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Non Stop Educational Support: Exploring the Opportunities and Challenges of Intelligent Chatbots Use to Support Learners from the Viewpoint of Practitioner Educators

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Abstract

Chatbots use in education is still in need for the identification of opportunities resulting from their use as well as the challenges facing the expansion of such use despite the massive spread of these Chatbots recently. The merits of Chatbots have prompted some teachers to use them to provide learners' with educational support, which consequently helped the appearance of a group of teachers who start practice using Chatbots techniques in education. Therefore, the present study aims to identify the viewpoints of practitioner teachers regarding the opportunities and challenges of Chatbots use in providing learners with educational support. The phenomenological approach is used via conducting Semi-structured interviews with practitioner teachers, five main motivating questions were used to generate the data. Participants were (11) teachers who were purposefully selected from the practitioner teachers who were using Chatbots to provide support services in the primary, middle and secondary educational levels. The results showed that Chatbots in education provide many opportunities that contribute to increasing the efficiency of the educational support through flexibility of support, motivation, accessibility and availability, in addition to guidance and counseling processes. This study also revealed a number of physical, technical and ethical challenges in front of using this technology in providing educational support.

Keywords: *Intelligent Chatbots; Educational Support; Chatbot Opportunities; Chatbot Challenges.*

Introduction

Education technologies seek to design appropriate technological processes and resources to facilitate learning and make it constant, improve performance, and provide educational support (Shakhnoza & Makhbuba, 2020) as educational support operations are an essential component of the educational system (Jardí, Acquah, Ianos, & Puigdellívol, 2021). They provide assistance to the learner via one or more sources to achieve educational goals (Li, Xing, & Leite, 2022). Educational support is regarded as an important educational input due to its clear educational effectiveness on learners (Jeong & Lee, 2020) in improving performance (Bester & Kuyper, 2020), developing thinking skills (Harju-Luukkainen, Björklund, Sandberg, & Rhinehart, 2022), increasing the educational autonomy, and acquiring self-regulated learning skills (Thomas, Muls, De Backer, & Lombaerts, 2021). Many electronic means of media have been used to provide educational support, including smart phones (Ananto & Ningsih, 2020), social media platforms (Schnurr & Taylor, 2021), and virtual reality (Wang, Guo, Wang, Tu, & Liu, 2021) and Chatbots (Guo, Wang, & Chu, 2022).

Chatbots are one of the most popular applications of artificial intelligence used in education (Okonkwo & Ade-Ibijola, 2020). They allow human-machine interaction using a natural language where each interaction consists of a chain of conversational responses between the chat agent and users (Arsovski, Osipyan, Oladele, & Cheok, 2019; Binsaeed et al., 2023; Haluza & Jungwirth, 2023; Klimova et al., 2023). Over the time, capabilities of Chatbots have been developed. They started from simple and primitive conversations to more intelligent and emotional ones (Zhou, Gao, Li, & Shum, 2020). Such capabilities have empowered Chatbots with several merits and advantages when used in education. They, for example, helped in saving time and effort and supporting adaptive learning (Baha, Hajji, Es-Saady, & Fadili, 2022), in addition to

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providing appropriate feedback (Fidan & Gencel, 2022) stimulating participation (Okonkwo & Ade-Ibijola, 2021) as well as educational access and support (Gupta & Chen, 2022).

Educational support is one of the core functions of Chatbots (Clarizia, De Santo, Lombardi, & Santaniello, 2021) to meet the needs of learners in an attractive, interactive, rapid and continuous way (Chen, Jensen, Albert, Gupta, & Lee, 2023). Moreover, it was one of the main features of education during the fourth industrial revolution (Sakhapov & Absalyamova, 2018) where Chatbots could act as personal assistants. The human language is intelligently used to provide learners with the required information using various means of media within the eLearning environment at the interaction time (Chen, Xie, Zou, & Hwang, 2020). Besides, intelligent Chatbots to provide the educational support are used because of the importance for the educational institutions to move towards the use of intelligent technologies that enhance the opportunities for sustaining learner support and improving learning outcomes (Beghetto & Madison, 2022; Deng & Yu, 2023; Marrone, Taddeo, & Hill, 2022).

Chatbots have the potential to enhance sustainability indicators in education in terms of their ability to support learners and provide answers and feedback throughout the day, especially when the teacher is not available all the time (Deng & Yu, 2023). Chatbots have the ability to extend learning time outside of educational situations, which enhances their ability to be a tool that promotes learning sustainability (Chen, Zhuo, & Lin, 2023). Chatbots can reduce the burden on teachers in providing instructional support, which enhances the ability of the educational system to have multiple, permanent sources of support, making a chatbot-based learning environment supportive of educational sustainability (Deng & Yu, 2023). Based on the fact that chatbots have the ability to improve learners' self-regulated learning skills, this enhances learners' abilities to organize their learning and the continuity and sustainability of the learning process (Chang, Lin, Hajian, & Wang, 2023).

