



AI adoption in higher education: Exploring attitudes and perceived benefits between users and non-users

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ABSTRACT

The perceptions about artificial intelligence (AI) benefits and the level of university management support among academicians employed by higher education institutions (HEIs) in Serbia have been evaluated via a five-point Likert scale questionnaire. In total, 312 responses have been collected, and the analysis was conducted between respondents who use ChatGPT in teaching and research activities and those who do not. It is evident that the views between the two groups of respondents are different regarding the relevance of AI tools, especially in research endeavours. Academicians using ChatGPT confirm the relevance of AI in improving efficiency and believe that new educational concepts are comparatively quickly adopted if ChatGPT or similar AI tools are used. The opposite view is voiced by non-users. Both groups expressed mainly negative views regarding the lack of adequate guidelines and instructions regarding the use of AI in research and teaching, and the support provided by academic institutions. There is also an apparent lack of initiatives to organize conferences, workshops and other collaborative schemes with other institutions to disseminate and foster AI knowledge. The ramifications of our research are relevant not only for HEIs, but also for policymakers.

Keywords: AI users/non-users, HEI teachers and researchers, attitudes, perceived benefits of AI usage, importance of management support

INTRODUCTION

With the rapid advancement of technology, the integration of artificial intelligence (AI) tools across various sectors, including education, is intensifying (Shahzad et al., 2024). A wide range of AI-driven applications is opening new opportunities but also presenting challenges in teaching and research processes within higher education institutions (HEIs) (Pardamean et al., 2022), which are especially significant for shaping the future of the educational system. ChatGPT, a globally recognized generative AI model developed by OpenAI, has gained prominence in higher education, where it is seeing increasing use (e.g., Fajt & Schiller, 2025; Shahzad et al., 2024; von Garrel & Mayer, 2023; Yilmaz & Karaoglan Yilmaz, 2023; Xu, 2024). In addition to this widely

accessible tool, there are many more specialized AI tools available for use in education and academic research.

Given predictions that AI-based tools will soon become an essential component of educational systems, the ability to quickly adapt to these technologies will shape the future development of HEIs (Ghimire et al., 2024). University leadership must recognize the enhanced efficiency and long-term value of integrating AI tools into both educational and administrative processes (Mustapha et al., 2022), despite the numerous ethical concerns surrounding data privacy. In this context, it is essential that management prioritizes access to AI tools for all members of the academic community and ensures adequate training for their effective, appropriate, and ethical use (Rerhaye et al., 2021). Therefore, ongoing professional development and additional support for teaching and research staff are crucial for the successful adoption and implementation of new AI technologies.

Despite the ongoing wave of technological progress and digital transformation, it is important to emphasize that educators remain the central figures in the learning process, now empowered by cutting-edge technologies (Crompton & Burke, 2023). Today, academicians can access AI-based tools to efficiently manage teaching resources, educational processes, and the complex array of administrative and research tasks. Through AI-enabled algorithms and predictive models, they are better equipped to forecast trends that are critical for the advancement of HEIs, the design of curricula, institutional governance, and the alignment of infrastructure with evolving labour market demands. AI tools also play a vital role in supporting scientific discovery through simulations and various models, offering new frameworks to enhance the efficiency and quality of HEIs' work (Bouhali et al., 2024).

As AI-based tools become increasingly integrated into the educational ecosystem, it is vital to understand the factors that influence their adoption and use in higher education (Jo, 2024). Since faculty perceptions and attitudes play a crucial role in this process (Al-Mughairi & Bhaskar, 2024; Bolívar-Cruz & Verano-Tacoronte, 2025; Stan et al., 2025), the integration of ChatGPT and other AI tools requires, above all, an evaluation of how academicians view these technologies (Barakat et al., 2025; Ghimire et al., 2024).

As the willingness to adopt such technologies often hinges on the perceived benefits for users and the level of institutional support for skill development, it is essential to explore faculty attitudes toward both aspects (Al Mazroui & Alzyoudi., 2024). Accordingly, the aim of this paper is to examine faculty perceptions of the benefits of using these tools in education and the importance of institutional support in that context, with a particular focus on identifying differences between those who already use ChatGPT and those who do not.

THEORETICAL BACKGROUND

Perceived Benefits of AI Usage

The integration of AI in higher education undoubtedly offers numerous advantages and transforms both the teaching process and learning methods (Acosta-Enriquez et al., 2024). The acceptance of AI-based tools is believed to depend significantly on how useful they are perceived to be by teaching staff in their work (Xu, 2024). Ghimire et al. (2024) found that higher education faculty generally hold positive attitudes toward these tools and believe the benefits outweigh potential drawbacks.

Conversely, some authors emphasize faculty scepticism regarding AI adoption in education. Concerns include issues such as online exam security, plagiarism, and broader socioeconomic implications like job displacement, increasing digital literacy gaps, and growing anxiety linked to AI use (Dempere et al., 2023). In examining factors influencing faculty attitudes toward generative AI tools, Iqbal et al. (2022), Rejeb et al. (2024), and Alshamy et al. (2025) found that many respondents expressed negative views due to concerns about academic integrity, such as plagiarism, claiming AI-generated content as original work, over-reliance on these tools, and data privacy issues. Lau and Guo (2023), in a study of academicians teaching introductory programming, also found disagreement about whether to adopt generative AI tools in their courses.

The literature on technology adoption has established a strong relationship between awareness of AI tools, existing user experience, and willingness to adopt. Users are more likely to embrace AI if they understand its potential benefits. Shahzad et al. (2024) found that respondents familiar with ChatGPT had a significantly more favorable perception of AI's usefulness in education. Similarly, Barakat et al. (2025)

concluded that increased ChatGPT use among academicians enhances recognition of the tool's educational potential. Thus, it is reasonable to assume that academicians who already use ChatGPT are more likely to perceive the benefits of AI tools than those who do not (Cruz et al., 2024).

AI tools as teaching/research support

AI is widely regarded as a vital support in teaching and research, enabling more flexible and technologically advanced pedagogical approaches. Numerous studies have reported positive faculty attitudes toward using AI tools for these purposes (e.g., Barakat et al., 2025; Kiryakova & Angelova, 2023; Shenkoya & Kim, 2023). AI tools have a wide range of educational applications, including personalized lesson planning, scenario development for practical teaching, and assistance in writing academic papers (Xu et al., 2024).

