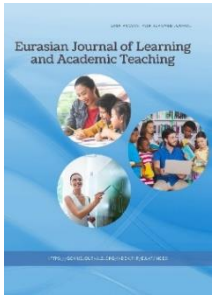

Exploring the Use and Perceptions of AI-powered Chatbots for Learning: A Survey of CIFS Students at WIUT

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ABSTRACT

The use of AI driven chatbots in education is becoming more popular and is seen as a promising tool for enhancing students' learning experiences. To gain a better understanding of how this technology impacts students, the study aimed to explore how students use AI chatbots for educational purposes and assess their overall perceptions and experiences when interacting with these virtual assistants. The survey was conducted among Level 3 students (n=160) at Westminster International University in Tashkent (WIUT). The goal of the survey was to determine how familiar students are with AI chatbots, how often they use them, what benefits they see, what challenges they face, and what changes they would like to see in the future. Data was collected using both qualitative and quantitative techniques through an online questionnaire comprising 15 questions. The results indicate that AI-powered chatbots are widely used in educational settings, offering benefits such as convenient information access, personalized assistance, resource accessibility and enhanced engagement levels. However, students highlighted challenges such as lack of human interaction, concerns regarding information accuracy, data privacy issues and limited customization options. Obtained results provide valuable insights for teachers and educational institutions looking to improve student learning experiences and engagement by implementing AI-powered chatbots. The findings could be further enriched by including a more diverse sample from different educational settings and using additional methods such as interviews and observations.

Keywords: Artificial intelligence (AI), chatbots, education, students' perceptions, learning experiences

Introduction

The rapid advancement of artificial intelligence (AI) has revolutionized various aspects of contemporary society, with many educators predicting the potential for transformative advances in education. With the emergence of AI-powered chatbot technology, new opportunities have arisen for enhancing learning experiences in educational settings. Integrating AI-powered chatbots into the educational context has the potential to significantly improve the learning process, education quality, educational resource accessibility, and facilitate personalized learning for each student by answering questions and providing interactive learning experiences. Chatbots, as software applications, are specifically designed to engage with users and deliver responses based on human input (Cunningham-Nelson et al., 2019). Artificial intelligence chatbots have been used in education for a variety of purposes and have the

potential to transform how students learn and engage with educational content. These chatbots are designed to simulate human-like communication and provide personalized assistance to students, making them a promising tool for educational purposes.

As the usage of AI in education grows, it becomes crucial to understand how students perceive this technology and what experiences they have had in using AI chatbots for educational purposes. This research aims to investigate the use of AI chatbot technology by Level 3 students at Westminster International University in Tashkent (WIUT) and evaluate their overall perceptions and experiences with these virtual assistants. Level 3 students refer to individuals enrolled in the Certificate in International Foundation Studies (CIFS) course. These students typically consist of recent graduates from high schools and academic lyceums.

The primary objectives of this study include examining the students' familiarity with AI-powered chatbots and their types, assessing the frequency of chatbot use among students, identifying the perceived benefits of using AI chatbots in education, exploring any concerns students may have regarding this technology, and gathering suggestions for improvement. To achieve these objectives, a survey was administered to a sample of Level 3 students at WIUT. The survey employed a combination of qualitative and quantitative data collection techniques through an online questionnaire. The questionnaire was designed to gather information about students' experiences, viewpoints, and insights related to AI chatbot technology in education.

The research is aimed to gain valuable insights for educators and institutions seeking to enhance student learning and engagement through the use of AI chatbot technology.

Literature review

AI chatbots have been used in education for a variety of purposes. Numerous studies have provided evidence that chatbots possess the potential to revolutionize the methods by which students learn and acquire information (Chen et al., 2020; Pérez at al., 2020). They can be used for personalized learning, tutoring and support, assessment and feedback. One of the most important uses of AI chatbots is personalized learning; they may provide content and resources that are tailored to the needs of each individual learner (Baloian & Zurita, 2019). Additionally, AI chatbots can also serve as online instructors, responding to inquiries from students, clarifying concepts, and assisting them in solving problems (Sedrakyan & Karapetyan, 2020). Moreover, AI chatbots can grade assignments automatically, giving students instant feedback and pointing out common mistakes (Ramachandran & Seeja, 2021).

