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University Tutoring with Artificial Intelligence

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Abstract

The integration of artificial intelligence (AI) tools in education has raised significant interest in student satisfaction. This study aimed to assess university students' satisfaction with a personalized AI tool. A descriptive study involving 124 students was conducted using a satisfaction survey. Findings showed that 59.7 % of students were very satisfied and 40.3 % were satisfied, emphasizing the tool's effectiveness in addressing academic queries and generating quality content. However, a key limitation was limited access to AI due to poor connectivity and lack of technological devices. Despite this, the results indicate that AI holds strong potential to improve the educational experience. The study highlights the importance of addressing access barriers to fully leverage the benefits of AI. Overall, it contributes to the educational field by offering insights into students' perceptions, which can inform future applications and enhancements of AI tools in academic settings.

Keywords: Student Satisfaction, Artificial Intelligence, Academic Tutoring, Higher Education.

Introduction

The integration of artificial intelligence (AI) tools in the educational field has transformed the teaching-learning process. In particular, the personalization of education through AI has emerged as a promising approach to enhancing student satisfaction (Valero-Ancco et al., 2024). Student satisfaction with these tools is a crucial indicator of their effectiveness and acceptance in academic settings. According to Guña et al. (2023), user satisfaction in educational programs is closely linked to the quality of the learning experience, underscoring the importance of evaluating students' perceptions of personalized AI tools. Furthermore, the research by Núñez et al. (2021) suggests that student satisfaction may reflect the quality of education and the fulfillment of academic expectations, justifying the need to investigate this aspect in the context of AI. Lastly, the review by Jiménez et al. (2024) highlights that AI has the potential to revolutionize education, but its implementation must be evaluated in terms of satisfaction and effectiveness.

In recent years, various studies have explored student satisfaction in relation to AI tools. For example, the study by Pérez-Sullcaray et al. (2023) assessed the quality of educational services and student satisfaction in virtualized courses, finding that personalized teaching through AI significantly increases student satisfaction. Similarly, the work by Núñez et al. (2021) analyzed the satisfaction with academic services in higher education and concluded that the

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implementation of educational technologies, including AI, improves students' perceptions of educational quality. On the other hand, Torres (2023) used the SERVQUAL model to measure student satisfaction, emphasizing that AI tools can positively influence the educational experience. These investigations contribute to the current body of knowledge by demonstrating that student satisfaction with personalized AI tools is a critical factor for educational success.

The incorporation of artificial intelligence (AI) in higher education has sparked growing interest due to its capacity to transform learning and tutoring dynamics, optimizing interactions between students and emerging technologies. AI-based tools, such as ChatGPT, have proven effective in enhancing student satisfaction by facilitating access to knowledge, promoting efficient learning management, and strengthening specific skills such as creativity and linguistic abilities (Gil-Vera, 2024; Gutierrez-Aguilar et al., 2024). Moreover, research highlights that factors such as perceived usefulness, knowledge acquisition, and the personalization of academic support are critical for the sustainable integration of these tools in university settings (Almufarreh, 2024; Ngo et al., 2024).

The implementation of virtual assistants and predictive AI models has revolutionized academic tutoring processes (Pari-Orihuela et al., 2024), providing personalized recommendations and constant access to educational resources (Gallastegui & Forradellas, 2024; Guo, 2024). These technologies not only enable students to enhance their educational experience by addressing individual needs but also expand the scope and accessibility of tutoring services (Recalde et al., 2024), overcoming traditional challenges such as limited availability of academic support (Dahri et al., 2024). During crises, such as the COVID-19 pandemic, AI systems have proven to be effective tools in alleviating student stress and ensuring a smooth educational experience (El-kholy, 2024; Mendoza et al., 2024). Beyond improving student satisfaction, these applications prepare future educators to adopt technologies that foster a more personalized and accessible education.