Generative AI in particular offers promising applications at the university level by fostering student engagement, customizing learning content, and enhancing personalized education (Ruiz-Rojas et al., 2023). For academicians, these tools aid in time management and lesson planning by supporting the development of teaching materials (Alimadadi et al., 2020). Iqbal et al. (2022) reported that faculty see AI as facilitating lesson planning and student assessment. Kiryakova and Angelova (2023) also noted benefits such as support for long-term teaching efforts, boosting student interest and engagement, and encouraging critical thinking and creativity.

Participants in the Tilili et al. (2023) study identified ChatGPT as a tool that helps simplify complex topics and present them in a clear and accessible language. It supports various academic goals, from finding relevant information to acquiring new knowledge, which enhances user satisfaction and perceived value in both teaching and research (Jo, 2024). Based on a synthesis of earlier findings, Dempere et al. (2023) highlighted key benefits of ChatGPT, including teaching and research support, automated assessment, and improved human-computer interaction.

AI tools also accelerate research by structuring the evidence-based scientific process, thereby accelerating scientific development. They reduce the time needed for results and increase the visibility of diverse scientific perspectives (van Dis et al., 2023). A study by Barakat et al. (2025) showed that faculty using ChatGPT cited benefits such as improved quality of academic work, easier access to information, expanded research output, and new insights into their fields. Importantly, AI can also translate academic materials into multiple languages, promoting global accessibility (Wu et al., 2016). Accordingly, we propose the following hypothesis:

H₁: The attitudes of ChatGPT users and non-users differ on whether AI tools support teaching and research.

AI-enhanced work efficiency

Improving the quality of education is a key goal in higher education, and academicians must possess the knowledge and skills to pass emerging technologies to students. AI tools contribute significantly to efficiency and enhance the quality of teaching and research. Jo (2024) noted that using ChatGPT improves performance and productivity in educational settings, particularly through faster task completion and increased work efficiency.

AI supports teachers by helping them complete tasks more effectively and enhancing their capabilities (Mehta & Degi, 2019). It allows for the modernization and personalization of educational content and improves systems for evaluating students and teachers (Sollosy & McInerney, 2022). Moreover, AI tools can help align educational programs with labor market trends, thereby steering institutions and public toward more relevant and profitable course offerings (Saxena et al., 2024).

AI-driven education increases efficiency by reducing stress, improving motivation, and expediting outcomes. It also enhances student tracking and allows for the customization of educational materials based on individual capabilities (Hu et al., 2023). Tilili et al. (2023) reported that most faculty view ChatGPT as a tool that improves efficiency, particularly by reducing workloads and providing rapid student feedback. AI helps streamline grading and automate evaluation, saving valuable time. Additionally, AI offers academicians exceptional support through fast and rigorous data analysis but also help in recognizing and preventing student plagiarism. Overall, AI cuts time in teaching and research processes, reduces paperwork and often unnecessary administrative operations, thus providing them with more time for more productive activities. In

accordance with all the above, it is possible to assume that academicians perceive AI tools as a means of improving work efficiency, but the view on it may differ depending on previous experience. Thus, we propose:

H₂: The attitudes of ChatGPT users and non-users differ on whether AI tools improve efficiency in teaching and research.

AI and novel educational concepts

AI is a major driver of educational transformation, enabling the integration of technologies like graphic processing, IoT, cloud computing, and blockchain, and supporting the development of Industry 4.0 (Crompton & Burke, 2023). As such, it is expected to trigger a paradigm shift in traditional teaching and learning (Tlili et al., 2023). AI allows for personalized learning and faster evaluation of learning outcomes. With proper implementation, tools like ChatGPT can support teaching and learning by functioning as intelligent educational assistants (Kiryakova & Angelova, 2023). As noted by Ruiz-Rojas et al. (2023), academicians can design tailored learning experiences, replacing standardized, one-size-fits-all approaches. AI integration into online platforms creates adaptive environments for all participants in the education process (Kuleto et al., 2021; Wong et al., 2020).

AI also enables the use of educational games that foster faster and deeper learning, leading to greater satisfaction (Rejeb et al., 2024). In research, faculty can leverage AI for advanced data analysis using machine learning, enabling more efficient research outcomes and discoveries (Crawford et al., 2023). Roumate (2023) emphasized AI's role in drafting and finalizing academic publications, conducting literature reviews, and generating hypotheses. Virtual AI-powered labs also help researchers run simulations when physical labs are inaccessible or costly. These efficiencies save time and reduce institutional costs, while accelerating innovation. Based on all the above, it is rational to assume that the respondents experience AI tools as a means that can change the traditional concept of education. However, it is possible that existing users of the tool perceive this topic in a different way compared to those who have no experience, and therefore, they may not be sufficiently aware of the potential in the context of modernizing educational and research concepts. Accordingly, we propose:

H₃: The attitudes of ChatGPT users and non-users differ on whether AI tools influence the faster adoption of new educational concepts.

The Importance of Management Support

The rapid development of AI has significantly impacted decision-making systems across industries, including higher education. Research by Sambasivan et al. (2021) pointed to the lack of technological progress in higher education because of the insufficient presence of AI, which represents a serious barrier to fully utilizing its potential in academic institutions (Shwedehe et al., 2024). For AI tools to be effectively adopted by academicians, institutional support is crucial, not only through clear guidelines and procedures but also via comprehensive training programs to build necessary skills.

Institutional support and AI application

Various scholars have highlighted the importance of institutional management support for the adoption of AI in education. For instance, Cao et al. (2021) explored managerial perspectives on AI in decision-making across industries, while Alsheibani et al. (2018) emphasized the importance of organizational readiness for AI implementation. Institutional support helps foster a culture of responsibility in teaching and research by creating an environment that encourages academic efficiency and pedagogical innovation. In turn, academicians are more likely to engage in research due to the simplified processes and trend-identification features that AI tools offer, which overall enhances institutional performance (Bounahr & El Khattab, 2024). Sutton et al. (2020) also emphasized that AI integration can significantly streamline the evaluation of teaching quality, providing valuable data for higher education leadership (Naidu & Sevnanarayan, 2023).