There are various advantages of using AI chatbots in the educational context. Firstly, with the ability to adapt to each student's particular learning style, preferences, and speed, AI chatbots offer personalized support (Kong, 2020). Secondly, AI chatbots' interactive features facilitate students' ability to pose inquiries, request clarifications, and obtain prompt reply, so fostering a more profound comprehension and retention of information. Next, academic achievement, self-directed learning, and learner autonomy are all enhanced by personalized support (Baloian & Zurita, 2019). By helping students solve complex problems and directing them through their learning process, artificial intelligence chatbots can be a helpful tool for mental stimulation. They are able to explain step by step, teaching the scaffold activities and offering hints or suggestions when students have difficulties (Ramachandran & Seeja, 2021). Furthermore, the integration of AI chatbots in education has been found to enhance student engagement and interaction, leading to improved academic achievement (Tangkittipon et al., 2020).

Nevertheless, the use of AI-powered chatbots in education has several notable disadvantages. One significant disadvantage is the limited human interaction, which can affect students' preference for personal connections and social engagement (Shumanov & Johnson, 2021). Additionally, privacy and data security are significant concerns, emphasizing the necessity for strong security measures to protect sensitive information (Følstad et al., 2021).

Furthermore, ethical considerations underline the importance of implementing clear guidelines and policies to promote responsible and ethical use of AI chatbots in educational settings (King, 2023).

Methodology

The study population consisted of Level 3 students doing course in International Foundation Studies. The language of instruction was English. The research was conducted during 2023-2024 academic year. A questionnaire designed employing free online software Google Forms was used as a research method in the study. Overall, a total of 153 students, the majority of whom ranged from 18 to 24 years old (71.2%), participated in the survey, with a gender ratio of 56.9 % (87) male and 43.1% (66) female. In order to obtain quantitative data for analysis, the online questionnaire was used, to reach a larger number of people in a relatively short period of time (the response period was 3 weeks). Participation in the survey was anonymous and participants were assured that the data collected would only be used for research purposes. At the start of the survey, the research goal was explained, and all participants agreed to take part in the study by giving their informed consent. This ensured that ethical issues were taken into consideration.

The questionnaire consists of 15 questions divided into two sections. The first two questions in the questionnaire aimed to collect demographic data. The next three questions were designed to determine familiarity with AI-powered chatbots, their types and frequency of use. In addition, three more questions were asked regarding the benefits and concerns of using AI chatbots for learning. The second part included seven rating scale statements (Likert scale) to indicate the level of agreement or disagreement with certain statements and two open-ended items aimed at collecting data on positive experiences and suggestions for improvement regarding the use of AI chatbots for learning. The collected data was analyzed to provide a comprehensive understanding of the integration of AI-powered chatbots into the learning process.

Results

This section describes the obtained results of the survey. The survey results show that 97.4% of respondents have used AI-powered chatbots for learning purposes, demonstrating the familiarity and high adoption rate of this technology in educational contexts.

Among the 149 respondents who interacted with AI-generated chatbots, the specific types of chatbots they engaged with varied. The most commonly mentioned chatbots were ChatGPT and Poe, with 122 respondents (80.8%) and 118 (78.1%) indicating their interaction with them, respectively. Bing Chat and Bard AI were also frequently mentioned, with 16 respondents (10.6%) each. Socratic, Scite, Perplexity, and Claude were mentioned by a smaller number of respondents.

The majority of students who were aware of AI-powered chatbots stated that they used them occasionally (42.5%). A smaller proportion of students reported using them frequently (13.7%), quite frequently (21.6%) and rarely (15%). Interestingly, only a very small number of students (7.2%) used AI-powered chatbots for learning very often.