With the spread of chatbots, and in the context of many educational institutions moving towards expanding the application of chatbots as an educational support technology, it becomes necessary to conduct studies that determine the mechanisms for benefiting from these chatbots, as well as identifying the most important challenges they face (Abbas et al., 2024). Chatbots may help achieve many educational benefits, and therefore it becomes necessary to frame these benefits so that their use can be expanded in the future according to actual experiences carried out by expert teachers. Also, since chatbots have become a tangible reality in educational life, it may be necessary to study the challenges that may be an obstacle in the optimal employment of chatbots

Research gap in the present study depends on the fact that Chatbots are one of the most important tools that can maintain continuity of providing educational support without time and place constraints. Research into their use in the educational contexts to provide learners with support is one of the important matters that scientific research should address (Cunningham-Nelson, Boles, Trouton, & Margerison, 2019; Nurshatayeva, Page, White, & Gehlbach, 2021; Smutny & Schreiberova, 2020). However, few teachers used Chatbots technology to provide the educational support despite their vast importance in doing so (Mendoza, Sánchez-Adame, Urquiza-Yllescas, González-Beltrán, & Decouchant, 2022) indicating the importance of considering the opportunities and challenges that promote or hinder the use of Chatbots in support provision services during learning that extend all the day long (24/7). During the use of electronic media means, the learner needs support in times where reference to the teacher is not available, which makes dependence on Chatbots essential to perform the teacher's role. Thus, the present study tries to explore the opportunities and challenges of Chatbots use in the provision of educational support to different groups of learners. Despite the fact that many studies have addressed the use of intelligent Chatbots in education (Deng & Yu, 2023; Okonkwo & Ade-Ibijola, 2021; Wollny et al., 2021), the research team of the present study have found a scarcity in studies concerned with the use of Chatbots in providing support mainly via the use of the qualitative approach. Therefore, the research team were motivated to study the viewpoints of practitioner teachers regarding the opportunities and challenges of using Chatbots in the provision of the educational support. Accordingly, the present study conducts a set of personal interviews using the phenomenological approach to identify the views of practitioner teachers who use Chatbots in the educational support to come up with beneficial lessons and deep insights that can be useful in expanding the experience besides supporting teachers who do not use this technology by providing a

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framework that can enhance the goals and roles of Chatbots in the educational process and meanwhile help Chatbots developers understand the requirements of their employment in the educational support. It mainly aims to explore the opportunities of using Chatbots by teachers to support learners, as well as to identify the main challenges that hinder them from doing so. Therefore, the present study addresses these research questions:

How do practitioner teachers view the opportunities of using Chatbots in providing educational support?

How do practitioner teachers view the challenges of using Chatbots in providing educational support?

Answers to these questions may contribute to supporting people in charge for using intelligent technologies in education with a guide including the most important indicators of opportunities and challenges that enhance or hinder using Chatbots in providing the educational support as perceived by practitioner teachers upon whom lies a great deal of success of the system of using Chatbots in the extended educational situations.

Conceptual framework

Chatbots Concept and Characteristics

The idea of Chatbots first appeared in the late 1940s of the last century by a scientist named Alan Turing (Boussakssou, Ezzikouri, & Erritali, 2022) and Eliza was announced as the first interactive Chatbot in 1966 that worked on defining the main words in the user's words and then using them in the reply via question asking or replies (Singh & Thakur, 2020). The technology of Chatbots is still in a continuous development because of their linkage to the technology of artificial intelligence (Villegas-Ch, Arias-Navarrete, & Palacios-Pacheco, 2020). They are also known as Customer Chat Programs using virtual agents (Lucero Fredes, Cano, Cubillos, & Díaz, 2022)or a library of answers that are organized to respond to the users' goals (McKie & Narayan, 2019). Some people also define them as artificial intelligence-based natural language processing programs (Deveci Topal, Dilek Eren, & Kolburan Geçer, 2021). Moreover, a Chatbot has several names like a digital assistant or a virtual assistant (Dibitonto, Leszczynska, Tazzi, & Medaglia, 2018), an artificial intelligence conversation (Nawaz & Saldeen, 2020), and a chat agent (Kocielnik, Avrahami, Marlow, Lu, & Hsieh, 2018).

Chatbots have numerous characteristics including availability, live support, and effective training (Clarizia et al., 2021) besides participation, saving time and effort, attractiveness, and engagement (Zamora, 2017). There is no doubt that advanced characteristics of Chatbots support the idea of relying on them in the educational field (Yang & Evans, 2020) where they can be used in the educational context for several uses such as their being used in virtual private lessons (Følstad & Brandtzaeg, 2020), student participation (Abbas et al., 2022), student support(Nurshatayeva et al., 2021), helping the teacher (Hamam, 2021), being the administrative companion (Grudin & Jacques, 2019), proactive assistance (Zhu et al., 2021), note taking or collecting (Reicherts, Park, & Rogers, 2022), tests and assessment (Smutny & Schreiberova, 2020) and analysis of students' feelings (Ralston, Chen, Isah, & Zulkernine, 2019).