However, the application of AI tools also raises ethical concerns, particularly regarding responsible use and data privacy. This underscores the need for institutions to develop robust policies and guidelines for AI implementation in both teaching and research (Rejeb et al., 2024). Alshamy et al. (2025) likewise stressed the need to establish institutional frameworks and guidelines to ensure responsible AI application.

In parallel, integrating AI into higher education presents logistical and structural challenges that require effective institutional planning. This includes budget forecasting, cost analysis, infrastructure upgrades, and continuous support for teaching and research staff. Therefore, universities should adopt a comprehensive AI strategy that incorporates investment in digital innovation and plans to improve the digital competencies of academicians (Ilieva et al., 2023). Understanding academicians' attitudes is key to developing effective institutional support for the adoption of new technologies (Stan et al., 2025). Accordingly, the following hypothesis is proposed:

- H4:** There are different attitudes between ChatGPT users and non-users regarding whether higher education institutions provide adequate support for the implementation of AI tools in teaching and research.

AI-related education and training

In higher education, AI involves the application of machine learning and data processing to enhance academic practices. However, faculty may resist using new technologies due to unfamiliarity or a preference for traditional methods. Since AI adoption involves a significant departure from conventional teaching techniques, it presents numerous challenges and underscores the need for comprehensive training (Walter, 2024). Therefore, institutions must provide opportunities for educators to acquire the skills necessary to create, adapt, and apply ICT solutions, especially those based on generative AI (Rudolph et al., 2023; Bolívar-Cruz & Verano-Tacoronte, 2025). As faculty need support in applying AI tools in both teaching and research, institutions should organize training sessions, workshops, roundtables, and conferences to promote a stable and dynamic IT environment. These activities are essential for addressing uncertainties and empowering academicians (Igbokwe, 2023).

Often, faculty and academicians lack even basic knowledge of how to apply AI in higher education. Iqbal et al. (2022) found academicians require more information about AI tools to make informed decisions about their use. With proper institutional support, faculty concerns about ethical and appropriate AI use could be significantly reduced. Educational institutions play a key role in organizing targeted training to help faculty integrate AI into their work. As Crompton and Burke (2023) emphasized, professional development programs are essential. To ensure the ethical use of AI, institutions should also implement training modules covering academic integrity, data protection, and the validation of AI-generated content (Acosta-Enriquez et al., 2024; Lee et al., 2024).

Therefore, developing internal training programs for faculty is a prerequisite for the responsible and effective use of AI technologies in teaching and research (Alshamy et al., 2025; Leal et al., 2022; Saxena et al., 2024). Conversely, the lack of training can lead to communication gaps and misunderstandings about acceptable AI use, potentially jeopardizing both academic integrity and institutional credibility (Lee et al., 2024). Given that existing research clearly demonstrates the importance of training in AI use, and the fact that faculty members have varying needs depending on their prior experience, we propose the following hypothesis:

- H5:** There are different attitudes between ChatGPT users and non-users regarding whether higher education institutions offer sufficient opportunities to acquire knowledge pertinent to AI use in teaching and research.

METHODOLOGY

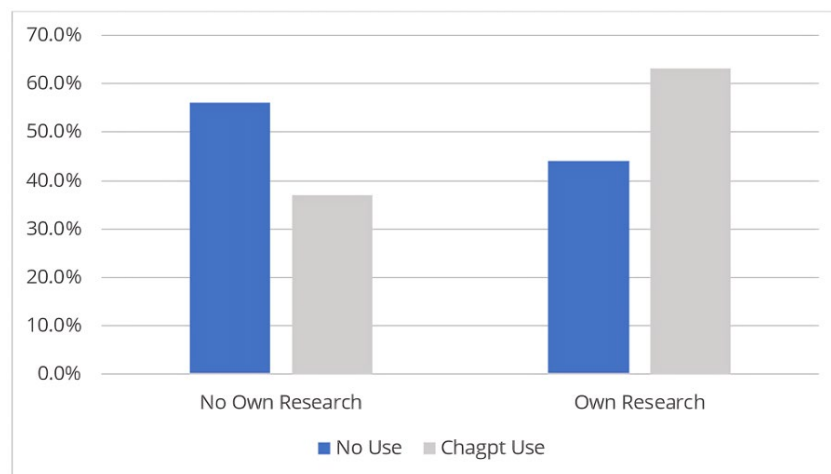
The Survey Respondents

The survey was distributed via online questionnaire platforms to academics of privately and state-owned universities and colleges in Serbia in October and November 2024. The number of valid questionnaires was 312, and answers to 33 questions representing nine variables were provided on a five-point Likert scale (Likert, 1932) and randomized to avoid the halo effect (Wirtz & Bateson, 1995). In this report, we analyze answers to ten questions comprising two variables, management support and AI promotion, as well as the benefits of AI usage that academics would ultimately exploit. In our analysis, women represent 56.1 percent of the sample, while male respondents account for the remaining 43.9 percent.

Table 1. Sample statistics

Variable		Frequency (n)	Percentage (%)
Gender	Female	175	56.1
	Male	137	43.9
Frequent use of AI	Smart tutoring application	0	0.0
	Mobile e-learning	0	0.0
	AI assistance	0	0.0
	Recommended systems	0	0.0
	Machine teacher	0	0.0
	ChatGPT/chatbot	130	58.3
	No AI use in teaching	182	41.7
AI knowledge level	Expert	17	5.4
	Advanced	53	17.0
	Modest	66	21.2
	Basic	164	52.6
	None	10	3.2
	I do not want to answer	2	0.6
AI knowledge acquired*	Within your tertiary institution	65	17.2
	Scientific publications	127	33.6
	Own research	162	42.9
	Traditional media	0	0.0
	Social networks	0	0.0
	Specialized portals	0	0.0
	No interest	14	3.7
	I do not want to answer	2	0.5
	Other	8	2.1

Note. Answers to AI knowledge acquired could be multiple, and the total number of recorded responses is 378 for all 312 respondents.