Table 1. Perceived Benefits of AI-Powered Chatbots for Learning

Perceived Benefits	Percentage of selected variables
24/7 availability for assistance	107 (69.9%)
Instant responses to queries	82 (53.6%)
Instant feedback on assignments	74 (48.4%)
Personalized learning experience	50 (32.7%)
Access to a wide range of learning resources	81(52.9%)
Enhanced engagement and interaction	42 (27.5%)
No judgment and negative attitudes	1 (0.7%)
Easier navigation of the internet landscape	1 (0.7%)

Simplified definitions of complex concepts	1 (0.7%)

Table 1 presents the findings regarding the perceived benefits of using AI-powered chatbots for learning, as reported by the survey respondents. The majority of participants (69.9%) recognized the advantage of having 24/7 availability for assistance, allowing students to access help and support whenever they need it. Similarly, a significant portion of respondents (53.6%) appreciated the promptness of AI chatbots in providing instant responses to queries, facilitating efficient problem-solving and clarification of doubts.

Moreover, nearly half of the participants (48.4%) acknowledged the benefit of receiving instant feedback on assignments from AI chatbots, enabling timely evaluation and improvement in learning outcomes. A considerable number of respondents (32.7%) highlighted the advantage of personalized learning experiences offered by AI chatbots, tailoring educational content to individual needs and preferences.

Access to a diverse range of learning resources was recognized as a benefit by 52.9% of respondents, indicating the value of AI chatbots in aggregating and providing access to a wide array of educational materials. Additionally, a portion of participants (27.5%) appreciated the enhanced engagement and interaction facilitated by AI chatbots, making the learning process more interactive and enjoyable.

A small percentage of respondents (0.7%) mentioned other benefits. This included the absence of judgment and negative attitudes in the interactions with AI chatbots, as well as the simplification of complex concepts through clear and understandable explanations. Furthermore, a few respondents (0.7%) highlighted the advantage of easier navigation through the vast internet landscape with the assistance of AI chatbots.

Table 2. Concerns about Using AI-Powered Chatbots for Learning

Concerns	**Percentage of selected variables**
Accuracy and reliability of information	99 (64.7%)
Lack of human interaction	67 (43.8%)
Privacy and data security	49 (32%)
Difficulty in understanding complex concepts	48 (31.4%)
Lack of customization options	24 (15.7%)
People start forgetting how to research without AI	1 (0.7%)

While the majority of students found AI-powered chatbots beneficial, some expressed concerns. Table 2 shows that a significant percentage of respondents (64.7%) expressed concerns about accuracy and reliability of information provided by AI chatbots, expressing doubts about their trustworthiness. The lack of human interaction when relying on AI chatbots was also a concern, with 43.8% of respondents emphasizing the importance of human-to-human communication in the learning process.

Around 32% of respondents expressed concerns about privacy and data security, emphasizing the importance of protecting sensitive information. Similarly, 31.4% of participants found it challenging to understand complex concepts through AI chatbot interactions alone, highlighting the need for human guidance. Additionally, 15.7% of respondents were worried about the lack of customization options in educational experiences. Finally, a small percentage (0.7%) raised concerns about the potential negative impact of heavy reliance on AI chatbots on independent research and critical thinking skills.

The survey findings reveal that there is a range of opinions regarding the reliability and accuracy of chatbot responses compared to human interaction in the learning process. Among the respondents, 11.8% consider chatbot responses to be more reliable and accurate, while 43.1% believe that human interaction is superior. A further 19.6%

perceive both approaches as equally reliable and accurate, while 25.5% are uncertain about the comparison.

The survey included additional Likert scale questions that explored the students' opinions on the provided statements in more depth. The results of these questions are visually represented in Figure 1, providing a clear illustration of the findings.

