CHATBOT AS AN EDUCATIONAL SUPPORT SYSTEM

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ABSTRACT

The shift in technological advancements to Artificial Intelligence guided systems is ushering in a batch of new opportunities and challenges for various industries. The educational domain is especially affected by the use of chatbots to enhance learners' interaction capabilities and aid faculty roles by automating mundane tasks. The development of chatbots uses different approaches depending on the educational purposes that they are meant to accomplish. For example, some chatbots are developed using the social constructivist approach and have the ability to act as interactive tutors offering quizzes, assessments, and access to previous lectures. The disruptive technology of chatbots is affecting educational domains in various ways that need to be considered by institutions and practitioners in the field.

KEYWORDS: *Artificial Intelligence, Chatbot, social constructivist, interactive tutor.*

INTRODUCTION

The constantly changing technological advancements are changing the way of doing things in people's daily lives. The impacts of technological advancements have not left behind educational services. Various technological developments have taken place and continue to take place. Technological advancements aim to change the learning process and ease acquiring information. Chatbots have been explored to provide interactive communication solutions to learners and tutors through the application of Artificial Intelligence technology. Chatbots offer a novel way for users to interact with the massive amount of data and services available online. Chatbots are conversational software agents facilitated by regular dialectal processing, AI, machine learning, and deep learning (Alqaidi, Alharbi & Almatrafi, 2021). Educational Chatbot models have been developed to support learners and tutors in various aspects of learning, from developing computational thinking skills to using basic communication techniques.

Within the educational context, learners could use Chatbots to interact with materials and content. However, a great majority of chatbots are restricted to simple questions and answer sessions that do not engage students in a meaningful way. The paper's main focus is to explore how chatbots can interact with learners by presenting engaging exercises that can easily be modified for each learner's personal needs or interests. The main features of chatbots used in educational services include the ability for a learner to ask a question and receive an answer and for the Chatbot to retrieve relevant learning material and related exercises. The interaction between the user and the Chatbot is made possible through simple questions and answers that the developer can easily modify.

Looking into recent advances in this field, many researchers use chatbots in different areas like online businesses, healthcare, and education. Several articles have undertaken comprehensive research on the effects, benefits, and future use of chatbots for educational purposes in the education area. Chatbots (or Intelligent Virtual Assistants) have become popular in recent years, spreading across various domains and applications, often embedding a specific purpose – such as assisting an older adult in paying bills. Chatbots have received limited attention in the academic context: they are often used as a research topic and not as an educational tool.

CHATBOT TECHNIQUES

Existing chatbots demonstrate how far the techniques and skills of Artificial Intelligence can be taken. The most common approach is to use rules and encyclopedic facts to simulate a conversation (Clarizia et al., 2018). The most successful examples of this technique are found on travel websites and in customer service, providing factual answers to travelers' questions. This also ties in with bots on social media, where they provide entertainment or help users find information. However, these approaches are limited: they fail to recognize that humans understand the world through observation and interaction rather than facts alone. The use of Artificial intelligence is augmented with machine learning and deep learning to enhance the capabilities of chatbots (Colace et al., 2018). When thinking about educational institutions, the primary core tasks that come to

mind are teaching and knowledge transfer. The core tasks have been performed for a long time using conventional methods of having a tutor instructing learners and taking them through the various steps involved in learning. However, the changing nature of learning occasioned by technological developments and other global events such as the Covid-19 pandemic necessitates adapting various methods like chatbots.

Using chatbots for educational purposes requires the process of learning and educational institutions to be looked at from an organizational point of view. When considering an organizational point of view, educational institutions have the task of excelling in areas such as the provision of information and advice to learners, support and service to existing students with matters of administration, courses, and exams, and the transfer of knowledge by use of digital platforms like distance learning, eLearning and chatbots (Goda et al. 2014). The recent Corona Virus pandemic rocked the world and has caused trouble among educational institutions like colleges, universities, and elementary schools. The limitation of in-person instruction created a hurdle for the educational institutions to fulfill their core tasks (Hien et al. 2018). The transfer to online learning also gives learners a hard time when they are trying to navigate the educational institution's websites. Therefore, the use of chatbots is a way that can fill the gap and enhance the ability of learners to get the information or service they require with less hustle.

Chatbots are used in educational services to facilitate the achievement of the core tasks of teaching and knowledge transfer. Artificial Intelligence (AI) and machine learning are at the core of enabling chatbots to perform their duties (Hussain & Athula, 2018). In education, chatbots can support students with special needs in guided reading, learning disabilities, and dyslexia. Even educational applications are now developing their chatbots. There are apps to help teachers simplify reminders and labeling activities so that students can be more focused. The applications help in the facilitation of classroom management as well. Whether teaching English or mathematics, different bots are designed for such specific tasks. The language of this bot may vary depending on the course and the target audience.

A chatbot can be used to increase e-learning exposure and training, making it more accessible. Learners can ask for help if they're stuck in an exercise or just for a checkup if they need to refresh certain topics. A new level of social interaction in education is made possible with the help of different Artificial Intelligence solutions. The student asks questions and gets real-time, dynamic answers from the Chatbot, leaving teachers free for more demanding tasks such as guiding students through complex exercises or explaining complicated topics that don't have a "one size fits all" solution (i.e., political science). The education model with a teacher that holds all the knowledge statically is outdated (Lin, D'Haro & Banchs, 2016). New solutions are changing it for the better. The use of chatbots within education presents compelling potential in undertaking administrative and repetitive tasks. Chatbots can provide students with appropriate educational content and procedural advice. The automation provided by chatbots is helpful in many industries; however, its implementation in education may have deeper implications. Studying the potential challenges and benefits of using Chatbot in classrooms would be interesting.

