

AI-Driven Chatbots and Virtual Assistants for University Students Support: Benefits and Potential Risks

روبوتات الدردشة والمساعدين الافتراضيين المدعومين بالذكاء الاصطناعي لدعم طلبة الجامعة: الفوائد والمخاطر المحتملة

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ملخص:

لقد أحدث استعمال روبوتات الدردشة والمساعدين الافتراضيين المدعومين بالذكاء الاصطناعي تغييرات جذرية في التعليم العالي ويمكن من تطوير مناهج تحويلية للتعليم من خلال دعم الطلبة في مختلف المجالات. بفضل الاستعمال الديناميكي لهاته الأخيرة، تساهم روبوتات الدردشة والمساعدين الافتراضيين في الرفع من مستوى التعلم وقيمة السبل لتجارب تعلم مخصصة. وبالرغم من فوائدها العديدة، إلا أن هنالك مخاطر تتجلى عواقبها في استعمالها من طرف الطلبة لسرقة المحتوى وتقديمه كإنتاجهم الخاص. تتناول هاته الدراسة الفوائد والمخاطر المحتملة لاستعمال روبوتات الدردشة والمساعدين الافتراضيين المدعومين بالذكاء الاصطناعي في التعلم في الجامعة. كما تسلط الضوء على أبرز روبوتات الدردشة والمساعدين الافتراضيين المدعومين بالذكاء الاصطناعي والتي يتم إستخدامها باستمرار من قبل الطلبة من مختلف التخصصات. تم اعتماد الطريقة العشوائية في الدراسة الحالية لإختيار المشاركين ومن بينهم الأساتذة والطلبة الجامعيين من جامعات عديدة في الجزائر باستخدام منهج البحث المختلط. كشفت النتائج أن روبوتات الدردشة والمساعدين الافتراضيين المدعومين بالذكاء الاصطناعي تسبب الاعتماد المفرط على التكنولوجيا مؤدية إلى التحيز ومساهمة في تعزيز السرقة العلمية والتي بدورها تؤدي إلى خرق النزاهة الأكاديمية. وفي هذا السياق، تساعد هاته الدراسة في تحديد السمات ثنائية الخواف للدردشات الذكية والمساعدين الافتراضيين المدعومين بالذكاء الاصطناعي مشيرة إلى طرق استخدامها بحذر واستراتيجية لرفع قدرات الطلبة وتحسين جودة التعلم.

الكلمات المفتاحية: تعليقات فورية؛ توفر دائم؛ فرص التعلم المخصص؛ السرقة العلمية؛ مناهج تحويلية.

Abstract:

The use of AI-driven chatbots and virtual assistants brought radical changes in higher education and evolved transformative approaches to learning by supporting students in diverse fields. Due to their dynamic use, AI-driven chatbots and virtual assistants contribute to maximizing learning and paving the way for personalized learning experiences. Though their multifarious benefits, certain risks are getting comeuppance as students use them to plagiarize content and present it as their own production. The present study examines the benefits and potential risks of using AI-driven chatbots and virtual assistants in learning at university. It also highlights the main AI-driven chatbots and virtual assistants that are constantly used by university students enrolled in different specialties. Randomization is endorsed in the current study to select the participants, involving teachers and students from various universities in Algeria. The study is therefore grounded on mixed-methods approach. The findings revealed that AI-driven chatbots and virtual assistants induce over-reliance on technology, lead to bias and promote plagiarism that breaches academic integrity. Along these lines, the study helps identifying the dual-edged traits of AI-driven chatbots and virtual assistants and addressing ways to use them carefully and strategically to elevate students' capacities and upgrade learning.

Keywords: Availability; immediate feedback; personalized learning experiences; plagiarism; transformative approaches.

1. INTRODUCTION:

Artificial intelligence (AI) intruded almost all fields in the status quo. Notably, education is one of these fields that witnessed diverse alterations and renovations as AI is being used by not only teachers to develop their teaching skills and improve the teaching process but also students to boost their learning. AI-driven chatbots and virtual assistants are among the excessively employed technologies by university students. The fact that these technologies offer free services with availability (24/7) and immediate feedback made them highly supported by students enrolled in different faculties, leading to committing plagiarism and using others' content without acknowledgement or referencing. Potential risks for the use of AI-driven chatbots and virtual assistants have to be addressed as they can contribute to breaching academic honesty and encouraging students to plagiarize, increasing dependability on technology use and lowering their critical skills. Though the use of AI-driven chatbots and virtual assistants is beneficial and surrounded by many advantages, their use remains debatable and bounded by many risks ethical and academic violations.

