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GENDER PERSPECTIVES: ARTIFICIAL INTELLIGENCE IN ACADEMIC PRACTICE

Abstract: The rapid integration of artificial intelligence (AI) into higher education is reshaping teaching and research practices, raising questions about digital literacy, ethics, and institutional readiness. Drawing on gender socialization theory, the Technology Acceptance Model (TAM), and the ethics of care perspective, this study examines whether gender influences AI-related knowledge, use, and perceptions among academic staff. The guiding research question is whether gender differences reflect competence gaps or differences in value orientations and professional contexts.

A quantitative, cross-sectional survey was conducted using a convenience sample of 312 university teachers at public and private higher education institutions in Serbia (56.1% female; 43.9% male). A structured questionnaire with five-point Likert-scale items measured self-reported AI knowledge, frequency of ChatGPT use, perceptions of AI as a research support tool, perceived efficiency gains in teaching-related tasks, and attitudes toward adopting new educational concepts. The instrument demonstrated satisfactory internal consistency (Cronbach's $\alpha > 0.70$). Data were analyzed using descriptive statistics and chi-square tests of independence, with Cramer's V indicating effect size.

Results show no statistically significant gender differences in self-reported AI knowledge. However, men report more frequent ChatGPT use and stronger perceptions of productivity benefits, whereas women more often evaluate AI through pedagogical and ethical lenses and report greater openness to using AI to support academic topic exploration. Overall, gender differences appear driven by disciplinary context and value frameworks rather than technical competence, underscoring the need for gender-sensitive training and institutional support to promote inclusive and responsible AI use in higher education.


Keywords: artificial intelligence, higher education, gender differences, digital literacy.

Introduction

The rapid development of artificial intelligence (AI) has fundamentally reshaped the way knowledge is created, distributed, and applied in higher education. Tools such as ChatGPT, Copilot and Gemini are becoming increasingly common in academic work. The ability to use them effectively

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is now widely recognized as an important skill—an indicator of technological literacy and the capacity to adapt to new professional demands (European Commission, 2025). Within higher education, AI literacy is defined as a set of knowledge, skills, and ethical attitudes that enable individuals to understand, evaluate, and apply AI tools for educational purposes (UNESCO, 2024).

Keeping up with trends in advanced technologies and AI-driven innovations is becoming increasingly important in teaching and across the wider educational process, as education is undergoing a dramatic transformation. The use of AI tools, especially ChatGPT, has significant potential in higher education because it continuously reshapes the thinking, practices, and interactions of academic staff and students. It enables academic staff to automate administrative tasks (Yalçın et al., 2024) and provides noticeable support in teaching activities through more adaptive learning processes (Lee & Han, 2021). However, some scholars' express skepticism (Reiss, 2021), arguing that AI could easily replace teaching staff and increase unemployment. In this sense, research, understanding, and acceptance of AI are extremely important, particularly from the perspective of academic staff. Academic staff express a sense of fear and insecurity because they often lack adequate technological support and are unfamiliar with ethical codes governing the use of AI tools in the teaching process (Popović Šević, Šević, Slijepčević, i Krstić, 2025)

Contemporary theories on gender differences in technological skills emphasize that gender does not determine ability, but rather influences self-confidence, access to resources, and institutional support (Moreira-Choez et al., 2024). Findings show that women, more than men, often underestimate their knowledge and skills in managing and using technology, a trend particularly evident in the social sciences and humanities (Christensen, 2023). There is a clear asymmetry in how women and men perceive their digital literacy in academic settings, where self-confidence often plays a more decisive role in determining the frequency and type of technology use than the actual level of technical skill.

One key factor shaping the gender gap in AI tool use is socialization and the persistence of gender stereotypes (Luo et al., 2021). These patterns suggest that female academics tend to make more cautious decisions when adopting new technologies (such as AI tools) than their male colleagues. This is consistent with findings by Dai et al. (2020), who confirmed that male academics in STEM fields are more willing to adopt AI tools in teaching. Such stereotypes, along with traditional cultural beliefs, reinforce the pattern that men more frequently choose natural and technical disciplines, while women more often select social sciences and humanities during their education (Matović et al., 2025). These stereotypes can influence the self-efficacy of future female educators, who may come to believe that they lack the confidence or competence needed to adopt artificial intelligence in the teaching process.

Recent studies indicate a clear connection between discipline, gender, and institutional context: women are more prevalent in fields with lower levels of digital integration, while men predominantly work in technical and technological sciences where AI use is routine (Conde-Ruiz et al., 2025). Horizontal gender segregation remains one of the main obstacles to advancing AI literacy across Europe (European Commission, 2025). These studies highlight the need to understand why gender is an important factor in shaping how individuals begin to use AI in education (Møgelvang et al., 2024; Otis et al., 2024; Russo et al., 2025).

A number of studies point to clear gender-based differences in the perception and use of technology. A comprehensive meta-analysis (Cai et al., 2017) confirmed that male respondents express more positive attitudes toward advanced technologies than females, especially when two factors are considered: belief (perceived social benefits of technology) and self-efficacy (confidence in one's ability to master technology effectively). Differences in attitudes toward advanced technologies and their use between the sexes are linked to several factors, most notably attitudes

toward integrating computers into education, gender stereotypes, gender-related barriers, and persistent gender inequalities (Takamatsu et al., 2024; Tellhed et al., 2023).

