resources to users and stakeholders on the potential benefits and risks of ChatGPT

and how to use it responsibly. Additionally, public awareness campaigns can help raise awareness of the potential ethical concerns associated with ChatGPT and promote dialogue and collaboration between different stakeholders. By taking a proactive and responsible approach to the development and deployment of ChatGPT, we can unlock its potential to improve our lives and society while minimizing the risks and negative impacts. Ultimately, the responsible use of ChatGPT can help ensure that this powerful technology is used to benefit society as a whole.

Arabic Education Challenge in The Era of ChatGPT

As an artificial intelligence program capable of understanding and generating text in multiple languages, including Arabic, ChatGPT has the potential to make learning Arabic easier and more accessible for people around the world. But, several studies provides negative implications that need to be considered firstly: 1) Errors in grammar and vocabulary: Even though ChatGPT has been trained to understand Arabic, errors in grammar and vocabulary are still possible. This can mislead users and harm the Arabic learning process (Lee, 2023; Yeo-Teh & Tang, 2023); 2) Lack of social interaction: Using ChatGPT can reduce social interaction between teachers and students or between one student and another. Social interaction in learning Arabic is very important to speed up the learning process and improve communication skills in Arabic (Fuchs, 2023; Tabone & Winter, 2023); 3) Lack of understanding of Arabic culture: ChatGPT is only trained with Arabic language data, so a lack of understanding of Arabic culture can be one of the negative implications of its use. This can hinder students from understanding the cultural context and make mistakes in communicating with Arabs (Karaali, 2023; Lund & Agbaji, 2023); 4) Dependence on technology: The use of ChatGPT can make students become too dependent on technology in the process of learning Arabic. This can reduce students' ability to understand and use Arabic independently (Hsu, 2023; Zhai, 2023); 5) Lack of motivation: Using ChatGPT can reduce students' motivation to learn Arabic actively and independently. Students may be satisfied with the results obtained from using ChatGPT and less motivated to learn Arabic further (Cotton et al., 2023; Illingworth, 2023; Marusenko, 2023).

It can be known that while ChatGPT can potentially simplify the process of learning Arabic, there are also several negative implications that need to be considered. To mitigate these negative implications, it is important to use ChatGPT as a tool, not a replacement for traditional teaching methods. Teachers should provide guidance and support to students using ChatGPT, and ensure that students have a comprehensive understanding of Arabic grammar, vocabulary, and cultural context. Additionally, teachers should encourage social interaction among students and provide opportunities for students to practice Arabic communication

skills in real-life situations. It is also important to balance the use of technology with traditional teaching methods and promote the independence and motivation of students to learn Arabic actively and independently. Moreover, it is important to continuously evaluate the effectiveness of using ChatGPT in the Arabic learning process and address any issues that may arise. This can be done by gathering feedback from students and teachers and adjusting the use of ChatGPT accordingly.

This is included as a challenge for Arabic language education in today's ChatGPT era, which still requires more attention and alternative solutions, including: 1) The lack of use of Arabic in everyday life. Even though ChatGPT is capable of communicating in Arabic, the use of Arabic in daily life is still limited. This can hinder students' ability to practice Arabic directly and make it easier for them to forget what they have learned (Ali, 2023; Jianyang Deng & Lin, 2023); 2) Limited social interaction. Although ChatGPT can help in the process of learning Arabic, the social interaction generated by the program is still limited. Therefore, it is important for students to keep interacting directly with people who speak Arabic to improve their language skills (Al-Busaidi, 2019; Guild, 2019); 3) Limitations in the availability of technology. Even though technology is getting more advanced, not all students have access to the technology needed to use ChatGPT. This can hinder students' ability to practice Arabic effectively (Adamson, 2023; Eke, 2023); 4) Lack of effective use of learning media. Students need effective learning methods to understand Arabic well. Although ChatGPT can help, various learning media are still needed to maximize the learning process (Azaria, 2023; Sætra, 2023); 5) Limitations on the use of Arabic in real-world contexts. ChatGPT can help students understand Arabic in general, but the ability to use the language in real-world contexts is still a challenge. Therefore, it is important to introduce students to real-world situations that require them to use Arabic actively (Karaali, 2023; Lund & Ting, 2023; Mollick & Mollick, 2022).