A paradox was created due to the adoption of AI-driven chatbots and virtual assistants in higher education. While they offer personalized support, provide innovative academic assistance, and improve learning efficiency, they raise concerns related to over-reliance on technology, bias and plagiarism. This dual nature makes it challenging to be embraced by universities without compromising academic integrity and educational quality. Despite its widespread use, there is a dearth of clear strategies to effectively integrate AI-driven chatbots and virtual assistants into university learning contexts, in addition the absence of knowledge on how educators and students perceive both the benefits and risks of these AI-driven tools. The research problem therefore lies in identifying and understanding the tension between opportunities and potential risks and suggesting ways to mitigate these threats and maximize the advantages of AI-driven chatbots and virtual assistants.

Hence, the current study is pertained to answer the following research questions:

A. What are the teachers' and students' perceptions on the use of AI-driven chatbots and virtual assistants in higher education?

B. What are the benefits as well as potential risks of using AI-driven chatbots and virtual assistants in higher education?

C. What are the main chatbots and virtual assistants used by students to support their learning at university?

D. What can universities do to limit the risks of using AI-driven chatbots and virtual assistants by students?

2. Literature Review:

Chatbots existed long time ago since the emergence of ‘internet rely chat’ (i.e., popular chat rooms) in which they were used by the owners of chatrooms to ban a user, kick a user or add more users, and share news or products advertisements (Lee, 2018). The first AI assistant that was introduced to the world, specifically to a number of United States users, was the one called Wildfire. It was mainly a telephone assistant that responds to the users’ needs by relating the customizable directory convenience to intelligent response machine functionality. The assistant was developed by Wildfire Communications in Boston 1992. Nonetheless, it was not successful, but it had a well-designed interface that can deal with problems in relation to imperfect technology of the speech recognition programs (Pieraccini, 2021).

A chatbot is defined as a software application that produces human-like text or speech powered by artificial intelligence. On the other hand, a virtual assistant is a software agent that provides services and applies the commands of a user in a written or verbal form. Kong, Wang and Nichol (2021) define chatbot as a software system that interacts with people and make conversations via text or speech. There are various uses for chatbots as healthcare services, enterprises operations and customer services. More significantly, chatbots can be classified into two main types: Chitchat bot and task-oriented bot. The former acts as human beings by responding to the user’s messages which can be similar to conversations or chitchats between people. Whereas, the latter is designed to perform or finish a specific task on the basis of interaction with people on that task, such as booking a flight ticket.

The terms ‘chatbots’ and ‘conversational agents’ are employed to signify the same type of software. Other terms that can be used to refer to chatbots may include: Digital agent, virtual assistant, embodied agent, chatterbot and chat app (Riel, 2020 as cited in Khosrow-Pour, 2020). While chatbots interact on the basis of natural language processing to understand the input provided by users, identify intent and generate related responses using AI models, Soofastaei (2021) clarifies that virtual assistants interact through various methods; for instance, by voice, text or shooting and uploading photos. There exist multiple virtual assistants, such as Google Assistant in its chat forms as Google Allo and Google Messages, and voice forms as Google Home smart speakers. In addition to all those services, virtual assistants can perform tasks, such as assisting people in their dealings with the government, managing business conversations, setting the alarm, and preparing shopping lists and to-do lists as well.

In addition, Sabharwal and Agrawal (2020) list a range of services that are provided by virtual assistants; for instance, finding relevant documents repositories as they act as search engines, playing a variety of music or videos outdo catalogs services, such as Spotify, Amazon Prime, Netflix, and others, retrieving information and searching for diverse sources; for example, weather and stock updates, prices,

catalog information, market information and interest rates, and conducting specialized services, such as legal, healthcare, finance and administrative functions.

Text-to-speech synthesis systems generate the voice of an interactive virtual assistant. Raw data are taken by the text-to-speech synthesis systems as input, and through intermediate steps, the latter is converted into an acoustic waveform or signal. “The synthesized speech commonly pertains to a single, pre-defined speaker, and should be as natural and as intelligible as human speech” (p. 11). The process is further illustrated in the figure below.