Russo et al. (2025) highlight observed gender differences in value orientations, with women showing greater sensitivity to ethical issues, in contrast to men who tend to adopt a more practical approach. The concept of an “ethics of care” can help explain these differences in how technology is used. Women are more often characterized by a responsible and reflective approach to their work, while men tend to experiment and pursue new ideas (Villegas-Galaviz & Martin, 2024).

The gender-based divide resulting from the implementation of artificial intelligence in higher education primarily refers to systemic inequalities between women and men in academia, most visibly reflected in differences in access to and use of various advanced technological tools (Zhang et al., 2025). Gender disparities are rooted in socio-cultural norms and taken-for-granted practices within institutional structures that often favor male faculty members when it comes to the use of technological resources. At the same time, female academics frequently have limited access to AI tools, which means that access remains uneven and socially stratified when comparing genders (Tang et al., 2025).

The OECD report (2023) shows that there is a gender gap when it comes to the choice of STEM departments by girls, and later by women in academic teaching positions. In recent years, however, a modest improvement has been observed in terms of increasing the number of women in this field. This further suggests that male academics may be better prepared than their female colleagues to cope with technological changes (Rebollo-Sanz & De la Rica, 2022), which may also have certain implications for the adoption of various AI tools in teaching.

Universities that implement gender-inclusive AI policies achieve positive outcomes, as female academic staff report higher levels of confidence in using AI in the academic environment (Dringó-Horváth, 2025; Kalim et al., 2025). This is why researchers increasingly emphasize “gender-inclusive AI literacy,” which involves not only equal access to digital resources but also a balanced approach to values and ethics in the use of AI technologies. The AI Skills for Europe 2025 program underscores that the digital transformation of education must be both technologically effective and socially just (European Commission, 2025). It is evident that the emergence and use of AI tools in higher education institutions offer new opportunities for researching gender stereotypes in the context of modern technology use. Female academics remain underrepresented in fields where AI is applied and face numerous barriers, including a lack of self-confidence and limited opportunities for development in technical disciplines (Verdugo-Castro et al., 2022).

The latest international reports (OECD, 2024; UNESCO, 2024) emphasize that such differences in the use of AI can be mitigated and overcome primarily through professional development programs, mentoring, and digital transformation strategies grounded in gender equality. This further implies that universities should offer training and education on the use of AI tools for their teaching staff, with particular attention to supporting female academics, while also increasing the visibility of female role models to create a more stimulating environment for work and learning (Zhang et al., 2023). In this context, researchers propose synergistic approaches that integrate ethical, social, and contextual aspects to reduce gender disparities in the practical implementation of AI tools. For this reason, there is a growing need for an interdisciplinary approach that would consider not only gender but also race and other sociocultural factors, enabling the continuous monitoring of AI implementation over time (Ulnicane, 2024).

Considering the above research, understanding gender differences in knowledge, use, and disciplinary context of AI technologies in academic settings becomes essential for analyzing the dynamics of digital transition. This study establishes a theoretical framework for testing hypotheses related to prior AI knowledge and skills, frequency of AI tool use, attitudes toward AI as a primary source for academic research, perceptions that AI tools enhance the efficiency of work tasks, and

attitudes toward the impact of AI on the acceptance of new educational concepts. Although the use of AI tools is associated with career opportunities and social advancement, notable gender differences persist in attitudes toward and use of technology. Understanding these potential differences is crucial for higher education institutions aiming to strengthen academic engagement and promote social progress. Therefore, the aim of this study is to investigate gender differences in the use of AI tools among teaching staff at sampled higher education institutions in the Republic of Serbia.

In our study, we make several important contributions to the existing body of knowledge. We do not find a statistically significant gender difference in self-reported AI knowledge. However, we confirm that male respondents are more likely to use ChatGPT than their female colleagues, in percentage terms. By contrast, female academics are more inclined to use AI applications as a primary source for exploring academic topics and are more open to AI assistance while teaching. Male respondents appear marginally more effective in completing work tasks due to AI usage. Finally, we do not find any significant gender differences in the speed of adopting new educational concepts arising from the application of AI tools in teaching.

In the following chapter, the relevant literature review and hypotheses will be presented. The methodology chapter will outline the sample selection, followed by descriptive and in-depth analysis of the benefits of AI. After that, the discussion section will be provided, and the study will conclude with final remarks.

1. Literature Review

Preparing teachers for educational and teaching processes shaped by artificial intelligence represents a significant challenge for integrating AI into both instruction and research. Given the inevitable expansion of artificial intelligence in education, the perspectives of (future) teachers on its use are highly important.

Future teachers are often believed to lack sufficient knowledge and skills related to artificial intelligence. Therefore, another major challenge is that teacher training programs should incorporate the development of new competencies relevant to AI. According to Luckin et al. (2016), future teachers need a clear understanding of how AI systems support learning, together with strong research and data analysis skills, to respond effectively to the growth of AI in education.

