A STUDY ON AWARENESS AND USAGE OF CHATBOT IN EDUCATION SECTOR

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Abstract:

As we know, the educational sector was highly impacted worldwide during COVID-19 pandemic which resulted in the closure of schools. So, COVID-19 acted a major role for digital adoption in education sector. AI chatbot has played a crucial role during pandemic. It brought an evolutionary change in the online learning and teaching process. But yet to make e-learning dynamic and interesting, Chatbots have received limited attention from teachers and students. Hence, there is a need of awareness of chatbot. To address this issue, I propose a research agenda on awareness and usage of chatbot in education sector. In this paper, I focused on e-learning based tool called CHATBOT. It also focuses on teachers as well as students' perception towards the use of chatbot as a learning and teaching tool.

Keywords: *Chatbot, AI, NLP, Education Sector*

Introduction:

A chatbot is a computer program or software application which is used to simulates & processes online chat conversation via text or voice or both. It is also known as virtual assistant. It uses Artificial Intelligence(AI) and Natural Language Processing(NLP) to understand text and spoken words in much the same way human beings can. AI is a branch of computer science. It's a set of technologies which refers to the simulation of human intelligence in computers that are capable of performing task and program to think like humans. NLP is a branch of AI. It's a tool which is used to analyze, comprehend and derive meaning from natural language in an intelligent and useful way. The types of chatbot will give a clear understanding of chatbot classification and what would be the suitable educational chatbot for educators and academicians. It helps in improving the overall efficiency of teachers and students. Following are the types of chatbot:

A)Rule based chatbot: This type of chatbot use a series of defined rules. These rules are based on predefined conversational path where users can get predefined questions and answers options. Bot can't answer your questions if the questions are not from the predefined question. B) **Voice Bot**: This type of bot allows user to ask questions directly through

speech. The query of the user is answered by and automated response in the language of the user's choice.

C)AI chatbot: This type of chatbot is based on AI technology. It's a computational program that trained to have human like conversation with users using a process called NLP.

Research Problems:

RQ1: What would be the major positive and negative aspects towards the adoption of chatbot among teachers and students?

RQ2: Can awareness and usage of chatbot helps in teachers and students' attitude towards the adoption of chatbot?

Objectives:

1. To study the awareness of chatbot in education sector
2. To understand the adoption of chatbot among teachers and students
3. To identify the association between chatbot and education sector

Hypothesis:

H0: There is no association between chatbot and education sector

H1: There is an association between chatbot and education sector.

Methodology:

Universe	Students and Teachers of Mumbai University
Sampling Method	Purposive sampling
Sampling Size	116
Methods of Data Collection	Primary & Secondary Data
Methods of Primary Data collection	Pre-structured questionnaire
Methods of Secondary Data collection	Research papers, Articles, Journals
Data Analysis Technique	Formulation of Hypothesis

Literature review:

In the era of AI, the Chatbot market is witnessing extraordinary growth with the increased demand of smartphones and increased use of messaging applications.(Adoption of AI-Chatbots to Enhance Student Learning Experience in Higher Education in India, 2018). Many applications are introduced such as chatter-robot or known as chatbot which is often aimed at giving an automatic reply or just for entertainment. The chatbot would match the input sentence from the speaker or user with the pattern existed in the knowledge base.(Hajare, 2018). Chatbots used for answering students' questions it has been realized a system that can detect the questions and thanks to the use of natural language processing techniques and the ontologies of domain, gives the answers to students. (F. Clarizia, 2018). Natural Language Processing(NLP) techniques such as NLTK for python can be applied to analyze speech, and intelligent responses can be found by designing an engine to provide appropriate human like responses. (Abdul-kadar, 2015). Wide research has been done exploring usage of chatbots in service industry; still there is vacuum regarding usage of chatbots in education for effective learning. (Mishra, 2021). (Thomas, Critical literature review on chatbots in education, 2020) examined previous studies in which chatbots benefited both learners and educators, demonstrating that the benefits outweigh the drawbacks and offer a more effective education. (Kowsher, et al., 2019) build a "Doly: Bengali Chatbot" which gives a reply to a user query on behalf of a human for the education system in the Bengali language. Past research has revealed that the effectiveness of chatbots in education is complex and depends on a variety of factors
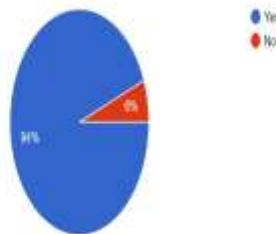
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(Winkler, 2018). Chatbots lack mechanisms to adequately integrate into the educational activities, since they should be useful for teachers, students, the proposed chatbot with the participation of third-year middle school students and teachers. (Sonia