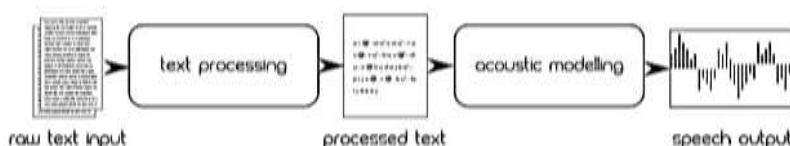


Fig.1. The main components of a text-to-speech synthesis system (Soofastaei, 2021, p. 11).

In fact, chatbots and virtual assistants are programmed and trained to understand natural language and interact with humans on the basis of Artificial Intelligence (AI) that simulates human intelligence. Costa (2023) explains that AI refers to mimicking human skills (such as reasoning, learning and decision-making) by computational systems. These skills generally require human intelligence, and as these systems are able to perform tasks intelligently, it is then called artificial intelligence. It is now included in multifarious areas, especially in educational fields. In fact, AI in education aims at boosting the quality and efficiency of educational processes by providing more personalized learning environment. In the field of higher education, personalization of learning experiences is a long-desired goal, aiming to meet every student's needs, learning styles and rhythms. For this goal, AI emerged to create a more effective and engaging learning environment through an approach that uses machine learning algorithms to analyze and interpret data about students. Such data may infer the students' learning preferences, emotional responses, academic performance and history of educational materials' interaction. In light of this data, content, teaching strategies and activities will be designed by AI systems in accordance with every single student's needs.

The term AI assistants includes a range of applications as well. In point of fact, there are several types of AI assistants, including the ones classified under three main categories: Command interpreters (These AI assistants interpret and execute a certain command on the basis of sufficient dialogues), Event classifiers (This type of AI assistants tend to read messages (*viz.*, emails) rather than using dialogues to perform a particular action in accordance with the type of message), and Conversational AI (They are full systems that perform one or more tasks in the light of full conversational dialogues (*e.g.*, chatbots)).

Integrating AI-driven chatbots and virtual assistants into education can bring promising evolution for both teaching and learning. Indeed, they are generally used by students to seek support, such as technical support, information services, suggestions and feedback, in addition to many other services to achieve academic success. They are beneficial pedagogical tools that can help teachers as well to foster their students' success. Relevant pedagogies can be accommodated through the integration of chatbots in education. Chatbots can foster critical thinking, improve digital literacy, ease assessment and promote personalized learning. They can be smart teachers as they are able to support academic assessment and manage the quality and quantity of knowledge and information, leading to assisting personalized learning. AI-powered chatbots are trained to provide immediate feedback which deemed the most teaching strategy that helps improving the learning process (Hajew, 2023).

These technologies allow teachers to focus on personalized instruction and automate tasks, such as grading and scheduling. Particularly, AI-driven chatbots and virtual assistants provide personalized and immediate responses and assistance to various stakeholders, such as parents, students, staff, but not only this, they also contribute to providing information and addressing diverse questions. Through administration automating, administrators would focus on value-added endeavors to improve the educational institution functioning. The automation of tasks would be much more easier due to AI as done in the automation of grading assignments, schedules management, and reports generation. Thus, the administrative workload would be minimized on the part of educators, which would enable them devote more time and efforts to instruction and students guidance.

Additionally, virtual assistants would continuously track the students' progress, helping instructors to specify any trends or patterns in performance, which fosters support and guidance. In this way, AI-driven tools do not only support the teaching process, making it more efficient, but they also boost personalized learning experience of every single student.

That is, AI-based chatbots can also play the role of virtual teaching assistants helping both teachers and students to find course modules, assignments and other academic matters. They can also function as administrative assistants by answering questions in relation to the infrastructure details, library information and contact details of departments (Singh & Kumar, 2024).

Chatbots can be employed to support learning and monitor learners' progress and development (Moreno-Guerrero *et al.*, 2022 as cited in Churi, 2022). In online education, chatbots and virtual assistants can help learners by responding to the frequently asked questions (FAQ), guiding course navigation and provide personalized experience in accordance with the learner interaction, assuring access, validity and assistance 24 hours/7 days, and improving their learning experience by responding to their queries and requests (Swargiary, 2023).

For instance, ChatGPT came as one of the most sophisticated chatbots released by OpenAI (Joyner, 2024). It represents an advanced generative tool that produces human-like texts and speech and is a standout model that is suitable for to FAQ-based contexts. The inclusion of chatbots in educational settings helped leveraging artificial intelligence to improve learning experiences as mentioned by Karyotaki *et al.* (2022). Chatbots have multifaced since as they act as conversational agents that use natural language processing (Kayyali, 2024).