Gender differences in prior AI knowledge among academics may exist, but they are often shaped by complex factors, including educational opportunities, cultural and social practices, and personal interests. Some key contributors include: unequal access to education—men and women may have different opportunities or motivations to enter STEM fields (Cai et al., 2017), which affects their prior exposure to AI; social and cultural norms, which influence educational and career choices, leading to different knowledge levels; professional opportunities, since access to training and career development may differ across genders; and self-confidence, as variations in confidence regarding technical skills can shape perceived expertise in AI (Teo et al., 2015).

Lin et al. (2021) report higher motivation among men to use AI tools and acquire prior knowledge and skills in this domain, while Stöhr et al. (2024) similarly show more positive attitudes and greater use of new technological tools among men. In contrast, Sun et al. (2023) report non-significant gender differences in AI-related learning. For teacher education, individual factors—especially gender—remain relevant when assessing acceptance and use of AI tools. Despite the traditional assumption that gender influences technology adoption, some studies find no meaningful gender differences among future teachers (Papadakis, 2018).

Kalim et al. (2025) conducted research on the Asian continent using PRISMA methodology, analyzing 17 studies focused on issues such as lack of trust, sociocultural barriers, insufficient technological knowledge, algorithmic bias, and the underrepresentation of women in shaping AI policies. Their study emphasizes the importance of inclusive artificial intelligence to empower women and improve higher education across Asia.

A study conducted at Northumbria University in Newcastle, United Kingdom, examined students and academic staff, focusing on socio-demographic characteristics related to AI use, attitudes, and literacy levels. The results showed that a higher proportion of men use AI more frequently than women, hold more positive attitudes, and demonstrate higher levels of literacy (Brown et al., 2025), suggesting stronger prior knowledge of AI tool use in teaching.

More broadly, gender differences are evident in research by Cachero et al. (2025), who found that female students scored lower than male students in perceived knowledge, awareness of exposure to AI technologies, and perceived ability to apply them. Ensuring inclusiveness in AI use remains a considerable challenge, pointing to the need for curricular adaptation.

More support is needed to help teachers develop AI competencies and literacy, as emphasized in several studies (Chounta et al., 2022; Laupichler et al., 2022). Strengthening university teachers' readiness to use AI tools may be a key factor in overcoming resistance to technological change.

H1: *There is a difference between female and male academics in the level of prior knowledge regarding the use of AI tools.*

In line with innovations in higher education, many artificial intelligence tools have become part of everyday academic work, most notably ChatGPT, Google Bard, Coursera, Grammarly, Canvas and others. AI tools have created an environment that requires continuous monitoring of new developments and their application within teaching and research processes (Mishra et al., 2024). The integration of artificial intelligence tools, both online and offline, has made the educational process more transparent and systematic (Popović Šević, Šević, Slijepčević, Mamula Nikolić, 2025).

Numerous studies show a consistent difference in favor of men when it comes to the use of AI (Otis et al., 2024) across professions, regions, and sectors. This conclusion was drawn from insights into hundreds of millions of visits to generative AI tools worldwide, alongside the findings of 18 studies involving more than 140,000 respondents across all continents. The authors additionally emphasize that this gap may create numerous other challenges and that the causes of this phenomenon should be examined in greater depth.

One study (Møgelvang et al., 2024) found that male academics are more interested than their female colleagues in using ChatGPT for teaching purposes, particularly in understanding how these tools function in instructional contexts and in maximizing their work efficiency. While men tend to view ChatGPT as beneficial for overall productivity and social advantages, female academics often use it primarily to enhance comprehension and for possible text translations. Women in academia also expressed more criticism and concern regarding the loss of independent thinking associated with ChatGPT use and showed a stronger emotional response to its application. Men use ChatGPT more frequently and, consequently, display a greater increase in productivity. Dorta-González et al. (2024) report that female researchers use ChatGPT seven percent less than their male counterparts.

H2: *There is a difference between female and male academics in the frequency of using ChatGPT.*

Thanks to the many platforms supported by AI, it has become easier for researchers to review literature, analyze research information, and evaluate research projects, which significantly reduces not only the effort but also the time required for a specific research endeavor. Because of the

ChatGPT tool, the time needed for literature review has decreased, helping numerous academic researchers identify relevant studies and accelerate the initial stages of research (Remadevi & Arunkumar, 2023). Some authors even argue that the use of AI tools can significantly assist female academics in balancing work and private life, as modern technologies allow them to shorten research time through automation. In this way, they gain better flexibility and more efficient management of their professional and personal responsibilities (Chiu, 2023). AI tools also foster collaborative relationships through research networking, further increasing work productivity.

Previous studies have examined the potential and methods of integrating AI tools within higher education institutions to support teaching and research staff through various personalized and administrative tasks (Bahrini et al., 2023; Kooli, 2023). These authors confirmed that artificial intelligence can positively and productively enhance academic research by reducing researchers' workload and accelerating the research process. Beyond the clear increase in productivity, AI also provides broader access to information and greater opportunities for creative and innovative engagement in scientific inquiry.