Due to the nature of the technology behind chatbots, their use allows for sharing personal information and data, which is a major concern. Educational chatbots can gather vast amounts of data about students, potentially being used for more informative and effective educational outcomes. However, chatbot technology in education presents numerous concerns regarding the safety of data collected from students. It is believed that these negative effects are a necessary consequence of the introduction of new technology into education or the eradication thereof (Mrsic, Mesic & Balkovic, 2020). At this time, it is important to study the possibility that this avenue may have a limited impact on student learning if sufficient safeguards are put into place by universities and schools alike. Chatbots are now being used to interact with individuals in various manners, from the simple "customer chat" function to academic assistance. Most of these chatbots are employed in either financial trading or customer service. While it is believed that chatbots can be used for educational purposes, there have been few studies on the impact of this technology in this setting. Such data may allow researchers to predict whether or not the use of such interactions will benefit students and lower student attrition rates. Future studies may also look at whether students will be more engaged by using a bot rather than a human due to the automated nature of the interaction.

Chatbots employ various techniques to perform their tasks in educational settings. There are a variety of technologies utilized to help students learn more effectively. Chatbots offer easy access to educational content without human interaction, which is beneficial for students who prefer to read the information independently (Nenkov, Dimitrov, Dyachenko & Koeva, 2016). An automated system can also allow students with special needs to interact reasonably with educators. There are examples of deploying chatbots in educational settings, not just in the classroom but also in tutoring and career counseling. The use of chatbots can remove the important bond created when teachers and learners interact one-on-one.

Furthermore, it can make learners feel like they are not being heard and may also remove important questions during the learning process. Society tends to see education as being taught, but the reality is a matter of knowing (Zahour, Eddaoui, Ouchra & Hourrane, 2020). The use of chatbots allows the teacher to maintain control over learning largely, but if chatbots are used incorrectly, then it can hinder learning that is important to the learners. Our schooling system is based on memorization, but what good is memorizing facts if we cannot understand their underlying meaning? Chatbots can help remedy this problem.

One of the popular uses of chatbots is for students to ask a direct questions. Instead of allowing students to ask their

questions directly, the student has been forced to find a chatbot and type out their questions instead. The implication is that the student has had to find a chatbot, wait for it, and then type out their question. At the end of this process, they may not be able to remember the information that they were trying to obtain, causing them frustration and annoyance. Another use for chatbots is allowing students to communicate with one another from different locations around their school campuses (pupils could be indifferent classrooms).

CONCERNS FROM PRACTITIONERS IN EDUCATION

When technological advancements occur in any industry, disruptions are bound to be created. The use of chatbots for educational purposes has raised eyebrows amongst teachers that feel their jobs are being taken away. However, the concerns are unfounded since the chatbots are not taking away the core tasks of instructing and transferring information but are undertaking the mundane, repetitive tasks that give more time for teachers to focus on meaningful instruction (Hussain & Athula, 2018). Chatbots are not meant to replace the traditional role of teachers. They can be used in conjunction with technology and complement it. In other words, for teachers that still want to teach the fundamentals, administration tasks and communication related to the classes are still relevant or require a teacher's hand to help students with these tasks. However, these repetitive tasks can be performed more easily by machines than by teachers due to technology.

By taking over these tasks, chatbots allow teachers ample time to provide personalized guidance and quality mentorship because of the relationships that will be developed. They will be able to play a significant role in helping students learn the skills they need to succeed in life. This is because of the relationship built between the student and their teacher, leading to more secure relationships, more trust, and more personalized guidance. They will also be able to engage peers and classmates, making it easier for teachers to provide social learning behaviors, build intellectual curiosity and promote cooperation. The way chatbots can help us is enormous, but there are a lot of concerns that need to be addressed. We must consider how the Chatbot responds and how we react in response to these concerns. When interacting with a chatbot, we can see that there are many ways in which it can respond to our questions or comments. Even if they may not be able to speak or write back directly, they might be able to direct us toward the right resources or tell us where we should go for further help.

Additionally, teachers and educators need to understand how these new technologies work to minimize the concerns and misconceptions about these new technologies and AI. They need to understand how the technology interacts with humans because this will help them assess whether it will work well in the classroom. Addressing concerns about automation in education is also important because we cannot expect teachers and students to accept something that they are not familiar with.

CONCLUSION

Over time, more and more bots will appear in educational environments. They will be used to help students overcome learning disabilities and guide them throughout their school lives. Such learning approaches are designed to be more individualized for each student and help them improve their knowledge about a particular subject and acquire new skills. Chatbots are projected to be a part of any future type of school, whether it's a traditional school building or an online service. From answering FAQs and providing personalized tutoring to scheduling classes and doing administrative work, chatbots will continually change the way students (and teachers) interact with their schools (Murad et al., 2019). Chatbots can help increase student engagement while reducing phone wait times and support staff workload. For over a decade, chatbots have been used to provide customer service in various industries and have been studied for the impact they can have on education. A chatbot for online service can respond quickly, repeat the same question multiple times and sometimes even conduct research before providing an answer (Shmueli-Scheuer et al. 2018). Unlike human agents who may not be able to understand complex concepts, the bot can easily be programmed to allow students (and teachers) to ask any question they want at any time.

In addition, voiceless robots are non-verbal and therefore cannot express emotion. Villanueva & Aguilar-Alonso note that "They will never say they are tired or frustrated (2021)." Students will likely feel more comfortable talking to a computer program than asking their teacher for help. A bot can be programmed to remind users when it is available and encourage them to ask questions. While this may seem as if bots are replacing teachers and professors, chatbots are intended to help relieve some of the pressure on them. Bots can provide a relaxed environment for students and may help with low self-esteem or problems with shyness.

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