Mendoza, 2020). Chatbots in education is less explored area and acceptance of chatbots by education stakeholders and its integration and effectiveness in education need to be explored further. (Lakshmi, 2022)

Analysis & Interpretation:

a)

b)

c)

d)

e)

f)

g)

Do you think Chatbot will reduce Teacher's workload?
116 responses

h)

Do you think Chatbot is the future in the field of Education?
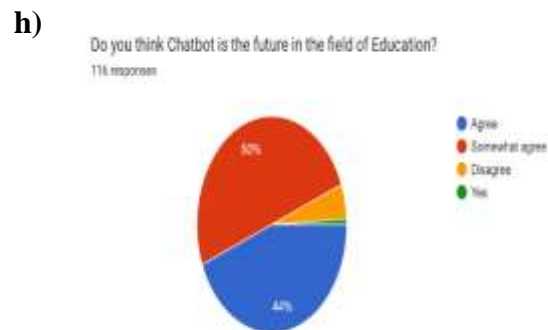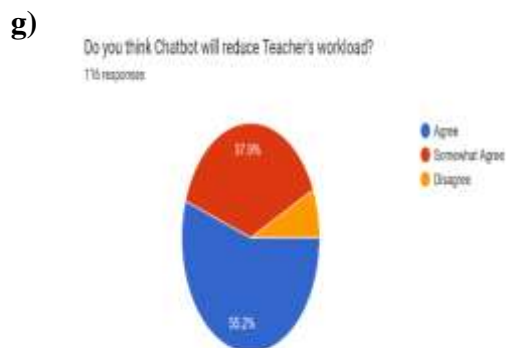116 responses
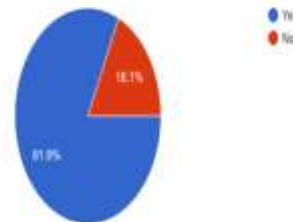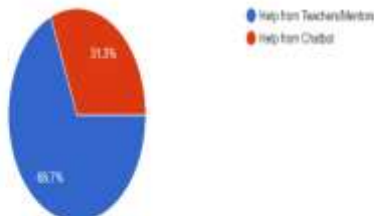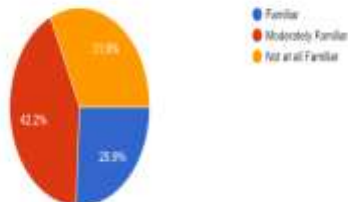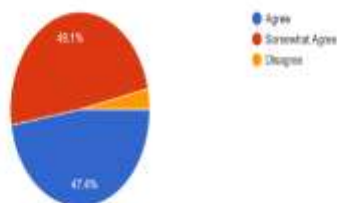
Fig.a) shows that 94% respondents are aware of chatbot, where as 6% respondents are not aware of chatbot. Fig.b) shows that 81.9% respondents are aware of types of chatbot. Where as 18.15 respondents are not aware of types of chatbot. Fig.c) shows that most of the respondents (68.7%) prefer to take help from teachers or mentor for learning and teaching rather than chatbot. Fig.d) states that 25.9% respondents are familiar with technology AI-NLP used in chatbot. 42.2% respondents are moderately familiar And 31.9% respondents are not at all familiar with AI-NLP. Fig.e) states that 47.4% respondents strongly agree on making use of chatbot in education sector makes the process more efficient and effective. And, 49.1% respondents are not sure abot the same. Fig.f) shows that 52.6% respondents belive that chatbot for education can improve learbing experience. Whereas, 45.7% respondents are not confident about the same. Fig.g) shows that 55.2% strongly believe that usage of chatbot can reduce teachers workload. And, 37.9% respondents are not confident about the same. Fig h) shows that 44% respondents strongly agree on adoption of chatbot will be the future in education sector. 50% respondents say that chatbot can be or can't be the

future in the field of education. A very few don't see future of chatbot in e-learning.