A UNESCO (2024) study reports that, despite positive developments, the representation of women in the academic sector remains insufficient compared to men, particularly regarding the use of AI tools and the ability to integrate them into research. Therefore, it is essential to address evident gender differences in AI use across all sectors, including academic education. Almisad and Aleidan (2025), conducting research in Kuwait among 102 university professors, concluded that differences in perception, awareness, and use of generative artificial intelligence exist between men and women, again in favor of men. This suggests that the same disparity appears when using AI as a primary source for academic research.

The long-standing dominance of men in the digital space has resulted in clearly expressed gender inequality, meaning fewer women choose to use AI as a primary source for academic research. A study conducted in Africa (Ndaka et al., 2025) examines this issue and its impact on gender differences in artificial intelligence use. The authors emphasize that stereotypes, behavioral patterns, and social norms shape how AI is designed, developed, and applied. This deep social context has a strong influence, and because women participate less in AI creation processes, the consequence is a lower percentage of women using AI in practice across all domains, including academic research.

H3: *There is a difference between women and men in using AI tools as a primary source for academic research.*

It is generally recognized that teachers' beliefs about the ease and convenience of using advanced technologies are closely linked to their acceptance of those technologies (Granić & Marangunić, 2019). The same applies to teachers' perceptions that technology can enhance their work performance and make them more efficient in the teaching process. This implies that future academic staff would be more willing to adopt AI tools in teaching if they perceive the technology as useful and capable of helping them complete tasks more quickly.

One study confirmed that teachers' primary motivation for using AI tools was their usefulness in speeding up work activities, rather than ease of use (Baydas & Goktas, 2017). Similar results were obtained in a survey of future mathematics teachers in Singapore, who reported that AI tools would significantly enhance their effectiveness in teaching (Wong, 2015).

Tang et al. (2025) argue that the emergence of ChatGPT has substantially increased the productivity of researchers in higher education institutions but note that the preexisting productivity gap between male and female researchers has widened, with male researchers now showing a 6.4 percent advantage. Russo et al. (2025), in a study involving 52 percent middle-aged women out of

335 adult participants, identified multiple gender differences regarding AI perception, tool knowledge, usage patterns, and anxiety levels. They found a significant negative correlation between positive attitudes toward AI and concerns about AI. An interaction between gender and fear of AI was also observed: when anxiety levels were low, women had less favorable attitudes toward AI compared to men. However, at high levels of AI-related concern, gender differences became less pronounced. The conclusion is that, due to higher levels of mistrust in AI tools, women are less likely than men to perceive AI as contributing to faster or more efficient work performance. Two quantitative studies ($N_1 = 1446$, $N_2 = 1090$) showed that gender and emotions strongly influence individuals' willingness to use "Strong AI" (machines capable of thinking) for personal cognitive enhancement (Renz et al., 2024). Compared to female respondents, men were more inclined to use Strong AI for personal development. Part of this difference can be explained by negative and independently positive emotional reactions toward artificial intelligence in relation to the more efficient completion of work tasks. This indirect effect is moderated by trait neuroticism via negative emotional responses - such that gender differences in negative feelings decrease as neuroticism increases.

H4: *There is a difference between women and men in the perception that AI tools contribute to faster execution of work tasks and are useful during lectures.*

The introduction of artificial intelligence into higher education has given new momentum to classroom learning. Thanks to AI tools, teachers are now able to teach and conduct research beyond the conventional forms of formative and summative assessment. In this way, the adoption and application of advanced technologies, such as artificial intelligence (AI), at universities can significantly influence both research and teaching processes. A study conducted in Turkey, using a descriptive research design, examined the level of AI adoption among university professors of both genders. A total of 392 teaching staff participated in an online survey using a convenience sampling method. The results showed a high level of AI acceptance, as well as strong perceptions of usefulness, intention to use, and ease of use. According to this research, gender, institutional type, academic title, and years of service had no influence on acceptance levels, while younger and mid-career professors demonstrated higher acceptance and greater perceived ease of use (Bilgin & Güngören, 2025).

A study conducted in Mexico, involving 208 university professors at a private institution, aimed to measure acceptance levels of generative artificial intelligence in teaching. The authors Bilgin & Güngören (2025) found moderate overall acceptance of generative AI. The results further showed that gender, sociodemographic characteristics, and disciplinary differences had no significant effect on GenAI acceptance in teaching. Empirical findings thus indicate that gender does not impact the level of acceptance of AI use among university professors.

Previous research on the acceptance of AI tools by teachers is highly relevant, and most studies rely on the Technology Acceptance Model (Scherer & Teo, 2019; Tarraga-Minguez et al., 2021). According to this model, academic staff's intention to adopt AI tools is predicted through factors such as attitudes toward AI, perceived ease of use, perceived usefulness, and self-efficacy. Some earlier studies focusing on gender differences in the adoption of AI tools found that gender can act as a moderator in certain situations, though results remain inconsistent across studies (Papadakis, 2018; Teo et al., 2015).

Women often view the introduction and implementation of new technologies, including IT, as an opportunity to manage and structure processes, whereas men tend to prefer innovation and creative development. Additionally, in the context of applying AI in education, female academics are more likely to reject its use when framed solely as a technical tool rather than through a pedagogical lens (Møgelvang et al., 2024).