However, the integration of AI into university teaching raises critical challenges that demand ethical and reflective analysis. While these tools have demonstrated their effectiveness in enhancing teaching quality and personalizing learning processes (Aleshkovski et al., 2024), they also raise concerns about their impact on student autonomy and human-technology interaction (Al Daraai et al., 2024; Gaur et al., 2024; Salloum, 2024; Sharma et al., 2024). Additionally, in designing educational experiences, it is crucial to consider students' expectations and perceptions regarding these tools, as factors such as personalization and platform design directly influence their satisfaction (Marutschke & Hayashi, 2024).

Despite advancements in research on student satisfaction and AI, thematic gaps remain, justifying the need for this study. First, although satisfaction with AI tools has been documented, few studies have specifically explored student satisfaction with personalized tools in specific educational contexts. Furthermore, most research has focused on AI's effectiveness in learning, neglecting student perception as a key success indicator.

The objective of this article is to determine students' satisfaction with a personalized artificial intelligence tool. This goal aims not only to fill the identified thematic gaps but also to advance the field's knowledge by providing a deeper understanding of how AI tools can be designed and utilized to improve students' educational experiences.

Methods

This study is a non-experimental research with a simple descriptive design aimed at determining students' satisfaction with a personalized artificial intelligence tool. This design allows for a clear understanding of participants' perceptions and experiences regarding the use of artificial intelligence in their educational process.

The study sample consisted of 124 university students enrolled in a professional Education program. Inclusion criteria required that participants be enrolled during the 2024-I semester in courses such as Learning Strategies, Didactics of History and Geography in Primary Education, Social Sciences in Primary Education, Didactics of Oral Expression and Comprehension, and ICT in Education, and have access to the personalized artificial intelligence tool named Mentor Académico Inteligente (MAI).

The research was conducted throughout the first academic semester of 2024, spanning from April to July. The experience involved the development of academic tutoring sessions with the specified groups using a personalized GPT-based tool, Mentor Académico Inteligente (MAI), designed by the researchers. MAI served as a virtual tutor, performing tasks such as addressing academic queries, generating study materials, planning and managing time, and facilitating formative assessments (Table 1).

Main Tasks of MAI	Description	Common Activities
Resolving Academic Queries	MAI acts as an immediate consultation tool for students, providing clear and contextualized explanations.	<ul style="list-style-type: none"> - Quick responses - Personalized explanations - Topic expansions
Generating Study Materials	MAI produces educational content tailored to each student's needs.	<ul style="list-style-type: none"> - Summaries - Diagrams and concept maps - Personalized quizzes - Study guides
Planning and Time Management	MAI functions as a virtual academic assistant, helping students organize tasks and optimize their time.	<ul style="list-style-type: none"> - Schedules - Reminders - Time management tips - Schedule adjustments
Formative Assessment	MAI plays a significant role in formative assessment, providing continuous feedback to help students identify areas for improvement before final evaluations.	<ul style="list-style-type: none"> - Quizzes and exercises - Immediate feedback - Improvement suggestions - Mock exams

Table 1: Description of Tasks and Activities Performed by MAI.

The study involved course instructors conducting their activities throughout the semester (17 weeks), delivering the scheduled content for each subject while providing students with access to the personalized GPT tool, Mentor Académico Inteligente (MAI). This tool was designed to assist students in their academic activities throughout the semester.

For data collection, a satisfaction survey was specifically developed for this research. The survey included closed-ended questions and Likert scales to assess various dimensions of satisfaction, posthumanism.co.uk

such as resolving academic queries, generating study materials, planning and time management, and formative assessment. The survey was administered in person, which facilitated student participation and ensured the confidentiality of their responses.

Data analysis was conducted using descriptive statistical techniques, including frequencies and percentages. Statistical tools, such as SPSS, were utilized to process the data and generate visual representations, such as charts, to illustrate the results of student satisfaction.

Results

Sample characterization

The results show that 50 % of the participants were aged between 20 and 25 years, 46 % were under 20 years old, and 4 % were older than 25 years. Regarding gender, 81.5 % of the participants were women, and 18.5% were men. This distribution reflects the predominance of women in the field of education, which aligns with the characteristics of the student population in this academic area.

In terms of academic level, 9.7 % of the participants were enrolled in the first semester, 25.8% in the second semester, 22.6 % in the third semester, and 22.6 % and 19.4 % in fifth semester groups B and A, respectively.