Some studies also argue that technology cannot replace human experience in teaching and guiding students in learning Arabic. Additionally, concerns have been raised regarding the accuracy and quality of Arabic translations generated by ChatGPT. While ChatGPT can be an effective tool to simplify and accelerate learning Arabic, it cannot completely replace the teacher's role in providing deep understanding and social interaction needed in learning Arabic. Furthermore, the use of ChatGPT in learning Arabic can create data security and privacy problems for students if not regulated properly, and ChatGPT can sometimes provide inaccurate or out-of-context results. Additionally, it is not recommended to use ChatGPT as the only source for learning Arabic. Some may find using ChatGPT as an effective form of educational technology, while others may prefer traditional methods such as books and teachers (Anders, 2023; Baidoo-Anu & Owusu Ansah, 2023).

Therefore, it can be known that the use of ChatGPT for Arabic language education comes with both advantages and challenges. To overcome these challenges, it is important to use ChatGPT as a supplementary tool, and not as a replacement for traditional teaching methods. Teachers should provide guidance and support to students using ChatGPT, and encourage social interaction among students to improve their language skills. Additionally, it is important to introduce students to real-world situations where they can use Arabic actively. Moreover, efforts should be made to address the challenges related to the lack of use of Arabic in everyday life, limited social interaction, limitations in the availability of technology, lack of effective use of learning media, and limitations on the use of Arabic in real-world contexts. Alternative solutions can include promoting the use of Arabic in daily life, organizing language exchange programs or cultural events, providing access to technology and learning resources, using various learning media, and creating opportunities for students to practice Arabic in real-world situations. By combining the use of ChatGPT with these alternative solutions, students can have a more comprehensive and effective learning experience in Arabic language education.

Arabic Education Opportunities in The Era of ChatGPT

The ChatGPT era presents vast opportunities for Arabic language education with the advancement of technology and language skills. There are several studies found the positive implications of using ChatGPT for learning Arabic, including: 1) Expanding access to educational materials: ChatGPT can help increase access to educational materials in Arabic. With its ability to produce texts in Arabic, ChatGPT can assist in producing teaching materials or reading materials in Arabic that can be used by students and teachers (Karaali, 2023; Lund & Agbaji, 2023; Rospigliosi, 2023); 2) Adaptive learning: ChatGPT can be used to create an adaptive and personalized Arabic learning system. ChatGPT can analyze students' progress in learning Arabic and provide appropriate and relevant feedback, as well as provide appropriate suggestions and materials for each student. Through such utilization, opportunities for enhanced learning and teaching can be used for individuals at all levels of education, including primary, secondary, tertiary and professional development (Atlas, 2023; Kasneci et al., 2023); 3) Interactive learning: ChatGPT can be used to create interactive Arabic learning experiences. ChatGPT can act as a virtual tutor who can ask specific questions and assignments, and provide real-time feedback (Johinke et al., 2023; McMurtrie, 2023; Mollick & Mollick, 2022); 4) Improve translation quality: ChatGPT can help improve the quality of Arabic translation to other languages and vice versa. This can help in broadening the reach of Arabic literature and assist non-Arabic speakers in understanding Arabic literature (Hendy et al., 2023); 5) Development of learning applications: ChatGPT can assist in developing more effective and interactive Arabic learning applications. ChatGPT can assist in the development of Arabic learning applications

that can provide relevant and timely feedback and adapt learning to student needs. Learning technologies such as Augmented Reality (AR), Virtual Reality (VR), and Mixed Reality (MR) can also be applied to enhance the Arabic learning experience. This technology can help users understand Arabic more easily and more pleasantly thereby increasing interest in Arabic education in the ChatGPT era (Godwin-Jones, 2023; Jihinke et al., 2023; Nadkarni, 2023; Putro et al., 2023; Qadir, 2022).

It can be known that, the use of ChatGPT in Arabic language education offers numerous benefits, especially in terms of expanding access to educational materials, creating adaptive and personalized learning systems, enabling interactive learning experiences, improving translation quality, and facilitating the development of more effective Arabic learning applications. ChatGPT's ability to produce texts in Arabic can increase access to teaching and reading materials, while its analytical capabilities can provide relevant feedback and suggestions for each student. Additionally, ChatGPT can act as a virtual tutor, asking specific questions and providing real-time feedback. Moreover, ChatGPT can help in the development of AR, VR, and MR technologies to enhance the Arabic learning experience. To put it differently, ChatGPT can be a valuable resource to support Arabic language learning if it is used appropriately and integrated effectively. ChatGPT can enhance students' Arabic language abilities by providing them with natural language interaction and vocabulary expansion.