**Figure 1.** Use of ChatGPT and own AI research (the authors' analysis)

The AI knowledge is reported as basic or non-extant by most respondents, which should be considered when analyzing results. This dichotomy in knowledge is best reflected in the fact that, among several AI platforms, the surveyed academicians used ChatGPT in only 42 percent of cases, or none. Respondents were provided with a range of AI applications that could be used in teaching, and it appears that they either use ChatGPT as the most famous, relatively inexpensive, and widely available option, or do not use or recognize AI products at all. The statement not to use any AI products may not imply a complete lack of AI use, as these products could be explored under different conditions, such as during leisure time or for research purposes. To our surprise, the domicile tertiary institutions are not the primary source of AI knowledge. The top two positions are attributed to "own research" and "scientific publications" categories (Table 1).

When comparing the use of ChatGPT (or that lack of it) with the modes of acquiring AI knowledge, there is no statistically significant difference among respondents regarding "within your tertiary education" or "scientific publications" as one of the major sources of AI knowledge (Table 1). However, "own research" was predominantly applied by ChatGPT users (Figure 1). Pearson Chi-square is 11.107 ($p < 0.001$), while Continuity

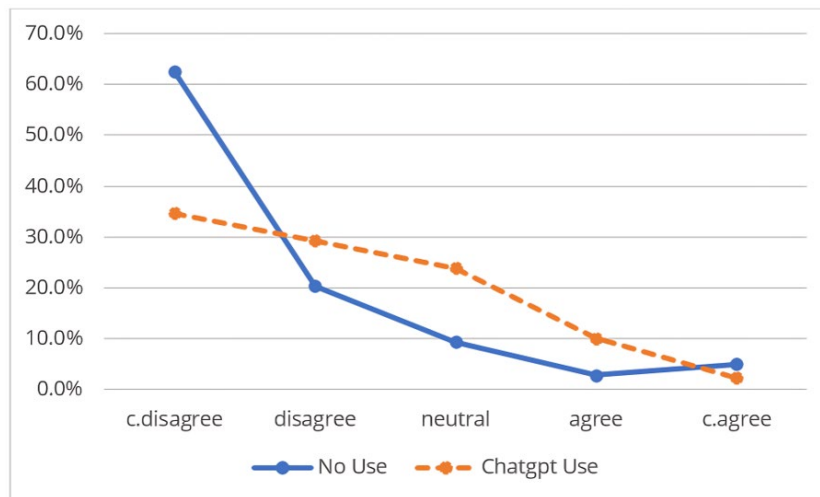


Figure 2. AI applications are my primary source for researching academic topics (the authors' analysis)

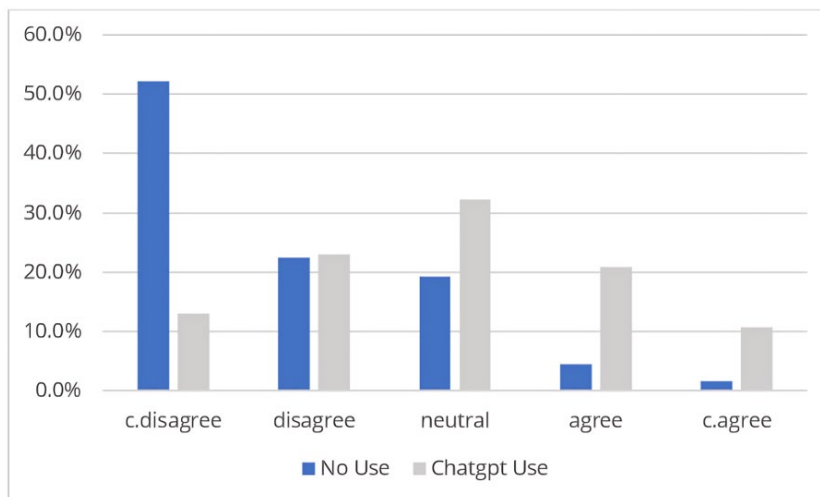


Figure 3. AI applications are an exceptional support for me in teaching (the authors' analysis)

Correction as an alternative for categorical data in a 2×2 space is 10.354, $p = .001$, all implying that there is a difference in proportions between these two variables. Those who do not use any AI software product while teaching is much less prone to explore.

Benefits of AI Usage

When respondents were asked whether "AI applications are my primary source for researching academic topics", those who did not use ChatGPT in teaching unsurprisingly indicated a complete disagreement in 63 percent of cases, while this level was close to 35 percent for ChatGPT users. The percentage is higher for ChatGPT users across all answers, apart from the complete agreement, where, surprisingly, non-users are in complete agreement with a statement at 4.9 percent vs. 2.3 percent for the other group (Figure 2). The Chi-square is 32.841 at $p < 0.001$, and the trend lines for these two variables are distinctly different (Linear-by-Linear association is 12.892 with $p < 0.001$).

For "AI applications are an exceptional support for me in teaching", non-users mainly disagree or are neutral about them, but some of them agree with the statement, even though we do not know what kind of support it is (Chi-square = 67.297, $p < 0.001$). The largest cohort for those who use OpenAI products is neutral in their response to this question at 32.3 percent, implying that AI is still not perceived as an exceptional product enhancing productivity. Even those who agree to varying degrees with this statement account for 31.6 percent, being marginally smaller than neutral respondents, only (Figure 3).

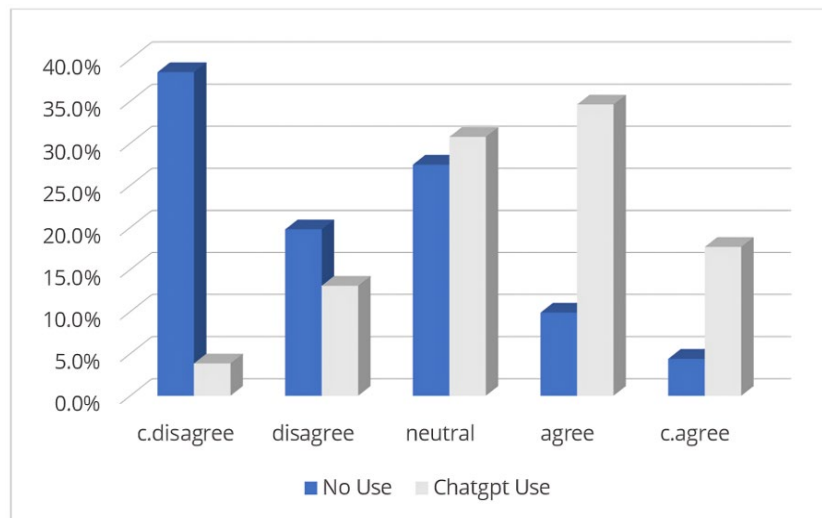


Figure 4. Thanks to AI tools in class, I finish my work activities quickly (the authors' analysis)