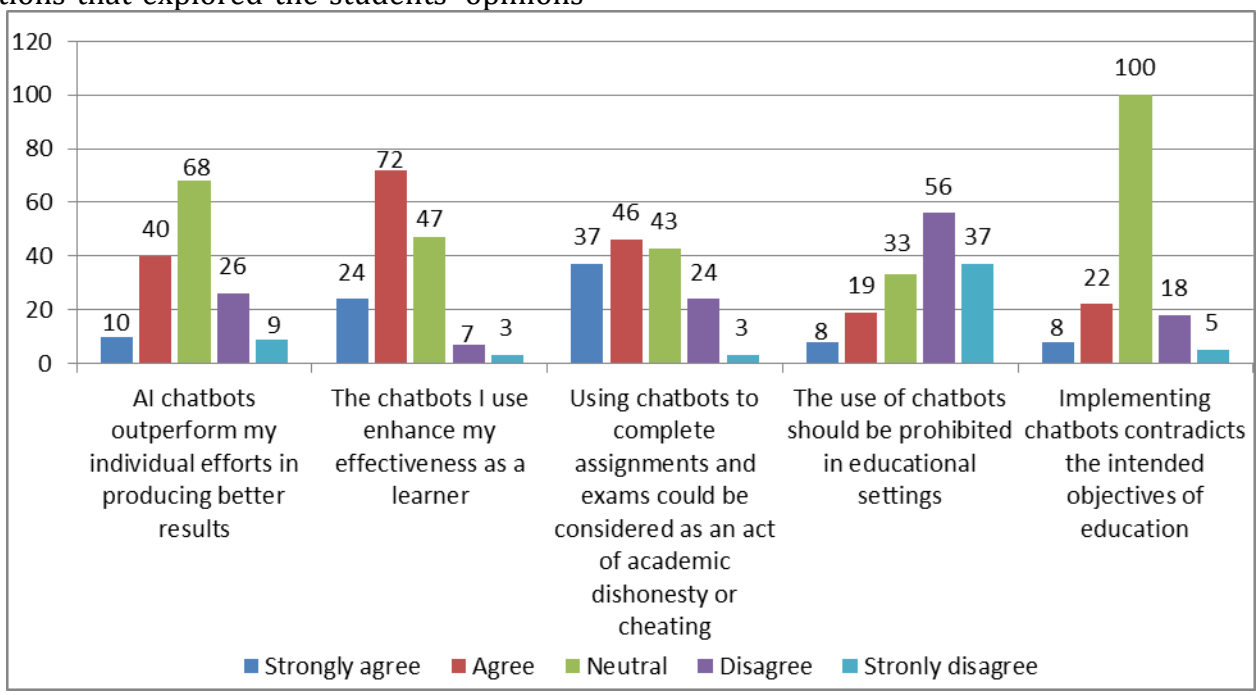

Figure 1. Students' opinions on different statements about AI-powered chatbot usage for learning

Regarding the effectiveness of AI chatbots, a larger portion of students (50 respondents) agree that chatbots outperform their individual efforts and produce better results. The majority of students (68 respondents) remain neutral, while a smaller number (26 respondents) disagree, and a minority (9 respondents) strongly disagrees with this statement. Many students (96 respondents) agree that the chatbots they use enhance their effectiveness as learners. A considerable portion (47 respondents) holds a neutral stance, while a minority (9 respondents) disagrees with this notion. In terms of using chatbots for assignments and exams, a majority of students (83 respondents) consider it cheating, while 43 respondents are unsure, and fewer students (27 respondents) believe it is not cheating. There is no clear consensus among students regarding the prohibition of chatbots in educational settings. A minority of students (8 respondents strongly agree, 19 respondents agree) support the prohibition, while a significant number (56 respondents) disagree with prohibiting the use of AI chatbots in educational settings. Regarding whether deploying chatbots contradicts the intended objectives of education, the majority of students (100 respondents) remain neutral. A smaller group (30 respondents) agrees or strongly agrees that chatbots contradict educational goals, while a minority (23 respondents) disagrees or strongly disagrees.

The final two questions of the survey asked students to share examples of situations where they found AI-powered chatbots to be beneficial in supporting their learning objectives, as well as suggestions for improvements they would like to see in AI-powered chatbots for learning. A significant percentage of the survey respondents (95.6 %) took the time to provide their individual thoughts and feedback.