However, it should be remembered that ChatGPT should not replace Arabic language teachers or teaching methods. Instead, it should be used alongside traditional teaching methods that prioritize direct interaction between students and teachers. To maximize the potential of technology in Arabic language education, it is important to explore different ways to incorporate it and find the best practices. Achieving a balance between ChatGPT and traditional methods, and ensuring active involvement of teachers, is crucial. Students should develop critical thinking skills, and healthy and responsible social and technological skills. Furthermore, it is important to recognize that ChatGPT is still a machine and may not always provide accurate or contextually appropriate responses. Therefore, it is important to approach ChatGPT as a supplemental tool and not rely on it as the sole source of information or instruction in Arabic language learning. It is also crucial to address concerns around data privacy and security when using ChatGPT, particularly in educational settings where student information must be protected.

Is Indonesian Education Ready to Adapt Artificial Intelligence?

The readiness of Indonesia's education system to adapt to ChatGPT is a challenging question, given the many changes and improvements it has undergone in recent years. To answer this question, several factors must be taken into account. It is crucial to understand

what ChatGPT is and how it can benefit the Indonesian education system. ChatGPT can serve as a virtual assistant that aids students and teachers in the learning and teaching process. However, utilizing ChatGPT in the Indonesian education system requires access to sufficient technology and infrastructure. This includes reliable and fast internet connectivity, appropriate hardware such as laptops or tablets, and software and applications that are compatible with ChatGPT. But, not all regions in Indonesia have adequate access to this technology and infrastructure. In addition, there are still many schools in Indonesia that still use traditional learning methods, with the teacher as the only source of information and knowledge for students (Nugraha & Hambali, 2023). Therefore, it is necessary to make efforts to expand access to adequate technology and infrastructure, as well as to provide appropriate training and education for teachers and students to make effective use of technology (Mahmud & Koniyo, 2023). In addition to technological and infrastructure factors, it is also necessary to consider cultural and social factors in the use of ChatGPT in the Indonesian education system.

Studies found that some individuals in Indonesia may not feel comfortable or familiar with technological tools such as ChatGPT, particularly those who come from environments with limited exposure to technology (Hikmat, 2022). To address this, it is important to provide education and information to the public about the potential benefits and uses of ChatGPT. Furthermore, it is crucial to evaluate whether the implementation of ChatGPT can support the educational objectives that have been established. The primary goal of education in Indonesia is to produce competent, self-reliant individuals who can compete on the global stage. Therefore, the use of ChatGPT should align with these objectives by enhancing the quality of education, fostering independent learning skills, and preparing students to compete on an international level.

To further address the readiness of Indonesia's education system in adopting ChatGPT, cultural and social factors must also be taken into account. For instance, some Indonesian students may not be familiar with AI-based technologies like ChatGPT and may require more time to adapt to its use. Similarly, there may be cultural differences in the way Indonesian students learn, which may impact the effectiveness of ChatGPT. Furthermore, there may be concerns about the potential negative impact of technology on students' social skills and interactions. Therefore, it is important to approach the integration of ChatGPT into the Indonesian education system with a balanced perspective. While technology can offer many benefits, it is crucial to maintain a focus on traditional learning methods and ensure that technology is used as a tool rather than a replacement for teachers and classroom interactions. Moreover, cultural and social factors must be taken into consideration to ensure that the implementation of ChatGPT is successful and effective in improving the quality of education in Indonesia.

Conclusions

ChatGPT has become a challenge and potential to significantly enhance Arabic language education technology. Indeed, the study presented highlights the vast potential of ChatGPT in enhancing Arabic language education technology. The ability of ChatGPT to expand access to educational materials, create personalized and interactive learning experiences, improve translation quality, and assist in developing more effective learning applications shows how ChatGPT can become a valuable tool in Arabic language education. However, it is important to note that the integration of ChatGPT into the education system requires access to adequate technology and infrastructure. Additionally, ChatGPT should be used as a tool to complement traditional learning methods and not as a substitute for teachers. Some efforts need to be made to educate the public about the benefits and uses of this technology, especially in areas that are less exposed to technology. The use of ChatGPT must align with the educational goals set, such as improving the quality of education, developing students' abilities independently, and helping students compete at a global level. In addition, this research still has limitations in terms of scope and depth. There is a need for more comprehensive and detailed references to support the arguments and claims made in the study. Further research is needed to explore the potential ethical, social, and cultural implications of integrating AI technology like ChatGPT into Arabic language education. In terms of research recommendations, future studies should aim to evaluate the effectiveness of ChatGPT in improving student learning outcomes in Arabic language education. This can be achieved by conducting experimental studies that compare the performance of students who use ChatGPT with those who do not. Furthermore, research should also focus on identifying best practices for integrating ChatGPT into traditional Arabic language teaching methods to enhance the learning experience for students.

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