According to the Technology Acceptance Model in Education (TAM) invented by Davis, which assumes that technology acceptance by users is determined by two main variables namely, perceived utility and perceived ease of use, it can be claimed that much of the previous literature showed the role of Chatbots in the achievement of the perceived utility as well as the perceived ease of use, which reinforces the importance of expanding the use of Chatbots in the educational process (Chocarro, Cortiñas, & Marcos-Matás, 2023; De Cicco, Iacobucci, Aquino, Romana Alparone, & Palumbo, 2022; Eißer, Torrini, & Böhm, 2020; Pillai & Sivathanu, 2020).

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Chatbots as a tool for educational support

Educational support is a strategy based on providing assistance to the learner in a way that allows him to perform the skill successfully (Kasneci et al., 2023) and the educational support structure can be effectively developed by dependence on the intelligent Chatbots (Al Mulhem & Almaiah, 2021). Support can be provided through several patterns that Chatbots can adopt. These Chatbots can be conceptual scaffolding that are used to provide the learner with directions about needed learning aspects through dialogues between the Chatbot and him, which makes the process of organizing concepts clear in a way that helps him to focus on the appropriate content to solve the educational problem (Doo, Bonk, & Heo, 2020). Moreover, a Chatbot can be a procedural scaffolding where support can be provided to the learner via with guidance on how to use available resources, references, and tools (Wollny et al., 2021). In addition, a Chatbot can act as an educational scaffolding according to several stages starting with introduction, model submission, practice, feedback, increasing the levels of learning gradually, and ending with giving freedom of independent practice to each learner (Kasneci et al., 2023).

The design of Chatbots successive steps and sequential instructions, according to the theory of Experiential Learning, can contribute to the learning process. The theory indicates that individuals learn by creating meaning of their personal experiences (Menkhoff & Teo, 2022), which can be provided through Chatbots that grant the learner the opportunity to practice his personal experience, which provides the learner with a new concrete experience that can be reflected on his personal skills. The design of sequential tasks- based Chatbots, according to the learner's control principle, can further enhance his control over tasks further and help him control what he learns in the form of simple parts and then moves to the overall parts, and this is exactly what the Constructivist theory supports (Alhalafawy, Najmi, Zaki, & Alharthi, 2021; Alhalafawy & Zaki, 2022; Alhalafawy & Zaki, 2019; Alshammary & Alhalafawy, 2023; Alzahrani & Alhalafawy, 2023; Alzahrani, Alshammary, & Alhalafawy, 2022; Clarizia et al., 2021; Elbourhamy, Najmi, & Elfeky, 2023; Elfeky & Elbyaly, 2021; Najmi, Alhalafawy, & Zaki, 2023; Saleem, Zaki, & Alhalafawy, 2024).

In accordance with what Chatbots can provide like support and continuous feedback and according to their positive impact on the internal motives that cause pleasure and satisfaction to the learner (Xing, Song, Duan, & Mou, 2022). It can be argued that this is consistent with what is being confirmed by Self-determination theory that the learner's movement towards carrying out tasks is usually driven by a set of internal motives that whenever they go higher, the more the learner becomes able to decide his own destiny and actions (Jiang, Qin, & Li, 2022). Besides, the theory is based on the fact that the human is argumentative and is instinctively oriented, which needs appropriate support and feedback from the environment.

Methodology

Approach

The present study adopted the phenomenological approach to identify the roles of Chatbots in providing the educational support according to the practitioner teachers' viewpoints because it allows to identify the experience learners acquire and understand how to experience it through narrations, stories and events about their experiences (Creswell & Poth, 2016) in order to transfer the results to more broader limits (Moustakas, 1994). Meanwhile, semi-structured interviews were used to collect data from the (11) practitioner teachers.

Participants

Participants in the present study consisted of a group of public-school teachers at Makkah in Saudi Arabia (N=11). Three (3) teachers were of the elementary stage, four (4) teachers were of the intermediate stage, and four (4) teachers were of the secondary stage. Diversity in participants teaching stages was assumed to produce more variation in the viewpoints regarding the roles of Chatbots according to age. Moreover, presentation of teachers to all educational stages may lead to varied viewpoints and visions regarding the nature of use. Accordingly, teachers who were highly praised by supervisors or who had received thank you

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certificates because of their use of Chatbots in education, or those who provided professional development in this field were only chosen as participants in the present study. The participating teachers were selected according to their rich experiences in using chatbots to provide instructional support. Six of the participating teachers were male and five were female. The participating teachers teach computer, science, and math courses. The selection of participating teachers was subjected to an initial assessment by the research team, where a long list of 25 teachers who were interested in using chatbots was prepared, followed by filtering the number down to (11) participants based on their distinctive experiences in using chatbots . Table (1) shows the distribution of participants according to the semi-structured interviews.

Table1. distribution of participants in the semi-structured interviews

N.	Code	Gender	Years of experience	Educational stage
1	E1	Male	14	Elementary
2	E2	Female	16	Elementary
3	E3	Female	13	Elementary
4	M1	Male	17	Intermediate
5	M2	Female	12	Intermediate
6	M3	Male	14	Intermediate
7	M4	Male	18	Intermediate
8	S1	Female	20	Secondary
9	S2	Female	19	Secondary
10	S3	Male	18	Secondary
11	S4	Male	17	Secondary

Data collection and analysis

Semi-structured interviews were used through one-on-one interviews with the practitioner teachers, either face-to-face or over the phone, for about 30 minutes. Each interview was digitally recorded to ensure that data collection was a systematic manner (Creswell & Poth, 2016). Interviews with teachers of the same educational stage were conducted in the same day from 5.00 p.m. to 10.00 p.m. for the sake of taking participants work and family conditions into account. Moreover, interviews were carried out in Arabic, the mother tongue of all participants. All interviews were recorded and transcribed into transcripts and then re-presented to faculty members participating in the experiment to ensure their accuracy. Five main motivating questions were used to generate the data:

How was your experience in using Chatbots for educational support?