A study by Yücel & Rizvanoğlu (2019) found that women report lower perceived computer competence, lower self-efficacy, and greater perceived difficulty with technological tasks compared to men when such tasks are implemented in the teaching process. Similarly, Jiang & Luh (2017) identified gender as a key variable explaining differences in technology usage patterns, with men forming the dominant group in adopting new technologies.

H5: *There is a difference in attitude between women and men regarding the impact of AI tools on the acceptance of new educational concepts.*

2. Methodology

2.1. The survey

The research was conducted using a quantitative survey method. A structured questionnaire was designed specifically for the purposes of this study, based on previous literature addressing AI literacy, technology acceptance, and gender differences in technology use. The instrument consisted of two sections. The first section collected sociodemographic data (gender, scientific field, type of institution, and self-assessed level of AI knowledge). The second section included statements measuring frequency of AI tool use (particularly ChatGPT), perceptions of AI as a primary source for academic research, perceived usefulness and efficiency in teaching-related tasks, and attitudes toward adopting new educational concepts through AI. All attitudinal items were measured using a five-point Likert scale (1 = strongly disagree with 5 = strongly agree) (Likert, 1932). Prior to full administration, the questionnaire was reviewed for content clarity and alignment with the research objectives.

Regarding the metric characteristics of the instrument, internal consistency was assessed using Cronbach's alpha coefficient, which indicated satisfactory reliability ($\alpha > 0.70$). Construct validity was supported by the theoretical grounding of the instrument in established frameworks such as the Technology Acceptance Model and gender socialization theory. Data collection was conducted online during the academic year, with participation voluntary and anonymous. Respondents were informed about the purpose of the study and ethical standards were respected. The data collected were analyzed using descriptive statistics and inferential methods, primarily chi-square tests of independence, with Cramer's V used to assess the strength of associations between gender and AI-related responses.

The sample comprises 312 academic staff members, employed in state- and privately owned higher education institutions, who responded to questions related to AI benefits on a five-point Likert scale, randomized to avoid the halo effect (Wirtz & Bateson, 1995). Women (175 respondents) account for most valid responses, representing 56.1 percent of the sample, while male respondents (137 in total) comprise the remaining 43.9 percent.

The AI knowledge is reported as basic or non-extant by 55.8 percent of respondents, which is distributed as 58.3% among female respondents and 52.6 percent for male respondents (Table 1). Percentwise, male colleagues claim a higher incidence of expert and advanced knowledge, but the p-value of the chi-squared test of independence is 0.105, and we cannot claim that there is a difference between the two genders regarding this initial comparison.

Table 1. *Stated AI knowledge level across genders*

	Expert	Advanced	Modest	Basic	None	I don't want to answer.	Total
Female	2.9%	14.9%	22.9%	54.3%	4.0%	1.1%	100.0%
Male	8.8%	19.7%	19.0%	50.4%	2.2%	0.0%	100.0%

Female respondents are less likely to use ChatGPT (64 percent vs. 51%, Table 2), and a chi-squared test confirms that differences exist between genders (p-value=0.014). Fisher's exact test applicable to 2x2 tables yields an identical conclusion at a p-value of 0.016 (Agresti, 1992). Nevertheless, Cramer's V-test with an estimate of 0.14 implies that the association is only small to moderate (Kendall & Stuart, 1979).

Table 2. *The use of ChatGPT across both genders*

	ChatGPT use	AI tools not used	Total
Female	36.00%	64.00%	100%
Male	48.91%	51.09%	100%

Most male respondents are experts in technical and technological sciences, while female academics dominate the social and humanistic sciences, accounting for nearly 40 percent (Table 3), followed by technical and technological sciences at 24 percent and medical sciences at 21.71 percent, respectively. The chi-square test of independence confirms that this difference exists (p<0.001), while Cramer's V-test at 0.316 claims that the relationship is moderately strong.

Table 3. *The area of expertise claimed by female and male respondents*

	Social and humanistic sciences	Natural and mathematical sciences	Technical and technological sciences	Interdisciplinary and multidisciplinary sciences	Art	Medical Sciences	Total
Female	39.43%	9.71%	24.00%	1.71%	3.43%	21.71%	100%
Male	22.63%	12.41%	51.82%	1.46%	2.19%	9.49%	100%

Three-quarters of all respondents work at universities, followed by colleges and vocational academies (Table 4). The differences across genders are minuscule and statistically insignificant, with chi-square's p-value=0.776.

Table 4. *Employers of our respondents*

	Faculty	College	Vocational Studies Academy	Total
Female	78.29%	13.14%	8.57%	100%
Male	75.91%	13.14%	10.95%	100%

2.2 AI Benefits

When responding to "AI applications are my primary source for researching academic topics", female colleagues cumulatively agree and are significantly less neutral in providing answers than male members of the sample (Figure 1). However, the majority of respondents mainly disagree with this statement, which is not surprising given the limited use of AI products reported earlier in the questionnaire. The more positive claims made by female respondents are supported by statistically significant chi-square and likelihood-ratio tests, with p-values of 0.008 and 0.007, respectively. Cramer's V-test equals 0.21, implying a small-to-moderate association.

