

Characteristics, Motivations and Attitudes of Students Using ChatGPT and Other Language Model-Based Chatbots in Higher Education

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Abstract - The quick rise in the use of artificial intelligence chatbots, especially ChatGPT, among college students shows big changes in how teaching and learning happen. This research looks at how 974 college students use these chatbots in school. The results show that many students use chatbots with 61.4% saying they use them ChatGPT. There are differences in how often boys and girls use these tools. The main reasons students use them are to understand topics save time and do better in school. Even though students think these tools help with managing study time and getting information they also worry about becoming too dependent and losing their writing and thinking skills. When it comes to how boys and girls use chatbots there are ways. Boys usually make moderate changes while girls like to create new and personal answers from the text they give. The common problems are when the responses are not complete, not relevant or not correct. These results show that there is a need for education programs that use chatbots based on language models, in schools in a way.

Keywords: Artificial intelligence, Chatbots, ChatGPT, Higher education, Digital literacy, Student engagement.

I. INTRODUCTION

Technological advancements and discoveries lead to changes in many parts of society. One important development has been language model-based chatbots, such as ChatGPT. These tools have quickly become popular among university students and other people in settings (Mamo *et al.* 2024; Stöhr *et al.*, 2024). Built on deep language models these chatbots are widely used because they can hold conversations and create sounding texts on a wide range of subjects (Yigci *et al.*, 2024).

As chatbots are being used more in education teachers and schools have feelings—some are excited while others are careful (Giannakos *et al.*, 2024). These tools are easy to access. Can answer questions and pull together information

quickly. This makes them a helpful resource, for students who are trying to understand and build on ideas (Rawas, 2024). This aspect could spark interest. Stimulate critical thinking and creativity (Kiryakova & Angelova 2023). However the use of chatbots also brings challenges. Some studies point to a technological dependency warning that constant use of chatbots might reduce the ability to solve problems independently (Tlili *et al.* 2023). Another concerning aspect is the accuracy of the information provided by chatbots (Limna *et al.*, 2023). Chatbots may give responses because they rely on data that is not continuously updated (Currie, 2023). Additionally there are concerns about academic integrity and the risk of unintentional plagiarism when using automatically generated texts (Cotton *et al.* 2024; Espartinez, 2024).

Language model-based chatbots have entered the environment at a remarkable speed (Hsu & Ching 2023). A significant though still undetermined proportion of students have incorporated language model-based chatbots into their learning process (Abdaljaleel *et al.* 2024; von Garrel & Mayer 2023). Preliminary studies show adoption among men (Stöhr *et al.* 2024) suggesting potential gender differences in how often language model-based chatbots are used the type of interaction and personal motivations. However these preliminary findings need confirmation through extensive and representative research because other studies have not found such differences (Acosta-Enriquez *et al.*, 2024).

Motivations for putting language model-based chatbots into study routines are varied but still not fully clear. Among the cited reasons are the constant availability of language model-based chatbots, which can be used without physical or time restrictions to find information on academic content (Adams *et al.*, 2024; Kayalı *et al.* 2023). The personal nature of language model-based chatbots lets students get responses that are tailored to their needs and they do not have to worry about external judgment or social pressure (Hawanti & Zubayduloevna 2023). Another frequent motivation is the desire for solutions to cut down study time (Ansari *et al.*,

2024) and ultimately improve academic outcomes (Komba, 2024; Wu & Yu 2024).