How did the experience of using Chatbots for support provision affect teachers?

How did the experience of using Chatbots for support provision affect learners?

How did you cope with the challenges of using Chatbots for support provision?

How can your experience in using Chatbots for support provision be generalized?

The previous questions were just questions to start the discussions, although they included multiple interventions according to meeting course with each teacher. Semi-structured interviews do not include fixed questions throughout the discussion but initial questions to stimulate the discussion and then vary the questions based on the participants' responses(Creswell & Poth, 2016). The course of the discussion, questions and interventions all depend on the participants and their responses, not the examiners.

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Data analysis

Data were processed and analyzed subjectively using MAXQDA program, which allowed coding and collecting data and then creating sub-topics through the response file of each participant in the study. In the context of what was raised during the coding processes of the participants' responses and the identification of issues related to the use of Chatbots for the educational support, the main fields rooted in participants' responses focused on certain topics as shown in Figure 1. According to the findings of the qualitative analysis, the most important opportunities associated with the use of chatbots in providing educational support are based on increasing flexibility, motivation enhancement, availability, and guidance and counseling. The challenges associated with using chatbots to provide educational support are based on physical, technical, and ethical challenges.

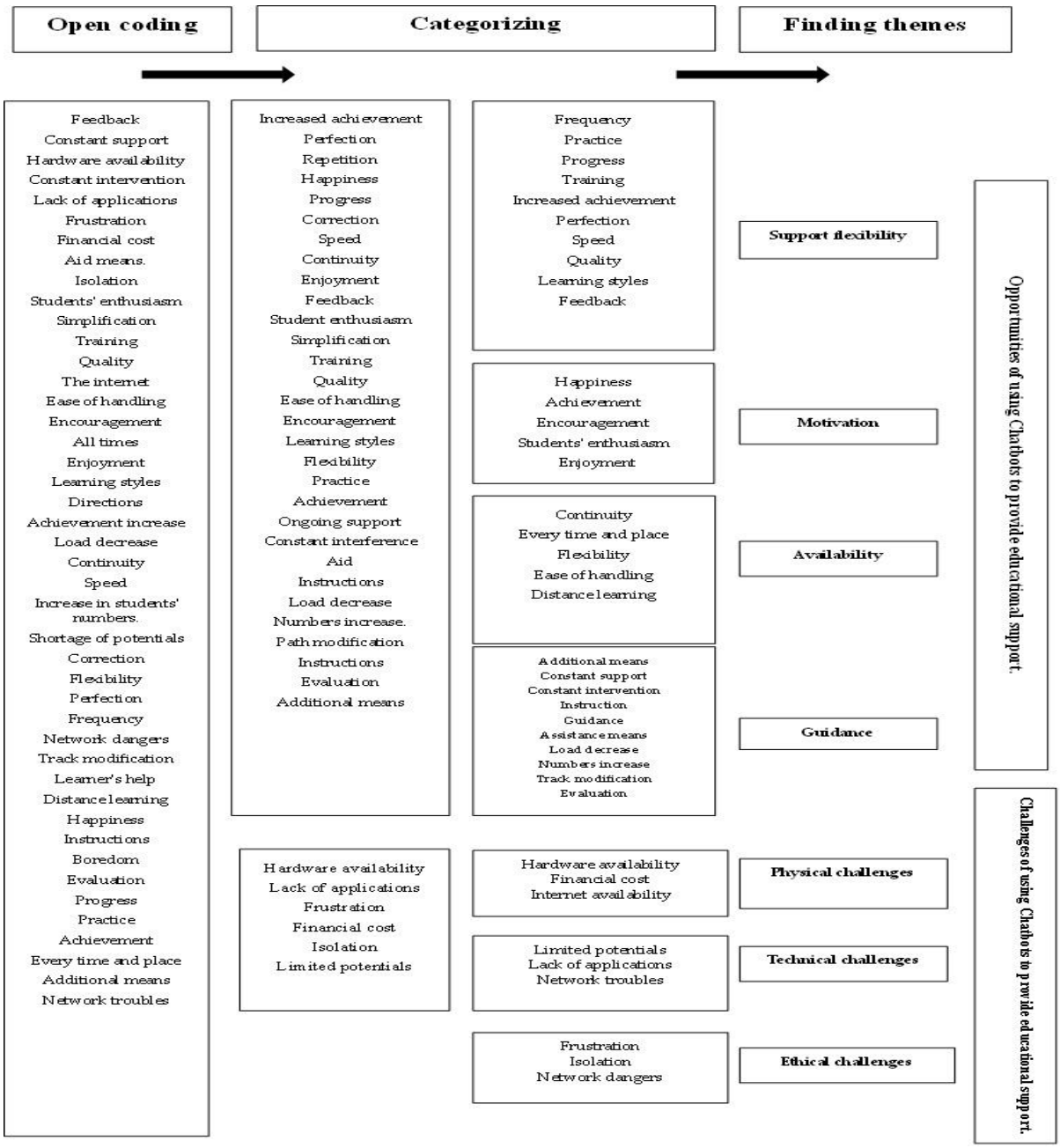

Figure 1. Matrix of qualitative data coding

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Results

The results were based on two axes: the challenges and opportunities associated with employing chatbots in providing educational support. The most important opportunities associated with the use of chatbots in providing educational support are based on increasing flexibility, motivation enhancement, availability, and guidance and counseling. The challenges associated with using chatbots to provide educational support are based on physical, technical, and ethical challenges. The main opportunities and challenges chatbot shown in Figure 2.

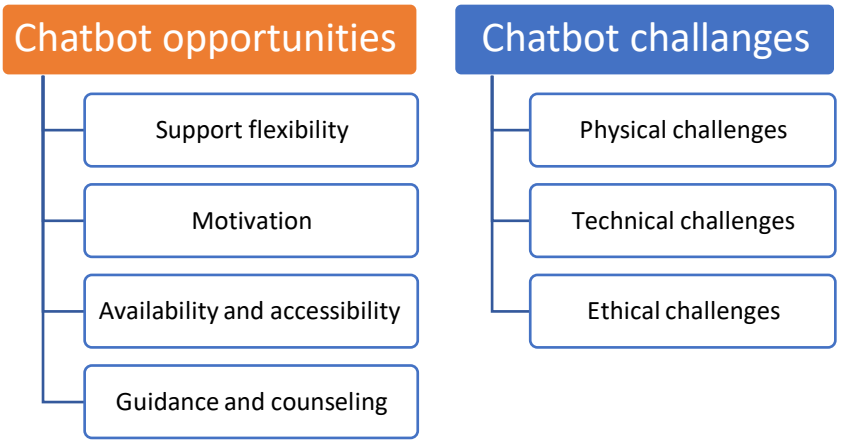

Figure 2. opportunities and challenges chatbot

Answer the first question: Opportunities of using Chatbots

It can be claimed that Chatbots play a significant role in the efficiency of educational support management. They can contribute to increasing flexibility, motivation enhancement, availability, and guidance and counseling.

Support flexibility

Chatbot technology has a major role in providing educational support and improving various skills through the learner's multiple and repeated attempts until he successfully overcomes the educational situation. He for example, will not feel embarrassed of making mistakes in front of his colleagues or hesitate to repeat the question, which helps him to master the skills and retain information. In this context, one participant stated:

"Chatbots helped students master different skills through repetition and multiple attempts, which class time might be insufficient to allocate to each student separately and consequently such effect was reflected in the achievement of the educational goals for most students" (E3).

The participant's response shows that the structure of Chatbots and their various mechanisms not only allow repetition but also multiple attempts, which in turn, encourage students to gain confidence in their ability to learn and not feel afraid of failure. They also reduce stress and at the same time create a safe learning atmosphere, which was reflected positively on their efficiency in providing the educational support.

Furthermore, participants' responses showed that Chatbots have a role in increasing the efficiency of the education process in a way that can be reflected in increasing the level of achievement, performance speed, quality in solution, and attaining high level of proficiency. In this context, one of the participants stated:

"In the educational process, I previously used a large number of programs and applications with students, but the use of Chatbots clearly contributed to my students' high level of achievement who interacted with this technology in the right way. This

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is clearly noticed with low academic achievers whom Chatbots helped to attain high levels of achievement through their continuous training" (M1).

Words of the previous participant confirms the role of Chatbots in increasing the efficiency of learning through providing the learner with constant feedback, non-stop support, the results of his responses, and the mechanism of correcting his errors. Consequently he can modify his conduct through evaluating his results, which in turn contribute to increasing the efficiency of his learning through the educational support.

Motivation

Processes of stimulation and encouragement are very important in the efficiency of providing educational support. Responses of participant teachers have confirmed the role of Chatbots in increasing students' motivation and encouragement through the feelings of happiness, enthusiasm, enjoyment, and sense of achievement generated after coping with Chatbots. For instance, one participant stated:

"During the discussion of students' experience with Chatbots, they showed great happiness, which appeared while describing their learning process and use of some autoresponder phrases, which they tried to imitate. Their happiness also appeared clearly when observing their learning using Chatbots and being eager to provide more" (S2).

Words of the previous participant teacher reveal the importance of interaction between students and Chatbots, which supports positive participation of all students that granted them the sense of justice and equality. It also customizes the learner's experience to ensure continuity as well as supports the social aspect via interaction with his natural language. In brief, the use of Chatbots helps in creating a new educational case that puts the student within a motivational framework that is reflected positively on the efficiency of educational support provision.