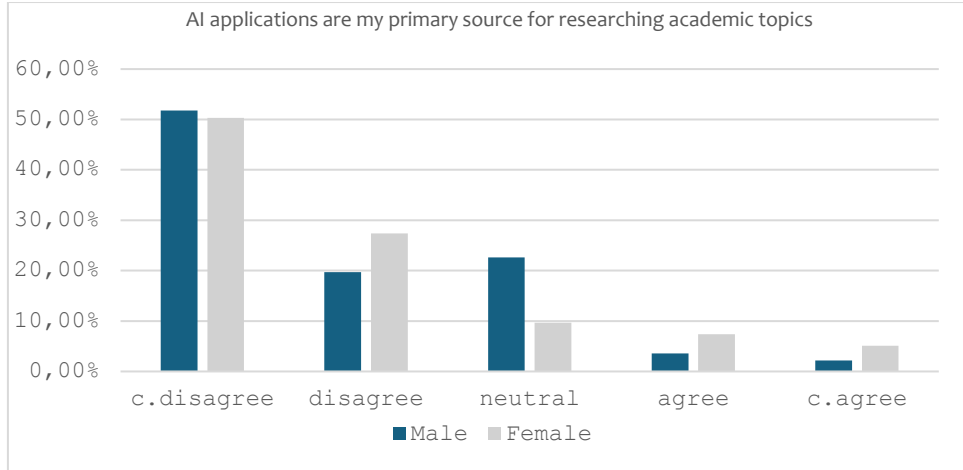


Figure 1. AI applications are my primary source for researching academic topics

In evaluating "AI applications are an exceptional support for me in teaching", 41.7 percent of women strongly disagree with this statement, compared to 28.5 percent for the other gender, are less neutral and more positive than men (Figure 2). The chi-square result is statistically significant (p -value = 0.022), indicating a significant association between gender and opinions related to the second statement in the questionnaire. Cramér's V is 0.19, confirming a low-to-moderate association.

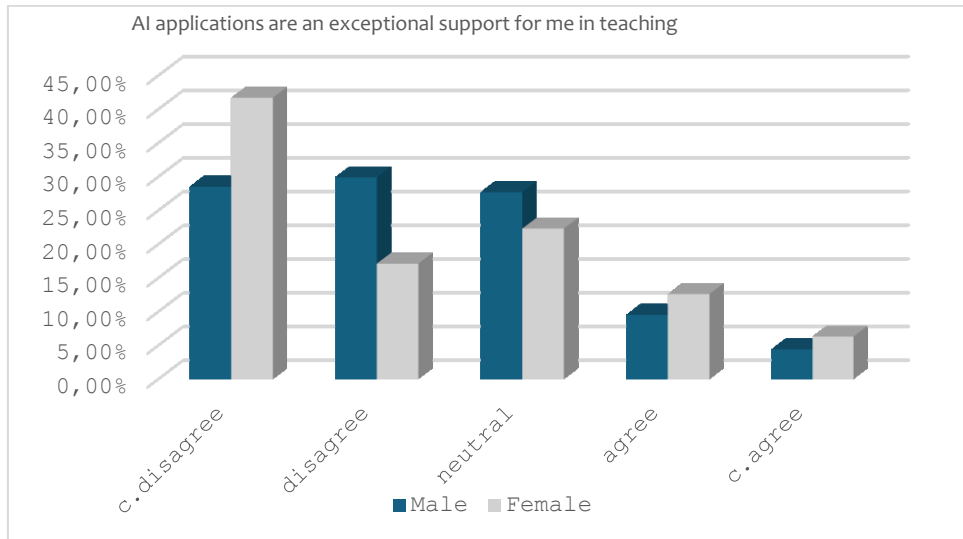


Figure 2. AI applications are an exceptional support for me in teaching

"Thanks to AI tools in class, I finish my work activities quickly" reverses to some extent our observations across both genders (Figure 3). When the use of AI in the classroom was linked to efficiency, male respondents expressed comparatively more positive viewpoints. They are still more neutral, but women are strongly opposed with 30.3 percent vs. 16.1 percent for men. Chi-square test and likelihood ratio results confirm this difference at the 5 percent significance level, while Camer's V -test, amounting to 0.19, confirms a low-to-moderate association between gender and responses linked to this claim.