Variable	Category	Frequency	Percentage (%)
Age	Less than 20 years	57	46.0
	20 to 25 years	62	50.0
	26 to 30 years	3	2.4
	Over 30 years	2	1.6
	Total	124	100.0
Gender	Female	101	81.5
	Male	23	18.5
	Total	124	100
Semester/Group	First semester	12	9.7
	Second semester	32	25.8
	Third semester	28	22.6
	Fifth semester B	28	22.6
	Fifth semester A	24	19.4
	Total	124	100

Table 2: Characteristics of the Investigated Sample.

The majority of participants were aged between 20 and 25 years (50 %), which is expected in a university setting as this age range corresponds to the typical period of higher education. The higher representation of female participants reflects the characteristics of the field of education (Valero-Ancco et al., 2025), which traditionally attracts more women.

Results on Satisfaction Regarding Academic Query Resolution

For the item, How would you evaluate the clarity of the answers provided by GPT MAI to your academic queries?, the results showed that 14 students (11.3 %) rated it as excellent, 58 students (46.8 %) rated it as good, and 52 students (41.9 %) rated it as average.

For the item, Were the explanations offered by GPT MAI useful in understanding complex topics?, 9 students (7.3 %) rated them as very useful, 89 students (71.8 %) as useful, and 26 students (21 %) as slightly useful.

For the item, Do you think GPT MAI satisfactorily answered most of your academic questions?, 68 students (54.8 %) indicated always, 48 students (38.7 %) responded most of the time, and 8 students (6.5 %) responded sometimes.

For the item, How quickly do you think GPT resolved your queries?, 10 students (8.1 %) considered it very fast, 59 students (47.6 %) rated it as fast, and 55 students (44.4 %) indicated it was average.

Results on Satisfaction Regarding the Generation of Study Materials

For the item, How would you evaluate the quality of the summaries or outlines generated by GPT MAI?, 59 students (47.6 %) rated them as excellent, 42 students (33.9 %) as good, and 23 students (18.5 %) as average.

For the item, Did the study materials created by GPT MAI meet your academic needs?, 94 students (75.8 %) indicated that the materials were fully aligned, while 30 students (24.2 %) stated they were partially aligned with their needs.

For the item, How useful do you find the quizzes and exercises generated by GPT MAI for your learning?, 24 students (19.4 %) rated them as very useful, 94 students (75.8 %) as useful, and 6 students (4.8 %) as slightly useful.

Results on Satisfaction Regarding Planning and Time Management

For the item, How would you evaluate the assistance provided by GPT MAI in planning your academic activities?, 50 % of students rated it as excellent, and the remaining 50% rated it as good.

For the item, Did the schedule suggested by GPT MAI align well with your timelines and needs?, 23 students (18.5 %) indicated it was fully adapted, while 101 students (81.5 %) stated it was partially adapted.

For the item, Do you find the reminders and time management recommendations provided by GPT MAI useful?, 52 students (41.9 %) rated them as very useful, while 72 students (58.1 %) considered them useful.

Results on Satisfaction Regarding Formative Assessment

For the item, How useful do you consider the immediate feedback provided by GPT MAI on your quizzes or exercises?, 26 students (21 %) rated it as very useful, while 98 students (79 %) rated it as useful.

For the item, Did the feedback help you identify your mistakes and improve your understanding of the topics?, 37 students (29.8 %) stated always, 85 students (68.5 %) indicated most of the time, and 2 students (1.6 %) responded sometimes.

For the item, How realistic do you consider the mock exams or assessments generated by GPT MAI?, 23 students (18.5 %) rated them as very realistic, 98 students (79 %) as realistic, and 3 students (2.4 %) as slightly realistic.

Results on Overall Satisfaction with GPT MAI

Regarding overall satisfaction with GPT MAI as an academic tutoring tool, 74 students (59.7 %) reported being very satisfied, while 50 students (40.3 %) indicated being satisfied.