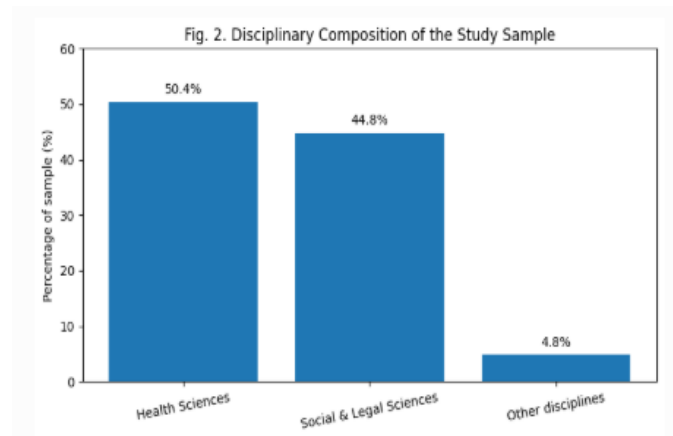
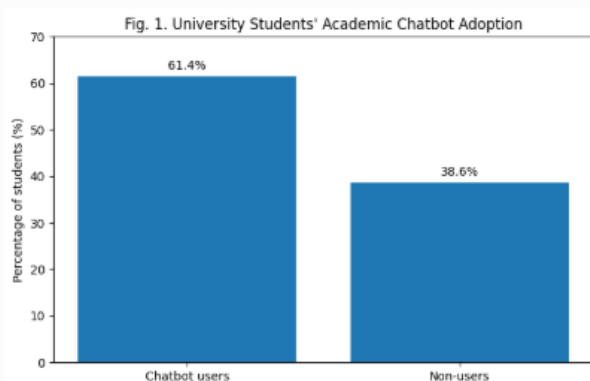
One major issue with the adoption of this technology is that the educational system has not had enough time to adapt properly (Korseberg & Elken 2024). The emergence and popularization of ChatGPT have outrun institutions' ability to create plans and learning strategies that guide its effective and ethical use (Abulibdeh *et al.*, 2024; Wang *et al.*, 2024). As a result students have learned to interact with this technology on their own or by using tutorials that are available, on social media (Monib *et al.*, 2024).

II. PROCEDURES

I recruited the sample by sending a questionnaire through the LimeSurvey platform from January to May 2024. The link to the questionnaire was sent to every student enrolled in courses taught by the authors and four other collaborating professors. I also reached out to students via social media. Therefore the sample is a convenience sample. Participation was voluntary. I followed the guidelines, from the Spanish Organic Law 3/2018, of December 5 on Personal Data Protection and guarantee of digital rights. At the beginning of the survey I obtained consent from all participants and I explained the confidentiality and anonymity of their responses. The IP addresses of the devices used were not recorded.

III. RESULTS AND DISCUSSIONS

Based on the provided study on university students' use of language-model-based chatbots, you can write the Results section in a concise IEEE-paper style. The source reports a sample of 974 university students, with 61.4% using chatbots for academic purpose. The study analyzed chatbot usage among 974 university students. Results showed that 61.4% of students reported using language-model-based chatbots for academic purposes, indicating substantial adoption of generative AI tools in higher education. However, usage was generally occasional rather than intensive.



Students primarily used chatbots for understanding academic concepts, obtaining information, generating ideas, summarizing content, and improving academic writing. The findings further indicate that most students modified or adapted chatbot-generated content instead of directly submitting it, suggesting that chatbots were mainly used as supplementary learning tools.

The study also identified concerns related to information accuracy, over-reliance, critical thinking, and academic integrity. Students may accept chatbot-generated information without sufficient verification, emphasizing the importance of digital literacy and critical evaluation skills.

Gender-related differences were observed in some aspects of chatbot use. In particular, male students reported greater use for academic writing and more positive attitudes toward chatbots; although no significant gender difference was found in overall usage rate or frequency.

Table 1: Summary of Key Results

Parameter	Result
Total sample	974 students
Academic chatbot users	61.4%
Non-users	38.6%
Health Sciences students	50.4%
Social & Legal Sciences students	44.8%
Other disciplines*	4.8%
Overall usage pattern	Mostly occasional
Major purpose	Understanding academic concepts
Other major uses	Information, ideas, summaries, academic writing
Key concern	Accuracy and reliability of AI-generated information

IV. DISCUSSION

The findings indicate widespread but occasional adoption of language model-based chatbots among university students, with 61.4% reporting academic use. Students primarily use chatbots to understand academic concepts, obtain information, generate ideas, summarize content, and improve academic writing. Most students adapt or modify chatbot-generated content rather than using it directly, suggesting their role as complementary learning tools.