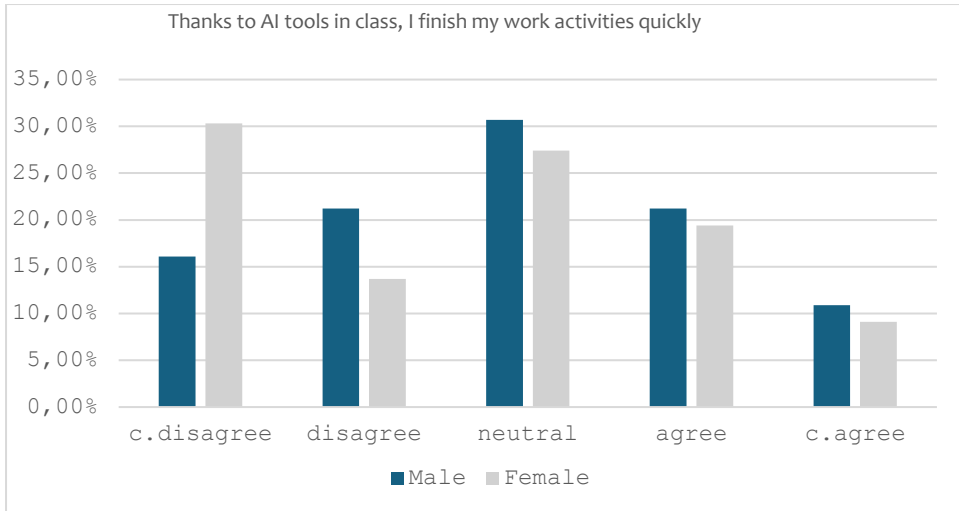


Figure 3. Thanks to AI tools in class, I finish my work activities quickly

In evaluating whether "AI tools in teaching influence me to quickly adopt new educational concepts", female respondents are somewhat more negative and less positive than their male counterparts (Figure 4). However, these results are not statistically significant. The p-values for the chi-square test of independence and the likelihood ratio are 0.509 and 0.501, respectively, failing to confirm an association between the two genders and the provided responses.

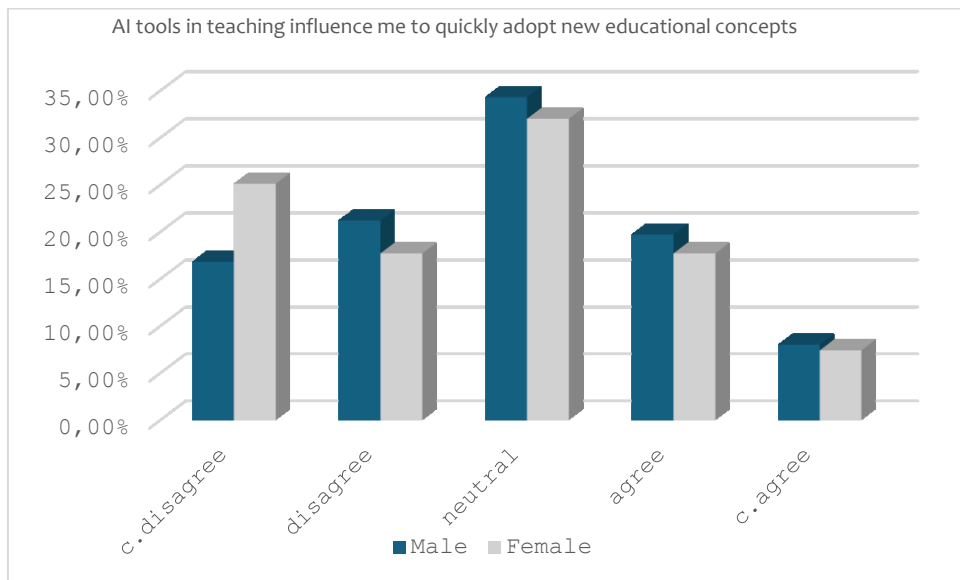


Figure 4. AI tools in teaching influence me to quickly adopt new educational concepts

When asked whether "students prefer classes conducted with the help of AI applications", female respondents are more likely to completely disagree than male academics, but in all other responses their percentages are lower. Unsurprisingly, the chi-square is insignificant, and these differences are not statistically supported.

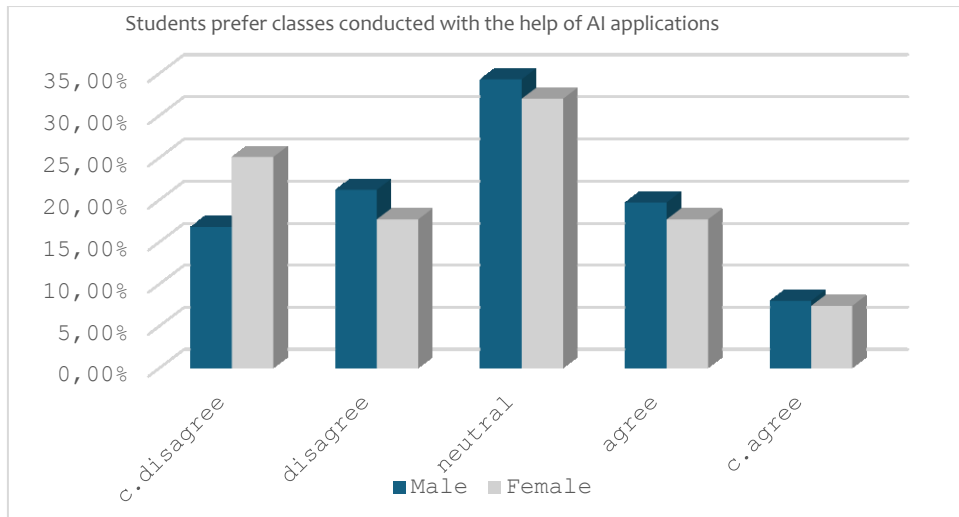


Figure 5. Students prefer classes conducted with the help of AI applications

3. Discussion

The findings of this study show that artificial intelligence is steadily becoming part of everyday academic work in higher education, although patterns of use vary across gender and discipline. Tools such as ChatGPT, Copilot, and Gemini are no longer experimental technologies, but practical instruments that many academics already use in their teaching and research. Their effective application is therefore becoming an important aspect of AI literacy (European Commission, 2025; UNESCO, 2024). While AI can support efficiency and more flexible forms of instruction (Lee & Han, 2021), it also raises questions about professional roles and the future direction of academic work (Reiss, 2021). In this context, it becomes particularly relevant to examine how academic staff understand and integrate AI tools into their practice.