Many universities are now using real-time chatbots to support students or other users in terms of course selection, enrolment forms, admission questions, location, fees, grants, loans and scholarships (Kumar *et al.*, 2023). Despite their benefits, the use of AI-driven chatbots and virtual assistants has demonstrated some disadvantages, such as the depersonalization of learning which implies over-reliance on them to support learning without taking into consideration the teacher’s guidance and mentorship. Not only this, but chatbots and virtual assistants may also lead to increasing the rates of plagiarism because students may use them to generate content for their assignments, leading to negative influence on their academic performance and in the end breaching academic integrity. Further, chatbots and virtual assistants may reduce the students’ critical thinking and problem-solving skills. Their excessive use can augment social isolation because students would prefer interaction with chatbots over classroom interaction. Though chatbots and virtual assistants are powerful, they can be misleading as they may provide inaccurate information (Bansal *et al.*, 2024). Keengwe (2023) also adds that chatbots may lack efficiency, being designed on a rule-based method, which means that they may misinterpret the user’s commands or provide inaccurate responses due to disconformity with the rules that the chatbot was trained on.

3. Method

The present study aims at examining the benefits as well as the potential risks ranged from the use of AI-driven chatbots and virtual assistants by university students. The study thoroughly explores university teachers and students’ perceptions on the use of AI tools in higher education and highlights the most significant chatbots and virtual assistants employed by students to support learning. To conduct the study, certain research questions are pondered to help reaching the aforementioned aims. Henceforth, the study is contingent on the following research questions:

- E. What are the teachers’ and students’ perceptions on the use of AI-driven chatbots and virtual assistants in higher education?
- F. What are the benefits as well as potential risks of using AI-driven chatbots and virtual assistants in higher education?
- G. What are the main chatbots and virtual assistants used by students to support their learning at university?
- H. What can universities do to limit the risks of using AI-driven chatbots and virtual assistants by students?

The current study advocated randomization to select the participants, including university teachers and students from diverse academic settings (*i.e.*, different universities) in Algeria. A mixed-methods approach was endorsed to examine and explore the topic, employing surveys as a cardinal data collection tool. Thereupon, questionnaires were administered to gain insights on the topic and help answering the research questions. The teachers questionnaire encompassed four main sections as follows: Background information, perceptions on the use of AI-driven chatbots and virtual assistants at university, usability and effectiveness of AI-driven chatbots and virtual assistants and potential concerns on the use of AI-driven chatbots and virtual assistants. The first section aimed at gathering general information on the university teachers' gender, age, years of experience, specialty and affiliated institution, while the second section included questions on the teachers' perceptions on the use of AI-driven chatbots and virtual assistants by them as well as their students. The third section intended to identify the main chatbots and virtual assistants used to support the teaching learning process and examine their main benefits, whereas the fourth one was directed towards identifying their potential risks on the students' abilities and data privacy and security.

The students questionnaire also comprised four sections as the following: Demographics, perceptions on the use of AI-driven chatbots and virtual assistants, benefits of AI-driven chatbots and virtual assistants and potential risks of AI-driven chatbots and virtual assistants. The first section listed some questions on the students' age, gender, specialty, year of study and university. The second section marked the students' perceptions on the use of AI-driven chatbots and virtual assistants and the main AI tools (whether chatbots or virtual assistants) that they use to support their learning and seek feedback or guidance from. The third one intended to examine the benefits of using AI-driven chatbots and virtual assistants in their learning process, while the fourth section aimed at gaining information on the potential risks by posing questions on plagiarism, bias, dependability on technology, data privacy and security. However, the interview was structured, comprising 8 open-ended questions on the use of AI-driven chatbots and virtual assistants in academic studies, the students' perceptions, perceived benefits and potential risks.

Surveys were designed to collect both quantitative and qualitative data on the topic posing diverse questions on AI-driven chatbots and virtual assistants and employing different types as close-ended, open-ended, multiple choice and Likert scale questions, including scales for the degree of satisfaction, agreement and frequency. The interview was conducted with only 2 university students due to participation limitations as the majority did not consent to be interviewed.