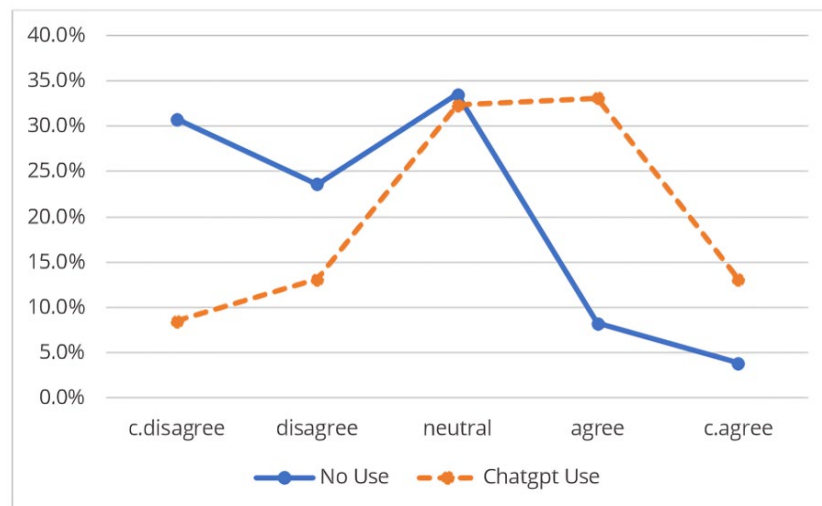


Figure 5. AI tools in teaching influence me to quickly adopt new educational concepts (the authors' analysis)

"Thanks to AI tools, I finish my work activities quickly" is mainly supported by ChatGPT users, but 14.3 percent of non-users still rely on AI tools in the work process (Figure 4). More than 52 percent of ChatGPT users agree with this statement, while 58.4 percent of non-users disagree with it (Chi-square = 76.545, $p < -0.001$).

In Figure 5, we examine whether "AI tools in teaching influence me to quickly adopt new educational concepts", and 46.2 percent of active OpenAI users agree with it vis-à-vis 12 percent of non-users (Chi-square = 55.556, $p < 0.001$). It is important to note that even those who do not use AI tools in teaching still tend to adapt to new trends and modify teaching. This may be externally mandated by higher educational institutions where they are employed, but it could also be self-driven. It is also worth noting that neutral responses are in relative terms similar across both cohorts, 33.5 percent vs. 32.3 percent for users.

The last question deals with "students prefer classes conducted with the help of AI applications" and while ChatGPT users more agree with this statement than non-users, many respondents in the former group more disagree with it, with 27 percent as opposed to 19.2 percent who agree or strongly agree (Figure 6). It is evident that for both groups, the major response is neutral. This rather pessimistic or neutral response may reflect the fact that the use of AI is novel and sufficient feedback from students has not been surveyed, or the students are indifferent because their expectations are already quite high due to the widespread use of AI tools outside of the classroom, and if lecturers do not use AI extensively it is difficult to spot changes in the level of student satisfaction.

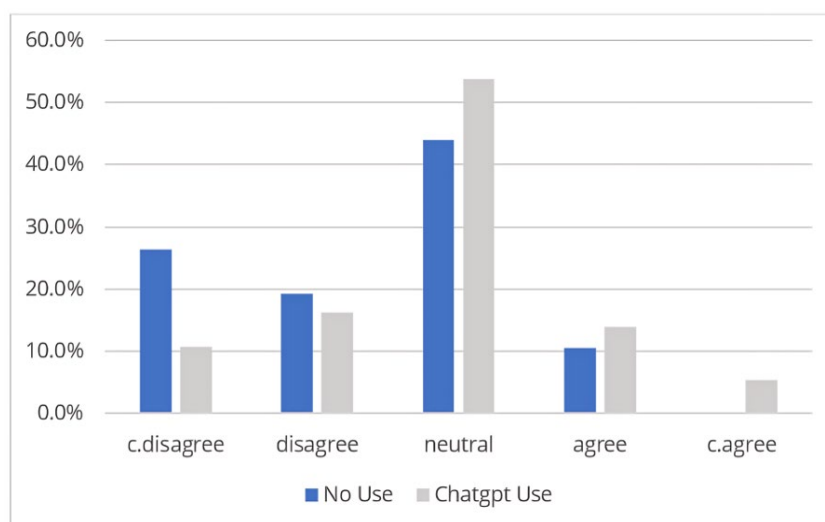


Figure 6. Students prefer classes conducted with the help of AI applications (the authors' analysis)

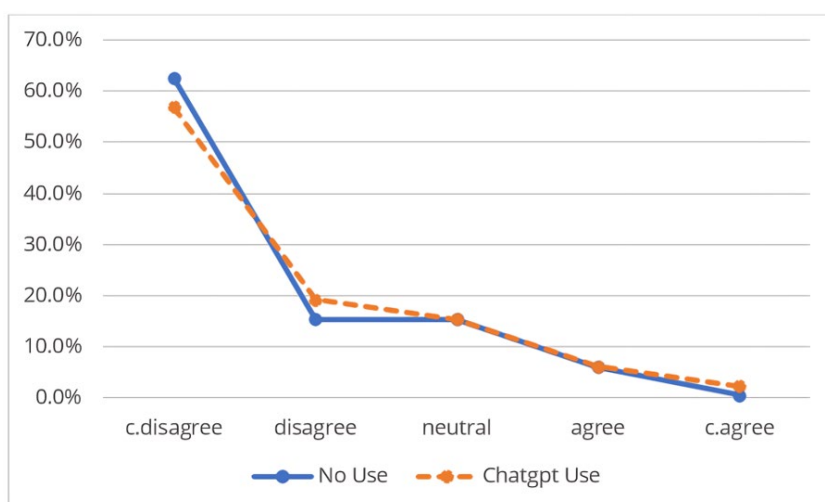


Figure 7. The higher education institution where I work provides instructions and guidelines for using AI tools in teaching and research (the authors' analysis)

Management Support and AI Promotion

When examining whether “the higher education institution where I work provides instructions and guidelines for using AI tools in teaching and research” does not provide any difference between users and non-users. A widespread culture of providing AI guidelines does not appear to be a decisive factor that would ultimately prompt the broader adoption of AI products in academic institutions (Figure 7). In addition, we fail to spot any discrepancies between examined groups in “my higher education institution organizes training with the aim of more effective application of AI in teaching”. This finding further strengthens our earlier evidence that respondents applying ChatGPT in teaching must rely on their own free time and research to explore AI alternatives (Figure 8).