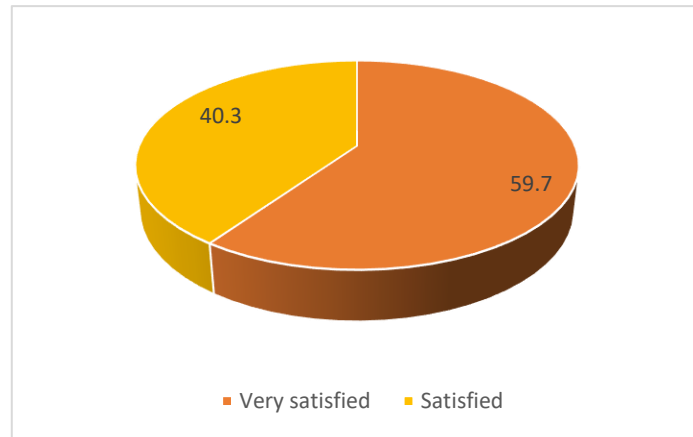


Fig. 1. Level Of Satisfaction with The Use of GPT MAI

Note. The values are expressed as percentages.

Regarding the question Would you recommend the use of GPT MAI as an academic tutoring tool to other students?, all 124 students (100 %) indicated that they would recommend it.

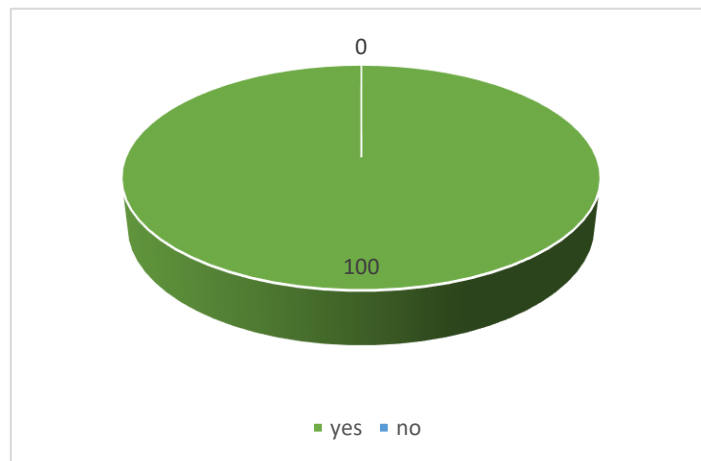


Fig. 2. Recommendation Level of GPT MAI For Other Students

Note. The values are expressed as percentages.

Regarding the question about the main difficulty in using GPT MAI as an academic tutoring tool, it was found that 20 students (16 %) indicated that their primary challenge was connectivity issues, due to being in areas with poor coverage or lacking permanent internet access. Additionally, 10 students (8 %) reported difficulties with their technological devices due to damage or loss.

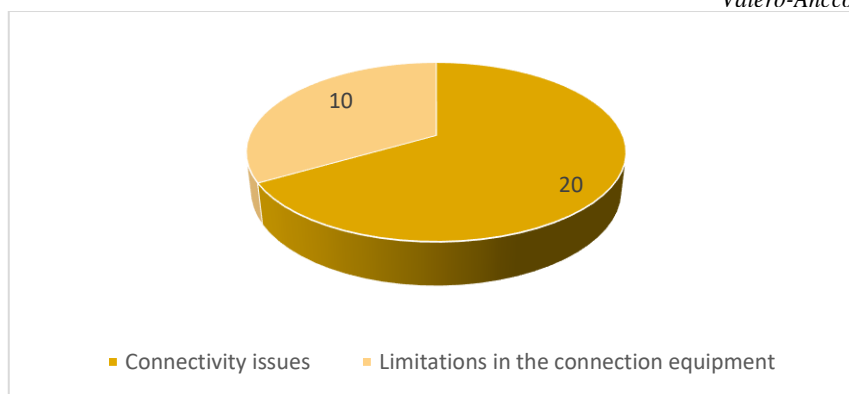


Fig. 3. Main Difficulties Faced by Students in Using GPT MAI

Note. The values are expressed as frequencies.