Availability and accessibility

A Chatbot is a flexible and easy to use technology when dealing with it. it supports the continuity of support provision to learners. Its availability on various mobile devices enhances this fact and makes using it in all times and places possible. For example, one participant said:

"Students can access Chatbots applications through mobile devices from different places. Such applications make students carry out the required tasks in the exact time easily and without the need to be linked to any specific device" (E2).

Another participant stated:

"Most students could cope with the Chatbot easily from the first attempt without encountering significant difficulties, which helped achieve the set goals for using this technology" (M1).

Previous participants' comments reveal the distinguished merits of Chatbots technology in terms of availability, whether through mobile or non-mobile devices, or through the ease of use that enables learners to successfully deal with them as they do not require any technical background to do so. Besides, constant availability of Chatbot technology at different times enables the learner to use and benefit from it at all times, which could contribute to saving the learners and teachers' time and effort.

Guidance and counseling

Chatbots are an additional educational support means that provides the teacher and the learner with constant support through proactive and direct intervention. Moreover, they offer guidance and instructions to the student, which to some extent decreases the teachers' loads. In this context, one participant mentioned:

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"By using Chatbots, students started moving forward in their learning without stopping because of the constant help Chatbots offered to them in every learning stage of their learning. They additionally supported them besides their teachers' support which greatly helped him reduce his loads and change his role to be a mentor and a moderator in the educational process" (S4).

Statements of the previous participant explain the role of Chatbots in the educational support provision and the assistance of teachers and students in a way that fits the rhythm of each student according to his own needs and requirements. They also help the teacher to successfully perform his role. Besides, they provide constant guidance and instructions to students during their learning in an acceptable and favorable way instead of the teacher's constant intervention, which might constitute a burden on the teacher, in addition to students' lack of acceptance or preference for this constant intervention.

In the same context, Chatbots play an important role through the constant guidance and counseling they provide to students by path adjustment and evaluation to ensure that the learner is in the right track of the learning process. In this context, one participant stated:

"Chatbots contributed to changing some educational habits of students through modifying some wrong practices and guiding them to the correct ones. In other times, they directed students to try and repeat the wrong practice until they reach the right decision" (M4)

Words of the previous participant show the role Chatbots play in guiding and counselling students through various processes supported by Chatbots' mechanisms. They support the student's learning and help him evaluate his learning performance and proceed in his learning in the right and clear way to achieve his goals in addition to saving time and effort these processes need.

Answer the Second question: Challenges of using Chatbots

Chatbots are modern technologies who's some of their secrets have not been revealed yet. When teachers use this technology, they may encounter a number of challenges at the beginning of the application period and continue later according to the challenge size. Responses of participant teachers reveal these challenges:

Physical challenges

Physical challenges are of the most important challenges teachers face while using Chatbot technology. Availability and use of appropriate devices in the educational process is a challenge in itself. In addition, availability of a good Internet is another major challenge to the success of Chatbot application in education as stated by one participant:

"One of the challenges we faced while trying to benefit from the use of Chatbots in education is the lack of devices available for students. Thus, we tried to train students inside the school only through available equipped laboratories, and therefore we can claim that some students did not benefit as hoped from the potentials of this technology all the daylong " (E1).

Another challenge was mentioned by another participant as follows:

"The lack of a good network that supports constant Internet connection, or the poor internet connection, if available, limited the benefit of Chatbots in education. Therefore, many students lost the opportunity to benefit from these educational Chatbots in supporting the learning process" (M1).

In short, previous participations indicate some of the challenges facing the application of Chatbot technology in offering educational support. They show that this technology needs appropriate devices according to certain specifications to be in the educational process. In addition, lack of a good, stable and constant Internet connection is another basic challenge that should be overcome to use effectively this technology in education, which may be not available in some environments, mainly environments of low economic levels. Consequently, the benefit of this technology will be limited or weak.

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Technical challenges

The capacity of Chatbots technology is still unreachable in spite of its vast development and progress in education. for instance, when learners use incomplete or unfamiliar sentences for this technology's algorithms to communicate with and obtain the desired responses, it fails to provide the appropriate response to the learner's communication. Repetition of this process may badly be reflected on the learner and affects his confidence in the ability of this technology. In addition, the machine's voice used to interact with the learner differs from the human voices as no feelings are there. The tone's dependence on the situation may inappropriately affect the learner. Likewise, the interfaces' poor design of Chatbots programs may be negatively reflected on the learner and reduce his attraction. One participant teacher for instance said:

"Students found some deficiencies in the design of Chatbots technology when using some words that are not understood by the Chatbot. Consequently, the response was inappropriate and sometimes funny for students, which distracted them from using this technology in education" (S4).

Another participant explained another challenge saying:

"The Chatbot interface design was not appropriate or attractive to children. There were no visual cues from the Chatbot during the conversation with the learner" (E3).

Whereas a third participant talked about the voice options in the Chatbots programs saying:

"Some students did not appropriately interact with the voices of the Chatbots although there were voice options in the program where the learner can choose the voice of a man or the voice of a woman. Some students started imitating the Chatbot voice pettishly when asked to use this program" (S4).

Another participant teacher added:

"When I thought of using Chatbots with my students, I faced a difficulty in finding an appropriate Chatbot application that supports the goals set for the course and helps students to achieve them, which costed me a great effort to learn one programming language in order to make my own Chatbot" (S3).