Responses to “the higher education institution where I am employed provides work in classroom with equipment and tools that enable the application of AI in teaching” indicate that ChatGPT users face comparatively better prospects of using facilities that are more suitable for AI applications (Chi-square = 13.38, $p < 0.01$; Figure 9). This finding contrasts with the previous two questions, but it may also reflect the subjective attitude of ChatGPT users that AI applications could be applied via generally available facilities, while non-users strongly disagree due to the lack of appropriate knowledge regarding the facilities that may be necessary for AI deployment.

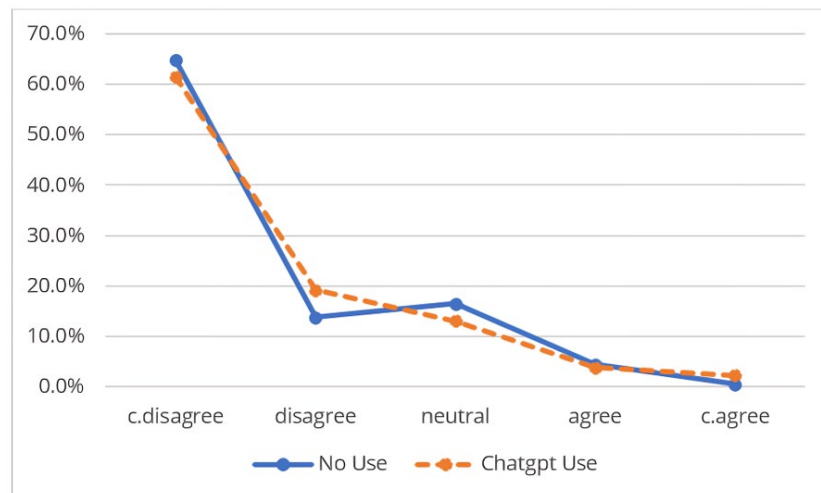


Figure 8. My higher education institution organizes training with the aim of more effective application of AI in teaching (the authors' analysis)

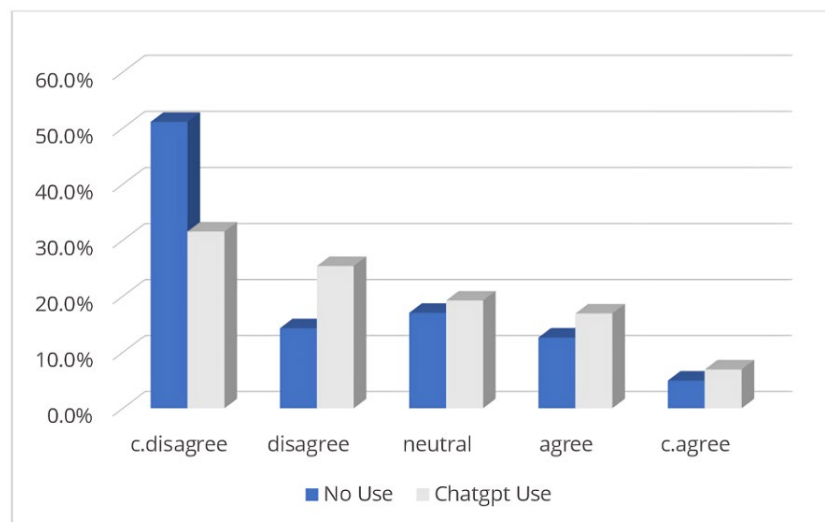


Figure 9. The higher education institution where I am employed provides work in classrooms with equipment and tools that enable the application of AI in teaching (the authors' analysis)

"My higher education institution organizes round tables, forums and conferences and supports the research work of teachers in the AI field" should reflect the attempt by academic institutions to speed up the AI development or dissemination, and to promote themselves as agents at the forefront of pertinent research. We do not see any difference between the two groups of interest. It is quite striking that approximately 90 percent of all academicians disagree or are neutral regarding this observation (**Figure 10**). This lack of initiative could further limit the AI dissemination and deeper understanding in Serbian HEIs.

The final question in this analysis relates to "the higher education institution where I work prescribes and supports the responsible and balanced use of AI application in education", and we fail to find any statistically significant difference (**Figure 11**). Again, we surmise that 90 percent of academicians are neutral or not convinced that respective institutions demonstrated intent to prescribe and support the discussion on the responsible use of AI in education.

DISCUSSION

The analysis of the obtained data revealed differences in the attitudes of academicians who are existing ChatGPT users and those who are not, particularly regarding support in scientific research. Identifying these differences confirmed findings from previous literature (e.g., Barakat et al., 2025; Shahzad et al., 2024), which

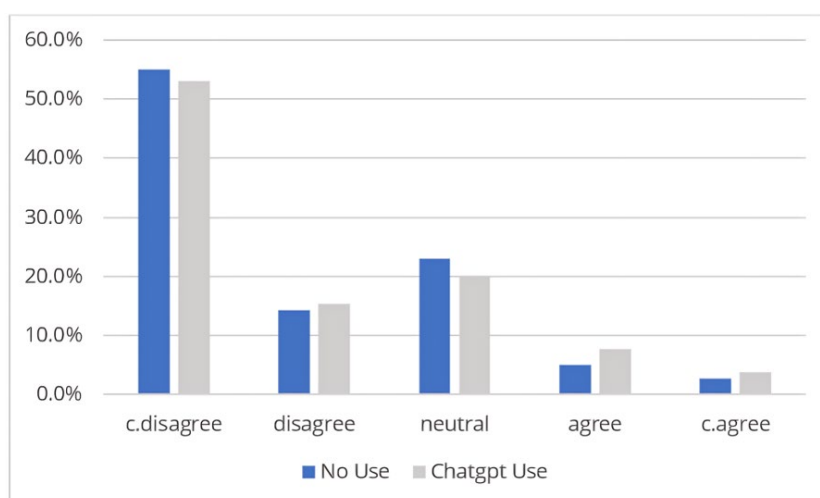


Figure 10. My higher education institution organizes round tables, forums and conferences and supports the research work of teachers in the AI field (the authors' analysis)