Which types of chatbot have you used for learning/teaching?
116 responses
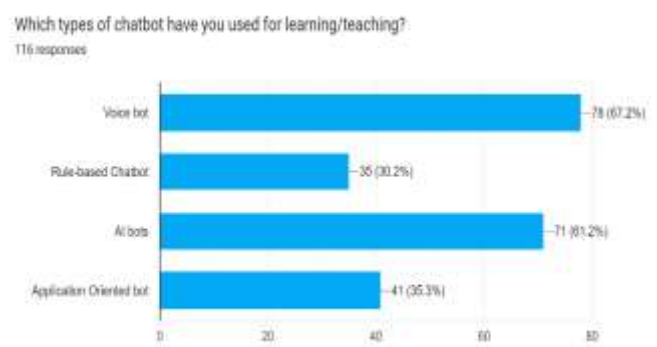
From the above bar diagram, we can come to a conclusion that which is more preferable bot for learning and teaching. 67.2% respondents prefer to use voice bot. 61.2% respondents use AI bot. 35.3% respondents use application-oriented bot. 30.2% respondents use Rule-based chatbot.

If you have used Chatbot for learning/teaching, what were some positive aspects?
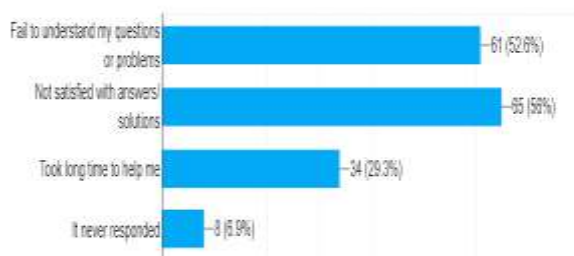116 responses
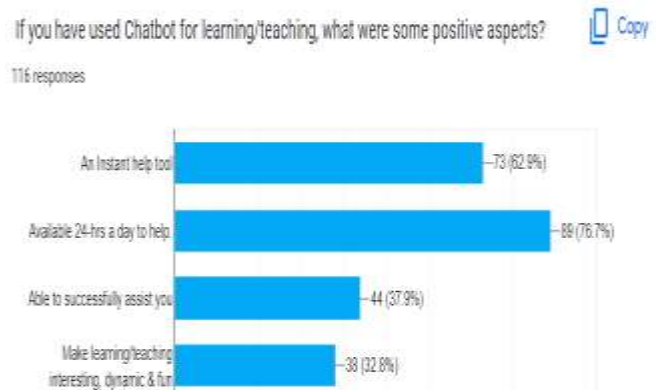
The above bar diagram indicates that the majority of the respondents (76.7%) prefer to use chatbot because its 24-hrs available tool. 62.9% respondents use chatbot as its an instant help tool. 37.9% respondents find the chatbot a good assistant. 32.8% respondents believes that chatbot makes learning and teaching interesting, dynamic & fun.

The above bar diagram indicates that the most of the respondents (56%) don't prefer to use chatbot because they are not satisfied with answer or solution given by chatbot. 52.6% respondents believe that Chabot fails to understand their problems or questions. 29.3% respondents had to wait for chatbot to solve their problem. Whereas, 6.9% respondents didn't get any solution from chatbot because chatbot was not in active state.

Through the analysis, we can say that there is an association between chatbot and education sector. Hence null hypothesis is rejected and alternative hypothesis is accepted.

Conclusion:

In this paper, A review of a new AI-NLP based technology called Virtual Assistant CHATBOT is introduced. Firstly AI-NLP and types of chatbot is reviewed followed by literature survey. The study shows that the teachers' and students' attitude was positively correlated with the awareness of chatbot.

Moreover, teachers' and students' trust in the chatbot was negatively corelated with the adoption of chatbot. This study concludes that there is a need to intensify efforts in adoption of chatbot that can make structured and methodical learning in education sector.

Scope of future study:

The study helped to know the awareness and usage of chatbot among students and teachers of Mumbai University. But this study can also be done at school level with a large sample size to give satisfactory result. It can help us to formulate different hypothesis with different facts and findings. Future studies are needed to understand positive association between chatbot and teacher/student by focusing on challenges and benefits of chatbot. The statistical analysis can be done through various statistical test to prove the correlation between the variables.

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