However, concerns remain regarding the accuracy and reliability of generated information, over-reliance, reduced critical thinking, and academic integrity. Students may accept chatbot responses without sufficient verification, highlighting the need for critical evaluation and digital literacy.

The study further identifies differences in chatbot use and attitudes across genders, particularly in academic writing and overall perceptions. These findings emphasize the importance of educator guidance, ethical AI use, and responsible integration of chatbots into higher education.

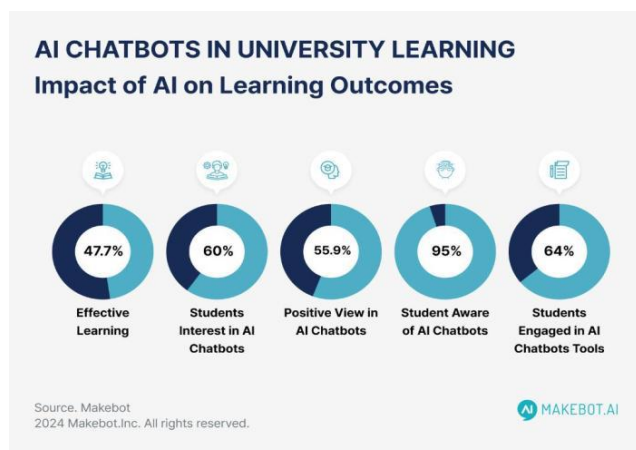


Figure 1: Chatbot Adoption

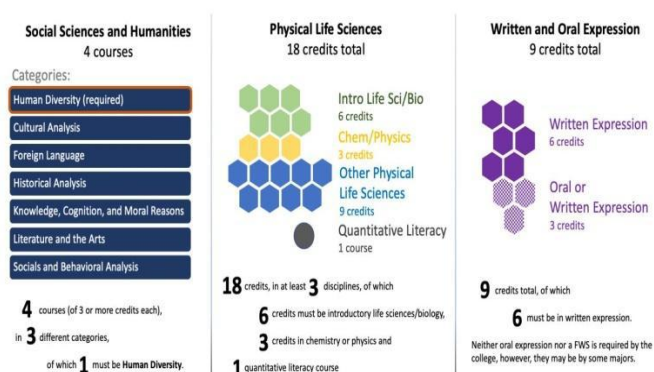


Figure 2: Disciplinary Distribution

V. METHODOLOGICAL LIMITATIONS AND FUTURE DIRECTIONS

The study identifies several key limitations that should be taken into account when interpreting the findings:

Sample Generalizability: The participant pool consisted primarily of face-to-face students from public universities in Spain. Future research should include diverse samples from private institutions and online learning environments.

Gender Imbalance: There was an overrepresentation of female participants. While this mirrors broader higher education enrollment patterns in Spain (particularly in health sciences and social services), more gender-balanced samples are recommended moving forward.

Self-Reporting Bias: Relying on self-evaluation introduces potential social desirability bias, as students may fear academic repercussions regarding chatbot usage. Although strict confidentiality and anonymity were maintained, future studies could benefit from objective usage tracking.

Instrument Reliability: The survey questions were derived from existing literature without a preliminary pilot test or formal reporting of measurement validity and reliability. Subsequent studies should incorporate pilot testing to enhance robustness.

VI. CONCLUSION

This study highlights the growing integration of AI chatbots, particularly ChatGPT, among college students, with over 61% reporting their use for academic purposes. Students primarily rely on these tools to comprehend complex topics, save time, and improve academic performance. However, the findings also reveal a dual perspective: while students recognize the efficiency gains in study management, they harbor valid concerns regarding overdependence and the potential erosion of critical writing and thinking skills.

Furthermore, the research points to distinct usage patterns across genders—with male students tending to make moderate text modifications, whereas female students favor generating creative and personalized responses. Frequent challenges, such as incomplete, irrelevant, or inaccurate outputs, underscore the critical need for higher education institutions to develop structured educational programs. Implementing guided, language-model-based chatbot curricula will ensure that students use these powerful tools responsibly, effectively, and safely to enhance learning outcomes.

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