4. Results and Discussion

A total of 11 university teachers, involving 5 males and 6 females, were randomly selected from different Algerian universities. These participants teach diverse subjects as English, Arabic, Sociology, Law, Electromechanics, Political Sciences, Mathematics and Computing. A bulk of them (N=8) mentioned that they have a teaching experience ranging from 5 to 10 years. A minority of the teachers (N=5) asserted that they use AI-driven chatbot and virtual assistants to seek help in their academic research and support the teaching process. Others (N=4) stated that they have an idea about them and their utility. A sum of the teachers (N= 9) assured that they found these AI tools easy and user-friendly. This view was also supported by Banerjee, Sinha and Pandey (2024), asserting that AI-driven chatbots, such as Chat GPT, have a simple interface and can easily be used and navigated.

All teachers (N=11) presumed that the AI-driven chatbots and virtual assistants are always accessible to students enrolled in different specialties, asserting that they provide very fast responses. The view can be witnessed in the works of Darwish (2024) and Gray and Dunn (2024), asserting that chatbots do not only provide timely assistance, but they are also trained to give predetermined responses, meeting the users' immediacy. Out of the total number of the teachers, 10 of them claimed that students use them to copy and paste content, which means that they plagiarize others' works and present them as their own. In this context, Ghosh *et al.* (2025) stressed that though chatbots and virtual assistants have a critical potential for e-learning, certain concerns in relation to plagiarism have to be carefully considered because they can produce content on any subject, and the latter scares teachers.

Though these AI tools support students in their studies, they encourage them to over rely on technology as stated by 11 teachers. Hai-Jew (2023) also added that there is a remarkable and an extensive reliance on chatbots to complete assignments by university students which encourages universities to ban them in their networks and computers to discourage cheating and eliminate plagiarized works. With respect to data accuracy, the majority of the teachers (N=9) stressed that AI-driven chatbots and virtual assistants often provide inaccurate data, lacking references and citations which can be considered as plagiarism.

Despite of the fact that AI tools are very helpful in terms of solving the students' queries (as alluded to by 10 teachers), they have to be further supported by human advisors for data privacy and security as strongly agreed by all teachers (N=11). Smuha (2025) also emphasized the aforementioned view, highlighting the necessity of human involvement to address data privacy and security concerns effectively. A high majority of the teachers (N=10) strongly agreed that AI-driven chatbots and virtual assistants usually offer personalized learning experiences. In this concern, Kadry (2024) explained how AI is reshaping the educational environment, providing personalized learning experiences. As also supported by Clark (2024), AI can provide learning support, including chatbot functionality and content personalization.

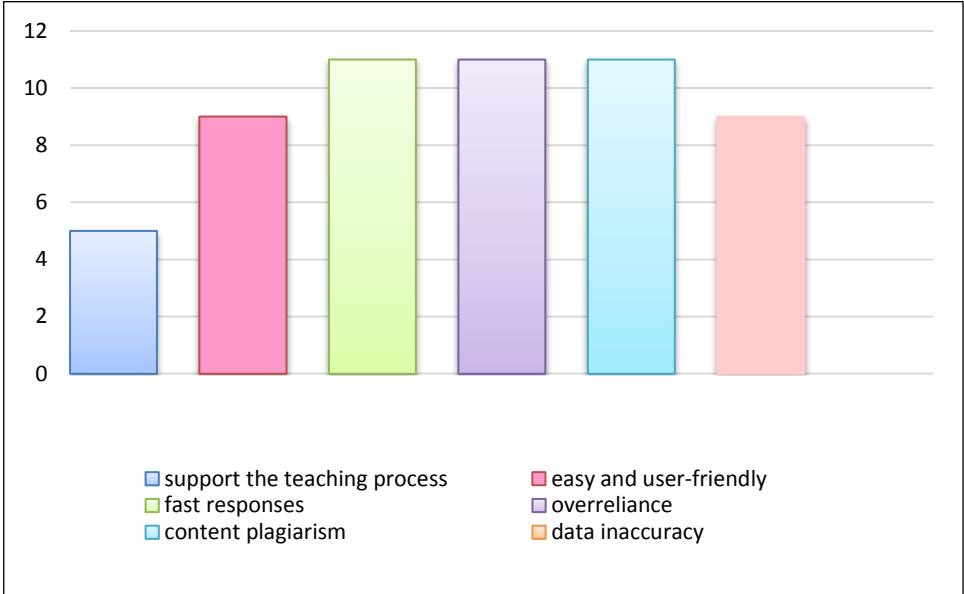


Fig.2. Frequencies related to the university teachers' responses.