Responses of previous participants indicate that there are some technical challenges users of Chatbot technology in the educational process meet. For instance, they showed that despite the development of voice chats, they still do not accurately mimic the human language completely in terms of the different tones according to the situation and their lack of visual gestures that accompany the human language. Moreover, the way the machine responds to undefined words is still in need for further development, which is one of the important challenges in using natural language processing (NLP). In addition, the user interfaces of Chatbot programs need more attention and support from the developers to meet the users' desires and needs. The production of chat applications or programs according to certain specifications requires technical expertise that all teachers may not have.

Ethical challenges

Among the challenges that are difficult to ignore are the ethical ones, mainly for younger students because access to the Internet requires supervision, whether by teacher or parents. The child's sitting in front of the technical device and being occupied with it for long periods may affect some of his social aspects. In this regard, one of the participants stated:

"During my application of Chatbots in education, I noticed an exaggeration of students' side in using this technology in addition to its preference over participation and interaction with classmates. When asked about this, I found out that those students were enjoying freedom in coping with the Internet and other devices without sufficient family control" (E2)

Journal of Ecohumanism
2024
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The words of the previous participant show some of the challenges facing the application of Chatbots in education. First, this technology needs follow-up and control, whether from teachers or parents. On the other hand, student's use of these devices for long periods leads him to be in isolation and may be reflected on his personality and communication with others.

Discussion

To answer the main questions included in the present study that aimed to identify the opportunities and challenges of using Chatbots to provide the educational support from the viewpoint of teachers, the following main aspects, as rooted in the participants' responses, can be discussed as follows:

Opportunities of using Chatbots to provide educational support

Chatbots are popular applications of artificial intelligence used in education (Okonkwo & Ade-Ibijola, 2020), which have recently received more attention because of the educational goals and positive role they have shown (Wollny et al., 2021). Thus, the most common goal of any technical innovation in education is to improve the learners' level of awareness and skillful performance. Chatbots, therefore work through learning and experience practice-based mechanisms and progress towards achievement and training process on developing awareness and skills. Studies in this area emphasized the positive role of Chatbots in students' progress in the educational process and support of their learning (Kim, 2018).

Moreover, the result of the present study is supported by the theory of Learning Scaffolding where a Chatbot acts as a support and assisting scaffolding and consequently allows the learner to perform the skill successfully (Al Mulhem & Almaiah, 2021). Besides, Chatbots lead to repetitive tasks automation, time and effort saving, which increases the educational process efficiency (Mishra, KR, & BU, 2020) because Chatbots sequential steps design aids the learning process. This result is largely consistent with the Experiential Learning theory where individuals learn by creating meaning of their personal experiences (Menkhoff & Teo, 2022).

Through the analysis of the participants' responses, it was found that Chatbots technology in education increases the learners' enjoyment, continuous enthusiasm, and engagement in the learning tasks supported by intelligent Chatbots leading to more positive motivation rates among learners. This result corroborates the result of Ondáš, Pleva, and Hládek (2019) indicating that Chatbots have an important role in motivating learners. Moreover, the present study found that Chatbot-based system enhances the learners' internal learning motivation. This result is in agreement with Yin, Goh, Yang, and Xiaobin (2021), which investigated the impact of Chatbot-based learning on student's performance and motivation and concluded that Chatbots have a role in students support and motivation.

Responses of participants in the present study showed a number of merits for the use of intelligent Chatbots technology in education. Responses involved the ease and flexibility of learners' interaction with this technology and its constant support provision processes, which qualified it to be an appropriate means of supporting distance education environments. This result agrees with Baha et al. (2022) that confirmed the effectiveness of Chatbots in time and effort saving and continuity of educational services provision to the teacher and learner continuously. This result also is supported by the fact that this technology is available on mobile devices in various forms, which in turn contributes to the possibility of using it without time and place restrictions.

With regard to opportunities related to guidance and counselling, participants' responses emphasized the role of Chatbots in providing educational support through additional roles of support and ongoing intervention. This finding corroborates the findings of a number of studies (Corral, 2021; Georgescu, 2018; Malik, Shrama, Trivedi, & Mishra, 2021) that show the potential roles of Chatbots in the educational process. It also contributes to providing the learner and teacher with constant assistance through instructions and guidance provision, reducing the teacher's load, and managing a large number of learners. This result is also consistent with the findings of (Okonkwo & Ade-Ibijola, 2021; Vanichvasin, 2021)

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asserting the importance of using Chatbots in the educational process to provide guidance and counselling and save time and effort for all aspects of the educational process.

The current finding is also consistent with studies that have indicated that chatbots can enhance sustainability indicators in education by providing answers and feedback 24 hours a day, 7 days a week (Deng & Yu, 2023). This is in line with the fact that chatbots have the ability to extend learning time(Chen, Zhuo, et al., 2023).In addition, chatbots can improve learners' self-regulated learning skills by developing planning, monitoring, control and evaluation skills (Chang et al., 2023). Chatbots can also reduce the burden on teachers, which can motivate teachers to expand the use of chatbots in providing instructional support (Deng & Yu, 2023).