Students provided various examples of situations where AI-powered chatbots, were helpful in supporting their learning objectives. Some common themes include:

1. Understanding topics: Users use AI chatbots to gain a better understanding of various subjects or concepts.
2. Idea generation and inspiration: AI chatbots help users generate ideas or provide insights on different topics.

3. Grammar checking and feedback: Users rely on AI chatbots to check grammar mistakes and provide feedback on their writing.
4. Information retrieval: AI chatbots assist users in finding information on any desired topic.
5. Research assistance: Users use AI chatbots to check research questions and receive relevant feedback. They also rely on them to find reliable sources, improve research outcomes, and explore related articles.
6. Simplifying complex terminology: AI chatbots are used to explain complicated terms or concepts in a simple and understandable manner.
7. Academic support: Users find AI chatbots helpful in improving their writing skills based on the feedback they receive. They also rely on them for instant feedback on assignments and coursework.
8. Finding resources: AI chatbots assist users in finding data, reliable sources, and information that may be hard to find online.
9. Generating ideas and providing examples: AI chatbots help users in generating ideas, providing examples, and summarizing information from long articles.
10. Personalized assistance: AI chatbots provide personalized learning plans, recommend topics, and offer tailored assistance based on user preferences.
11. Language support: AI chatbots aid users in checking spelling, translating sentences, and learning new languages.
12. Feedback and evaluation: Users rely on AI chatbots for feedback, evaluating their work, and checking plagiarism rates in their assignments.

The suggestions provided by students for improving AI-powered chatbots for learning can be summarized into several common patterns:

1. More reliable sources: Users want AI chatbots to provide information from credible and reliable sources, including references and links to the original sources.
2. Accurate and up-to-date information: Users expect AI chatbots to provide accurate and current information based on the latest research and analysis.
3. Better feedback and suggestions: Users would like AI chatbots to offer more precise and helpful feedback on their work, including suggestions for improvement.
4. Enhanced customization: Users desire more personalized content and the ability to customize the AI chatbots to meet their individual needs, such as preferred writing style or synonyms.
5. Integration with external sources: Users want AI chatbots to work with external information sources, such as PDF books, voice messages, and videos, to provide a more comprehensive learning experience.
6. Transparent references: Users would appreciate AI chatbots providing references and citations for the information they provide, allowing users to verify and explore the sources further.
7. Improved language understanding: Users hope for AI chatbots to better understand complex statements and use simpler language to ensure clearer communication.
8. Academic support: Users suggest the development of a student version of AI chatbots that can assist with learning without directly providing correct answers, helping students develop their understanding and critical thinking skills.
9. Enhanced research abilities: Users would like AI chatbots to have improved research capabilities, including accessing a wide range of sources and analyzing data to provide more comprehensive overviews.
10. Increased reliability and credibility: Users want AI chatbots to generate reliable and trustworthy information, especially in academic areas, and to avoid plagiarism.
11. Better integration with tools and platforms: Users express the desire for

AI chatbots to be available as apps and to have integration with existing tools and platforms, making them more accessible and user-friendly.

12. Continuous updates: Users expect AI chatbots to be regularly updated with the latest information and developments in order to provide accurate and relevant answers.

Discussion

The results of the survey indicate a high adoption rate and familiarity of AI-powered chatbots for learning purposes among the respondents. A significant majority (97.4%) of the participants reported using AI-powered chatbots, highlighting the widespread use of this technology in educational contexts. This finding suggests that AI-powered chatbots have become a valuable tool for students seeking assistance and support in their learning journey.

Among the respondents who interacted with AI-generated chatbots, there was a variety of specific chatbot types mentioned. The most commonly mentioned chatbot was ChatGPT and Poe indicating its popularity and widespread usage among the participants. Tlili et al. (2017) examined the utilization of conversational agents, including ChatGPT, as a means to improve online learning experiences. Their research revealed that students showed a preference for employing conversational agents in learning tasks, as they offered a more captivating and interactive learning environment. Bing Chat and Bard AI were also frequently mentioned, albeit to a lesser extent. Other chatbots such as Socratic, Scite, Perplexity, and Claude were mentioned by a smaller number of respondents. This diversity in chatbot preferences suggests that students have access to a range of AI-powered chatbot options tailored to their specific needs and preferences.