A total of 20 students participated in the study, involving 14 females and 6 males. These students belong to diverse Algerian provinces and study in different universities. They are enrolled in specialties as English, Arabic, Law, Physics, Sociology, Mathematics and Commercial Sciences. A total of 18 university students asserted that they use AI-driven chatbots and virtual assistants, listing ChatGPT and QuillBot as the main ones. The majority of the participants (N=18) asserted that they use them to study, paraphrase, write assignments and prepare their projects, while the interviewed students (N=2) asserted that ChatGPT is their favorite chatbot that they use for learning support, especially when given homework assignments. Stevkovska, Klemenich and Ulutaş (2024) mentioned that ChatGPT and Quillbot emerged as AI tools to be used by students to improve cohesion in their writing assignments, while Ahmed, Hassan and Saeed (2024) clarified that QuillBot is an AI-powered writing tool used by students to paraphrase, summarize and reword a text.

The participants (N=18), including 2 interviewed ones, had also alluded to the fact that access to the AI-driven chatbots and virtual assistants is very easy, and their interface is user-friendly. The same frequency (N=18) was recorded for the ones who affirmed that these AI tools are always accessible, providing very fast responses. They maintained that they weekly use them for the sake of studies and research. The interviewees (N=2) also confirmed the fast-paced performance of the chatbots, especially ChatGPT, denoting the swift and efficient interaction patterns observed in such AI tools which also signifies their potential to redefine immediacy in digital learning environments. The latter was discussed in the work of Peachey (2023), highlighting that ChatGPT prompt responses can aid in the learning process, offering

real-time conversational support to students. Purposes for using AI-driven chatbots and virtual assistants were multifarious as stated by the students, such as asking general questions (N=17), asking for suggestions and/feedback (N=18), requesting support to prepare projects (N=17) and write assignments (N=16). These tools are used to rewrite sentences, paragraphs and even essays with flexibility, enhancing fluency and clarity, in addition to boosting creativity as emphasized by Al-Obaidi, Boivin and Rao (2024).

The participants (N=18) declared that they tend to use the exact information given by the AI-driven chatbots and virtual assistants, as ChatGPT, which infers the fact that they commit plagiarism in a way or in another. The participants (N=15) confessed that they over rely on these AI tools because they save their time and efforts and help them concoct their projects and assignments, providing new ideas, suggestions and feedback. In the interview, the participants asserted that AI tools substantially reduce the time and effort required to complete academic tasks, that is why, they acknowledged a significant reliance on AI tools, such as ChatGPT and QuillBot and admitted that they sometimes intend to plagiarize.

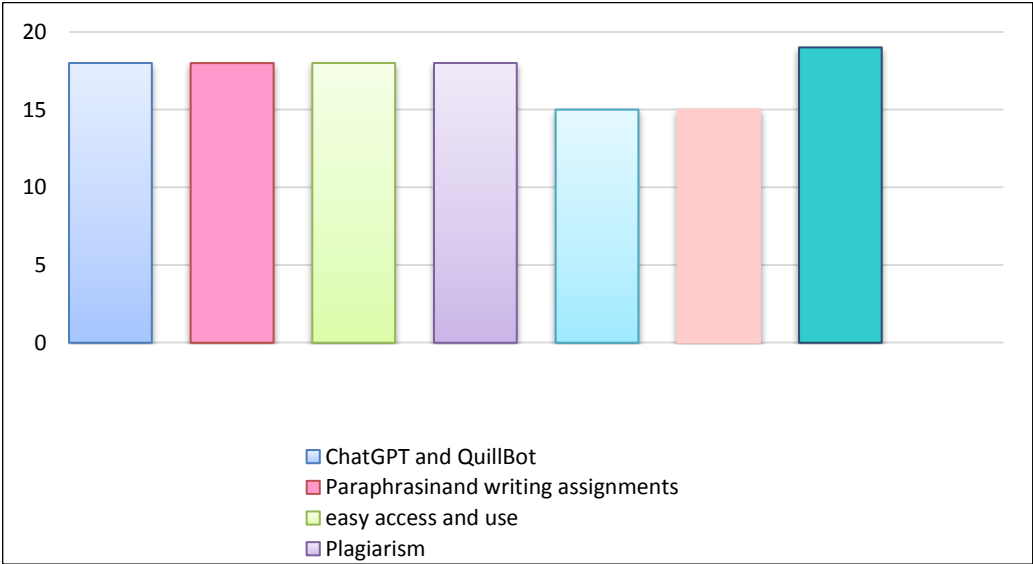


Fig.3. Frequencies obtained on the basis of the university students’ responses.