Challenges of using Chatbots in education

Due to the novelty of Chatbots technology and lack of use in the educational process by teachers, responses of participants in the present study showed a number of physical challenges such as students' lack of devices because of their financial cost, lack of stable and constant internet connection. This finding regarding these challenges emphasizes the findings of (Gao, Liu, Xu, & Akkiraju, 2021; Jang, Jung, & Kim, 2021) showing that financial cost might be one of the barriers to employing Chatbots in the educational environments.

The responses of participants in the present study, regarding the technical challenges revealed that the limited capabilities of Chatbots programs so far and the lack of Chatbots programs and applications used to provide the educational support are the most important and common challenges. In addition, some applications do not have the required level of quality to reach correct and sound support operations, besides the challenges related to the use of natural language processing (NLP). This result confirms the result of Hwang and Chang (2021) showing that applications of Chatbots in education are limited and that they are still in the process of growth.

Taking into account the ethical challenges, it is worth mentioning that some of the negative effects of intelligent Chatbots represent these challenges that assert the importance of being aware of how to use intelligent Chatbots in the presence of these negative effects. Nevertheless, participants' responses indicated that isolation that Chatbots may cause may affect some of the learner's social skills. Frustration, on the other hand, that may occur among some learners as a result of not receiving appropriate responses due to the machine's misunderstanding of the learner's message or lack of clarity is another serious challenge. Moreover, challenges involve dangers and caveats of the learner network use. This result is in agreement with (Akgun & Greenhow, 2022; Okonkwo & Ade-Ibijola, 2021) emphasizing that isolation, frustration, dangers of internet use are serious challenges for children' Chatbots use in education.

In light of the previous challenges raised, it may be appropriate to develop guidelines for the use of chatbots in the provision of educational support. For example, guides should be developed for ethical rules associated with the use of chatbots, ethical rules should be an integral part of the learning experience, and simulated experiences of using chatbots in an ethical context should be provided. Guidelines can also be developed that promote the use of inexpensive chatbots to support learners in order to achieve equal access for all learners. It is important to note that studies on the opportunities and challenges of chatbots should not stop, as hardly a day goes by without something new happening in this field.It is necessary to investigate the application of chatbots in other educational technologies to develop them in the context of educational support (Abd El Bakey, Abo Shadi, & El-Refai, 2023; Al-Hafdi & Alhalafawy, 2024; Al-Nasheri & Alhalafawy, 2023; Alanzi & Alhalafawy, 2022a, 2022b; Alhalafawy & Tawfiq, 2014; Alhalafawy & Zaki, 2022; Alhalafawy & Zaki, 2019; Alshammary & Alhalafawy, 2022, 2023; Alzahrani & Alhalafawy, 2023; Alzahrani & Alhalafawy, 2022; Alzahrani, Alhalafawy, & Alshammary, 2023; Alzahrani et al., 2022; Saleem et al., 2024; Zeidan, Alhalafawy, & Tawfiq, 2017; Zeidan, Alhalafawy, Tawfiq, & Abdelhameed, 2015)

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Conclusion

The present study is one of the important studies that focused on the role of Chatbots in supporting learners according to the viewpoints of practitioner teachers who use intelligent Chatbots in educational situations. The results showed that Chatbots in education provide many opportunities that contribute to increasing the efficiency of the educational support through flexibility of support, motivation, accessibility and availability, in addition to guidance and counseling processes. This study also revealed a number of physical, technical and ethical challenges in front of using this technology in providing educational support. These outputs may also help Chatbots developers to develop educational Chatbots through understanding the requirements and needs of the educational field. They, at the same time, can offer a deep insight for the educational institutions on how to benefit from intelligent Chatbots in providing and managing the educational support. In conclusion, findings of future papers regarding the roles of intelligent Chatbots in the educational process can be discussed from the viewpoint of students and school principals. A systematic review of the educational support context can also be conducted via intelligent Chatbots. Researchers can study the mechanisms of using intelligent Chatbots in educational environments during emergency and crises times.

Limitations

The number of participant teachers in the present study was limited. Only (11) male and female teachers took part because of the limited number of teachers who were using intelligent Chatbots to provide educational support in the time of conducting the study. Therefore, the selection space might not be wide enough to allow the choice of a larger number. However, enough responses were obtained that can produce saturation in responses as such saturation in the qualitative research can be obtained through six interviews (Guest, Bunce, & Johnson, 2006), whereas the present study was conducted on (11) interviews. Furthermore, the present study considered that selected participant teachers are representatives of all teachers in the three educational stages, primary, intermediate, and secondary. Gender was also accounted for as male and female teachers were involved in the study. In addition, teachers' specialties were taken into consideration to reach the best understanding related to the use of intelligent Chatbots in providing and managing the educational support. Further studies regarding the opportunities and challenges of using chatbots in education may be important and necessary but using mixed methodologies that maximise opportunities for integration between the views of large quantitative numbers of teachers and small qualitative numbers of teachers.Also, it may be appropriate to conduct further studies on the opportunities and challenges of using chatbots using other qualitative methods such as storytelling as this may help in presenting data and information in another form.

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Journal of Ecohumanism
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