Regarding the frequency of chatbot usage, the majority of students reported using AI-powered chatbots occasionally (42.5%). A smaller proportion of students reported using them frequently (13.7%), quite frequently (21.6%), and rarely (15%). Interestingly, only a very small number of students (7.2%) reported using AI-powered chatbots for learning very often. This distribution suggests that while AI-powered chatbots are utilized by a significant portion of the student population, they are not the exclusive or primary mode of learning for most students. Instead, they are seen as a supplementary tool that students turn to when needed.

The results revealed that the majority of students recognized numerous benefits associated with using AI-powered chatbots for learning. Among these benefits were 24/7 availability for assistance and instant responses to queries, acknowledged by 69.9% of the respondents, indicating the convenience and accessibility provided by AI chatbots in delivering timely support. The round-the-clock availability of AI chatbots ensures that students can access help and guidance whenever they need it, accommodating different schedules and learning preferences (Jia et al., 2016; Kim et al., 2019; Lee et al., 2021). This benefit aligns with the flexible nature of online learning and the need for on-demand support in a digital environment. The ability to receive prompt answers to questions or clarifications was appreciated by students as it helps them overcome obstacles in their learning process and fosters a sense of efficiency and convenience (Kaur et al., 2021).

Moreover, 48.4% of the respondents appreciated instant feedback on assignments and personalized learning experiences, suggesting that AI chatbots can enhance the learning process by offering tailored guidance and support. Students have the opportunity to revise their work and engage in self-reflection on their learning independently, without requiring direct interaction with their teacher (Cabales, 2019). This feature allows students to receive timely evaluations, which can aid in identifying areas of improvement and promoting a more iterative and proactive approach to learning (Devi et al., 2022; Pérez et al., 2020). Through adaptive algorithms and tailored recommendations, AI chatbots can cater to individual needs, preferences, and learning styles, enhancing the relevance and effectiveness of educational content (Okonkwo & Ade-Ibijola, 2021; Chen et al., 2021). This

personalized approach has the potential to address the diverse learning needs of students, promoting engagement and motivation (Suhel et al., 2020).

Access to a wide range of learning resources was also identified as a significant benefit, supporting previous studies that emphasized the role of AI chatbots in facilitating access to diverse educational materials and promoting independent exploration. Enhanced engagement and interaction were recognized as important benefits, indicating that AI chatbots have the potential to foster active participation and promote student engagement through interactive learning experiences (Diwanji et al., 2018; Tangkittipon et al., 2020). Additionally, participants highlighted the importance of a supportive and non-judgmental learning environment facilitated by AI chatbots. Furthermore, participants acknowledged the benefits of easier navigation of the internet landscape and the provision of simplified definitions of complex concepts by AI chatbots, contributing to students' understanding of challenging subject matter.

Despite the perceived benefits, students also expressed concerns regarding the use of AI-powered chatbots for learning. The most prevalent concern identified was the lack of human interaction (Shumanov & Johnson, 2021). This finding reflects the importance students place on human connection and highlights the need for a balanced integration of AI chatbots with human support in educational contexts (Furrer et al., 2014). Addressing this concern might involve incorporating opportunities for human interaction alongside AI chatbot interventions.

The accuracy and reliability of information provided by AI chatbots were also identified as a concern by a significant number of participants. This finding underscores the importance of ensuring that AI chatbots are equipped with reliable and up-to-date information from reputable sources. Additionally, privacy and data security emerged as a prominent concern, emphasizing the need to establish robust security measures and data protection protocols when implementing AI chatbot systems (Følstad et al., 2021). Difficulty in understanding complex concepts and the lack of customization options were also expressed as concerns by participants. These findings highlight potential areas for improvement in AI chatbot design and functionality. Efforts should be made to enhance the ability of chatbots to provide clear explanations and adapt to individual learning needs. The students' opinions on the effectiveness of AI chatbots yielded diverse responses, indicating a lack of consensus on the topic. While some students believed that chatbots yield better outcomes than their individual efforts, others held neutral or opposing views. This suggests that the effectiveness of AI chatbots in learning contexts may vary depending on individual preferences and learning styles.