In terms of data accuracy, a sum of 15 students claimed that chatbots and virtual assistants are not completely trusted and sometimes provide falsified information. Nonetheless, they are helpful and support their studies to a great extent. Ethical concerns were raised by Bansal *et al.* (2023) on the use of AI tools, such as ChatGPT, by students to generate custom-made answers, committing plagiarism. It was also stressed that the latter encourages procrastination and depersonalization of learning by making students over rely on these tools for learning support, dismissing instructors’ guidance and mentorship. Not only this, but the former scholars, in addition to Deligiannidis, Dimitoglou and Arabnia (2024), alluded to the fact that AI

tools may provide inaccurate responses in which students encounter inaccuracies that negatively affect their academic performance.

When the students were asked whether AI chatbots and virtual assistants should be reinforced by human advisors for effective performance and more maintenance of data privacy and security, a high number of them (N=18) supported the view. Further, the interviewees insisted that combining human mentorship and guidance with AI tools speed could improve both efficiency and ethical data management. As Shoufan (2023) mentioned that AI tools as ChatGPT can be more effective if teachers guide their students to properly select their prompt answers and evaluate their responses (as cited in Lin *et al.*, 2024). The view was also strongly supported by Musundire (2025) who asserted that human advisors can assist AI tools, chatbots and virtual assistants, to provide accurate responses and context- related feedback.

As an upshot, both university teachers and students hold positive perceptions on the use of AI-driven chatbots and virtual assistants. The benefits of AI-driven chatbots and virtual assistants can be listed as follows: fast responses and feedback, easy use and accessibility, and personalized learning experiences. Whereas the potential risks include the fact that they promote dependability on technology and lead to bias and plagiarism. Out of 20 students, 18 ones mentioned that they use ChatGPT as a main AI-driven chatbot, assuming that universities can evolve courses and organize workshops to raise the students' awareness and responsibility towards the use of AI tools and develop their AI literacy.

5. CONCLUSION

AI-driven chatbots and virtual assistants represent a valuable tool that supports the students' learning process and promotes personalized learning experiences. They provide tailored assistance and help students maximize their learning due to their availability, immediate feedback and cost-effectiveness. The critical contribution in education brought by these AI tools made them constantly used by stakeholders in different areas to save time and efforts. The latter induced potential risks as students use them to plagiarize and over rely on technology to write their papers and assignments. Not only this, but the uncareful use of AI-driven chatbots and virtual assistants also leads to bias and privacy concerns. Leveraging these technologies can be attained by carefully using them, taking into account ethical restrictions and privacy concerns. Universities should assure a holistic experience by setting rules for the use of AI-driven chatbots and virtual assistants and creating a strategic approach that preserves academic integrity and data privacy and minimizes plagiarism and bias.

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6. Recommendations

For careful use of AI-driven chatbots and virtual assistants in higher education, maintaining academic integrity, avoiding bias and limiting privacy and security concern, the following recommendations are listed:

- Chatbots' database should be updated and carefully monitored.
- Feedback can be collected to improve the performance of AI-driven chatbots and virtual assistants on the basis of users experiences, especially stakeholders.
- Certain staff can be trained to act as oversight or advisors for AI tools use by students.
- Security protocols should be elaborated by universities.
- Students should be trained on wise and careful use of AI-driven chatbots and virtual assistants.
- Universities should set guidelines on the ethical use of AI tools adhering to academic honesty and data privacy.
- AI-driven chatbots and virtual assistants can be integrated into the teaching process for further improvement as supplementary resources provision.
- Students should be encouraged to use AI-driven chatbots and virtual assistants for technical support, suggestions and orientation rather than plagiarizing content and presenting it as their own work.
- Students should be wary of their responsibility for data privacy and security, avoiding bias and plagiarism.
- Students should be encouraged to use AI-driven chatbots and virtual assistants to gain feedback on their own work.
- AI-driven chatbots and virtual assistants can be integrated into university curricula in a way that enables students to interact with them to write their papers, prepare their projects or assignments.
- Universities can develop courses and organize workshops where students would be able to evolve AI literacy.

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