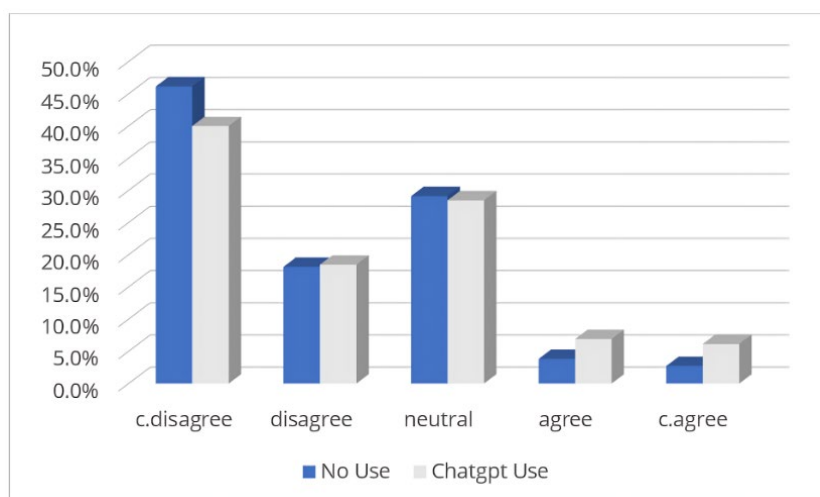


Figure 11. The higher education institution where I work prescribes and supports the responsible and balanced use of AI applications in education (the authors' analysis)

suggest that the use of ChatGPT among academicians contributes to a broader recognition of the potential of similar tools in teaching and learning processes. Most academicians who do not use ChatGPT also do not rely on AI applications as a primary source for researching academic topics, in contrast to those who actively use ChatGPT. The literature has also shown that ChatGPT users often employ it to support their research processes and in writing academic papers (e.g., Adewale, 2025; Khalifa & Albadawy, 2024). This result is both logical and expected, indicating that users of this widely known generative AI tool, having already experienced its practical advantages, are more inclined to use it and similar AI tools for their research work.

The results differ slightly when it comes to the perception of AI as a support tool in teaching. In this case, alongside the non-ChatGPT users, whose views were mostly negative to neutral, even ChatGPT users predominantly expressed neutral attitudes. These results align with those obtained by Kalniņa et al. (2024) and Marin et al. (2025), where mostly ambivalent attitudes toward AI as a university teaching tool were found, with most professors remaining skeptical of its usefulness in this context. On the other hand, the findings of other studies (e.g., Kiryakova & Angelova, 2023; Ruiz-Rojas et al., 2023; Shenko & Kim, 2023), which pointed to the positive role of AI tools as teaching support, were not confirmed. Such ambivalence, even among active ChatGPT users, may be a result of a combination of factors which were not covered by this research. Some of them might be ethical concerns, such as potential plagiarism, student over-reliance on AI, and fairness in assessment, which could make academicians cautious about incorporating AI into teaching. Furthermore,

many academicians may lack formal training or experience in integrating AI in pedagogical contexts, creating uncertainty despite the awareness of its research benefits.

Additionally, the lack of clear policies or guidelines may further contribute to hesitation. This suggests that while academicians observe AI as a low-risk, high-benefit tool in private research, which supports personal productivity, idea generation, or literature review, they obviously consider that their application in teaching carries higher interpersonal and evaluative risks, leading to more cautious attitudes. As in teaching, AI-mediated decisions may affect student learning outcomes, the assessment process and the educational experience, this may be an explanation why adoption is slower or more cautious.

The conclusion drawn from this is that, within HEIs in Serbia, AI tools are still not widely perceived by faculty as providing adequate teaching support, unlike in research, where these tools are used across a wide range of activities (e.g., literature searches, generating research ideas and questions, and developing research concepts). Based on the results presented, it can be concluded that hypothesis H₁ is only partially confirmed; that is, differences in attitudes between ChatGPT users and non-users were found in the context of research, but not in teaching.

Regarding participants' views on whether AI tools improve work efficiency, the findings showed that the majority of ChatGPT users believe that these tools help them complete tasks more easily and quickly. Conversely, many non-users did not support this statement, which was expected. Since statistically significant differences were observed between the two academicians' groups, it can be stated that hypothesis H₂ is confirmed. This is consistent with previous literature showing that AI tools enable faster and higher-quality task execution (e.g., Ajani et al., 2025; Jo, 2024; Mehta & Degi, 2019; Sollosy & McInerney, 2022) and contribute to improving academicians' self-efficacy (Lu et al., 2024; Mah & Groß, 2024). Similarly, Lu et al. (2024) found that teachers using generative AI for professional development achieved better results in terms of self-efficacy compared to those who did not.

Additionally, differences were found between ChatGPT users and non-users regarding whether AI facilitates quicker adoption of new educational concepts, which supports hypothesis H₃. The literature points out that AI is driving a kind of educational revolution (Kamalov et al., 2023; Rahiman & Kodikal, 2023; Rani et al., 2024), reshaping traditional teaching approaches and promoting more personalized and adaptive methods (Rejeb et al., 2024; Ruano-Borbalan, 2025; Ruiz-Rojas et al., 2023; Tlili et al., 2023; Wong et al., 2020). However, although many AI users agreed with this notion, compared to a smaller percentage of non-users, about one-third of respondents in both groups held a neutral attitude. A similarly neutral stance was found on the question of whether students prefer classes that integrate AI technologies. In this case, no statistically significant differences were found between users and non-users, suggesting that AI-based teaching support has not yet become widespread in Serbian higher education, and that academicians believe students do not yet have strong expectations in this regard.