The findings regarding the use of chatbots for assignments and exams revealed that a majority of students considered it cheating, while others were unsure or did not view it as cheating. This finding raises ethical considerations and highlights the need for clear guidelines and policies regarding the use of AI chatbots in academic assessments (King, 2023). Furthermore, students' opinions on the prohibition of chatbots in educational settings were diverse, with no clear consensus. This finding indicates the complexity of the issue and the importance of considering multiple perspectives when formulating policies regarding the use of AI chatbots in education. Moreover, the majority of students expressed a neutral stance regarding the potential contradiction of deploying chatbots with educational objectives. This suggests that students may harbor reservations about the impact of AI chatbots on specific educational goals.

The suggestions provided by students for improving AI-powered chatbots for learning offer valuable guidance for enhancing their effectiveness and user experience. These suggestions emphasize the importance of reliability and accuracy, interaction and personalization, access to diverse and up-to-date information, proper citations and references, enhancing learning capabilities, customization and personalization options, as

well as integration and collaboration with external sources and tools.

Implications

The findings of this study have important implications for the use of AI chatbots in education. Firstly, the high adoption and familiarity of AI chatbots among students suggest that they should be considered as a valuable tool to support learning. Ongoing research and development are needed to ensure their reliability and effectiveness. Furthermore, the diverse preferences reported by students emphasize the importance of providing a variety of AI chatbot options to cater to different learning needs and preferences.

The benefits identified by students, such as 24/7 availability, instant feedback, personalized learning experiences, and access to resources, highlight the potential of AI chatbots to enhance the learning process and address challenges in traditional settings. However, students' concerns regarding accuracy, privacy, lack of human interaction, and ethical issues should be addressed through careful implementation and continuous improvement. Measures should include ensuring accurate information, robust security measures, integrating human support, and establishing clear guidelines and policies.

Overall, these findings suggest that AI chatbots have the potential to create a more flexible, interactive, and personalized learning environment, but their implementation should be approached thoughtfully to address concerns and maximize their benefits.

Limitations

The current study on AI chatbot technology in education has provided insights into students' perceptions and experiences. However, limitations include a limited sample from a single institution and reliance on a survey as the primary data collection method. Future research should aim to address these limitations by including a more diverse sample from various educational settings and employing mixed methods, such as interviews and observations, to gain a comprehensive understanding of students' experiences with AI chatbots in education. Despite its limitations, this study offers valuable insights from students about AI chatbots in education. Their feedback is valuable for educators, policymakers, and developers. It provides a foundation for future research to explore the topic further, involve more perspectives, use qualitative methods, and evaluate the impact on learning outcomes.

Conclusion

In conclusion, this study explored the use of AI-driven chatbots in education and assessed students' perceptions and experiences when interacting with these virtual assistants. The findings demonstrate that AI-powered chatbots are seen as useful tools that offer support and assistance throughout the learning journey. The survey conducted among Level 3 students at Westminster International University in Tashkent revealed that AI-powered chatbots are widely used in educational settings and they offer various benefits, including convenient information access, personalized assistance, resource accessibility, and enhanced engagement levels.

However, students also highlighted several challenges, such as the lack of human interaction, concerns regarding information accuracy, data privacy issues, and limited customization options. It is crucial to implement AI chatbots carefully, ensuring that measures are in place to address these concerns and continuously improve the systems. This will ensure that AI chatbots are not only reliable and effective but also ethically deployed in the field of education.

Overall, the findings of this study provide valuable insights for teachers and educational institutions aiming to enhance student learning experiences and engagement through the implementation of AI-powered chatbots. The study highlights the importance of AI chatbots in education and emphasizes the necessity of implementing them thoughtfully, addressing any concerns, and consistently improving their functionality to maximize their potential for enhancing student learning experiences.

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