Discussion

This research has enabled the determination of university students' satisfaction with a personalized artificial intelligence tool, revealing significant results that contribute to understanding the impact of these technologies in the educational field. Firstly, it is noteworthy that 59.7 % of students reported being very satisfied with the use of artificial intelligence, suggesting that these tools are meeting user expectations in terms of academic support. This finding aligns with existing literature that highlights the potential of artificial intelligence to enhance personalized learning and efficiency in educational management (Sánchez et al., 2024; Suconota et al., 2023). However, areas for improvement were also identified, such as the need for greater clarity in the responses provided by the tool, indicating that there is still room to optimize the interaction between students and artificial intelligence.

A relevant aspect that emerged from the results is students' positive perception of the utility of artificial intelligence in understanding complex topics. A total of 71.8 % of respondents rated the explanations offered as useful, suggesting that AI can play a crucial role in facilitating learning. This result is consistent with previous studies that emphasize the ability of artificial intelligence to provide adaptive and personalized content (García-Caicedo et al., 2024; Robles-Zeas et al., 2024). However, it is essential to consider that the effectiveness of these tools may depend on students' prior training in using digital technologies, highlighting the need to implement training programs that maximize the benefits of these tools.

Another significant finding was the high rate of recommendation for the artificial intelligence tool, with 100% of respondents stating that they would recommend its use to others. This indicates that despite identified limitations, such as connectivity and platform access, students value the overall experience offered by artificial intelligence in their learning process. This phenomenon can be attributed to students' increasing familiarity with digital technologies and their willingness to integrate new tools into their education (Esteves-Fajardo et al., 2024; Mora & Rizzo, 2023). Nevertheless, it is crucial to continue investigating how these tools can be made accessible to all students, regardless of their socioeconomic context.

Despite the positive results, certain limitations were identified in this research, such as unequal access to artificial intelligence due to connectivity issues. This highlights a significant gap in the implementation of educational technologies, which could perpetuate inequalities in access to

quality education (Esteves-Fajardo et al., 2024). The literature suggests that integrating artificial intelligence into education must be accompanied by policies that ensure equitable access to these technologies, as well as adequate training for both teachers and students to enable effective use.

Additionally, it is essential to consider the ethical and pedagogical implications of using artificial intelligence in education. As these tools become more prevalent, the need arises for ethical frameworks to guide their implementation and use in the classroom (Flores-Vivar & García-Peñalvo, 2023; Sánchez et al., 2024). Concerns regarding data privacy and the responsible use of artificial intelligence are recurring themes in the literature, emphasizing the need for educational institutions to address these issues to foster a safe and equitable learning environment.

This research underscores the need to continue exploring the impact of artificial intelligence in higher education. As technologies advance, future studies must focus not only on assessing student satisfaction but also on evaluating the long-term effects of these tools on academic performance and professional development (García-Caicedo et al., 2024; Granda et al., 2024). Implementing longitudinal studies could provide a more comprehensive perspective on how artificial intelligence can transform education and contribute to the development of competent professionals in an increasingly digitalized world.

Artificial intelligence holds the potential to revolutionize higher education, offering tools that can personalize and enhance the student learning experience. However, it is essential to address the limitations and challenges identified in this research to ensure that all students can benefit from these innovations. Collaboration among educational institutions, researchers, and policymakers will be key to maximizing the positive impact of artificial intelligence in education and fostering a more inclusive and equitable future.

Conclusion

The findings of this research show that 59.7 % of students are very satisfied, and 40.3% are satisfied with the use of the personalized artificial intelligence tool. These results indicate that the vast majority of students (100 %) have a positive perception of the tool and would recommend it to others. However, a limitation identified was students' access to artificial intelligence, attributed to connectivity issues and platform availability. Most participants positively valued aspects such as the clarity of responses, the usefulness of explanations, the quality of generated materials, and the tool's adaptation to their academic needs.

The findings of this study highlight the potential of artificial intelligence to enhance students' educational experience. However, challenges related to equitable access to these technologies and the need to address ethical considerations in their implementation were also identified. Future research could explore the long-term impact of artificial intelligence tools on academic performance and skill development. Additionally, it would be valuable to analyze how individual factors, such as learning styles and motivation, influence satisfaction with these technologies.

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