No differences were found between the two groups concerning whether they believe their institutions have developed adequate guidelines and instructions for the efficient and effective use of AI technologies in research and teaching. Although literature emphasizes the importance of institutional frameworks and clear guidelines for AI adoption (e.g., Alshamy et al., 2025; An et al., 2025; Chan, 2023; Jin et al., 2024; McDonald et al., 2025), and highlights the significance of the institutional environment (Erdmann & Toro-Dupouy, 2025), the absence of a systemic approach can slow the acceptance of AI technologies in practice (Al-Mughairi & Bhaskar, 2024), especially among faculty who perceive risks related to implementation. Similarly, no differences were observed in attitudes regarding whether HEIs prescribe responsible use and offer ethical support for AI tools. The literature strongly emphasizes the importance of ethical guidelines in AI adoption within higher education (Airaj, 2024; Zhou & Jiang, 2024), and the lack of institutional action in this area could lead to significant issues, potentially damaging the reputations of both academicians and their institutions.

Institutional support in the form of adequate infrastructure, including necessary technical resources, has a direct effect on AI adoption among academicians (Hazzan-Bishara et al., 2025). Therefore, it is essential to evaluate whether they believe their institutions provide the necessary tools. The results show that current ChatGPT users perceive significantly better institutional support in terms of available technical equipment and resources compared to non-users. This difference is likely due to non-users not being fully aware of what type of equipment is required, whereas users feel that what is already available is sufficient for implementing

AI tools. Since there were no significant differences in attitudes about institutional frameworks, but there were differences in perceptions of technical support, it can be concluded that hypothesis H₄ is only partially confirmed in this study.

The findings further show that most respondents, regardless of whether they use ChatGPT, either disagreed or remained neutral on whether their institutions organize enough events, such as roundtables or conferences on AI in higher education. As noted by Sutedjo et al. (2025), the lack of interactive platforms like workshops and forums hampers effective AI integration. Without such forums, faculty remain unsure about how to apply AI tools in practice, which limits usage and stifles innovation in teaching.

No differences were found between the two groups regarding whether their institutions offer training programs to help employees acquire necessary knowledge and improve their digital skills. Therefore, hypothesis H₅ was not confirmed, pointing to a general absence of proactive initiatives and systemic approaches by HEIs in Serbia in this crucial area. The literature emphasizes the value of institutional training programs for skill acquisition in AI tool use (e.g., Aljemely, 2024; Alkoul & Khlaif, 2024; Crompton & Burke, 2023; Saxena et al., 2024). Without such programs, instructors remain uncertain about how to apply AI effectively, which not only delays innovation in teaching but also widens the digital divide between those institutions and individuals striving to stay aligned with modern educational trends. The absence of differences between users and non-users regarding institutional guidance and training underscores a broader systemic challenge. Even in cases when technical resources are available, academicians may feel unsupported if their institutions do not provide clear protocols, ethical guidelines, or professional development opportunities. This may further reinforce hesitancy in teaching contexts and suggest that proactive institutional strategies are necessary to bridge the gap between potential and actual AI adoption.

Overall, the findings indicate that AI adoption in higher education is not purely a matter of access or technical competence; it also involves other factors. The ambivalence of academicians toward AI in teaching highlights the need for professional development, ethical guidance, and policies that clearly articulate the role and benefits of AI applications in teaching.

CONCLUSION

This study explored the differing attitudes of higher education faculty in Serbia toward the use of AI tools, particularly ChatGPT, in academic research and teaching. The findings indicate a clear divergence between ChatGPT users and non-users, especially in the context of research-related activities. ChatGPT users demonstrated significantly more favorable views of AI's role in enhancing research efficiency, idea generation, and task performance, confirming hypotheses H₂ and H₃. These results align with previous research, reinforcing the notion that experience with AI tools encourages broader acceptance and utilization in academic workflows.

However, when it comes to teaching, attitudes were generally more reserved or neutral, even among ChatGPT users. This suggests that while AI is increasingly seen as a valuable research aid, its application in university-level instruction remains met with skepticism or uncertainty—partially confirming hypothesis H₁. Moreover, despite the recognized benefits of AI, academicians across both user groups expressed doubts regarding institutional readiness, including insufficient training, lack of clear ethical guidelines, and inadequate opportunities for professional development. Consequently, hypothesis H₅ was not confirmed, and hypothesis H₄ was only partially supported.

Overall, the results underscore a critical gap between technological potential and institutional implementation. While individual adoption of AI tools is growing, systemic support, in terms of infrastructure, policy, and educator training, remains insufficient. To fully realize the transformative possibilities of AI in higher education, institutions must develop more structured, transparent, and supportive frameworks that encourage both exploration and responsible use of emerging technologies.

Because of survey findings, several practical recommendations could help institutions to more effectively integrate AI tools into teaching processes. Some of the examples include using AI to generate discussion prompts or case studies, design formative assessments, create interactive learning materials and support personalized feedback by analyzing student responses to identify areas needing improvement. The

implementation of such practices needs to be accompanied with appropriate institutional guidance and training programs. To do so, faculty could begin integrating AI tools in teaching through manageable and low-risk activities which may help academicians gain greater confidence, demonstrate tangible benefits, and gradually expand AI usage to more interactive and adaptive teaching strategies. Coupled with institutional guidance and professional development, these approaches could help bridge the current gap between AI adoption in research and teaching contexts, making AI a more integral part of academicians' practice in higher education.

A limitation of the study is its focus on a single country in the analysis. However, its findings can be compared to those of prospective studies in Central and Eastern European countries. We have also focused on the two intertwined variables, i.e., benefits from AI usage and HEI management support, which can be further supplemented by studies involving other aspects associated with AI implementation in teaching and research. In future research, it would be valuable to broaden the theoretical framework by integrating additional variables, such as competence, organizational culture, and risk perception. Furthermore, a fundamental segmentation by academic field or teaching role could offer a deeper understanding of the phenomenon. This would yield a more nuanced and theoretically meaningful perspective on attitudes and practices concerning the use of AI in higher education.

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