Gender differences in the use of AI tools are clearly visible. Female teachers are more likely to underestimate their technical abilities and use AI tools more cautiously than their male colleagues (Christensen, 2023; Dai et al., 2020). A similar pattern is reflected in the prevalence of imposter syndrome, which manifests more often in women and is characterized by doubts about personal expertise. In academic environments with high expectations and unclear standards, imposter syndrome can further limit the use of AI tools. Women in the social sciences and humanities tend to approach new technologies more critically, emphasizing ethical and pedagogical implications (Dai et al., 2020; Luo et al., 2021). This does not indicate a lack of ability, but rather reflects long-term socialization processes and the influence of gender stereotypes.

Contemporary theories highlight that gender does not determine actual competence; instead, socialization, cultural expectations, and institutional support shape self-confidence and willingness to innovate (Moreira-Choez et al., 2024). Thus, the gender gap in AI use reflects perceptions of ability rather than true differences in knowledge. Men in STEM fields are more likely to incorporate AI into teaching, while women in the social sciences focus more on ethical and pedagogical considerations (European Commission, 2025; Russo et al., 2025).

The aim of the research was to examine gender differences in knowledge, use, and perception of artificial intelligence (AI) among academic staff in Serbia. Gender, scientific discipline, and personal experience with technology were statistically analyzed. Although men and women assessed their AI knowledge similarly ($p = 0.105$), supporting the view that technological skills are not inherently

gender-dependent (Papadakis, 2018; Sun et al., 2023; Teo et al., 2015), everyday use tells a different story. There is a gap between theoretical knowledge of AI and its practical application. This finding directly reinforces the theoretical assumption presented in the introduction that gender differences in AI adoption are not rooted in actual competence, but in patterns of application and perceived usefulness. The absence of statistically significant differences in self-reported knowledge, combined with differences in frequency of use, suggests that self-efficacy and contextual factors play a more decisive role than objective skill. In that sense, the results are consistent with contemporary interpretations of technology acceptance models, which emphasize that behavioral use is shaped less by declared knowledge and more by perceived utility and confidence in application.

Men use ChatGPT more frequently (almost 49% vs. 36% of women, $p = 0.014$), confirming H2 and aligning with findings from other authors (Brown et al., 2025; Dorta-González et al., 2024). Although the observed difference is statistically significant, it is not extreme in magnitude, which suggests that gender-based variation in AI use should be interpreted as a tendency rather than a sharp divide. What this seems to show is that people's actual use of AI depends less on what they say they know and more on whether they see the tool as relevant and feel confident using it in practice. In this sense, the findings indicate that adoption patterns are shaped by subjective evaluation of utility and professional relevance rather than by measurable differences in knowledge. This nuance is important, as it moves the explanation of gender differences away from competence and toward contextual and motivational dimensions.

Gender segregation by discipline in the sample is evident ($p < 0.001$) - women dominate the social sciences and humanities (39.43%), while men are more numerous in technical and technological fields (51.82%). This confirms the theoretical perspective presented earlier that horizontal gender segregation significantly structures digital experience and technological exposure. Rather than interpreting gender differences as individual characteristics, the findings indicate that disciplinary positioning mediates access to routine AI integration. In this regard, discipline acts as a structural variable that shapes patterns of adoption, reinforcing the argument that institutional context plays a critical role in AI literacy development. This distribution explains why women are more likely to view AI as a useful research tool (H3 confirmed). In the social sciences, generative AI tools support literature reviews and idea generation, whereas in STEM fields, more advanced AI systems are required for specialized tasks. The results suggest that discipline cannot be ignored when interpreting gender differences in AI use. What at first appears to be a gender effect is, in many cases, closely tied to the academic field in which individuals work. Everyday exposure to digital tools, expectations within a discipline, and the type of tasks that are considered routine all shape how and how often AI is used. For that reason, gender differences should not be interpreted as purely individual traits. They are strongly influenced by the institutional and disciplinary environment in which academic staff operate.

Men, meanwhile, more often perceive AI as a tool for completing tasks more quickly (H4 confirmed, $p = 0.022$). This difference can be interpreted through the lens of the ethics of care theory (Villegas-Galaviz & Martin, 2024) and contrasting gender roles in academia. The present findings therefore extend the application of the ethics of care framework to the specific context of AI use in higher education. While earlier studies have examined value orientations in broader technological settings, this research demonstrates that in academic environments, evaluative criteria for AI tools are closely linked to pedagogical responsibility and ethical sensitivity. This suggests that gendered differences are expressed not through technological resistance, but through differentiated professional priorities. Women tend to evaluate AI not only in terms of efficiency but also through pedagogical and ethical considerations, which can lead to lower ratings of AI tools focused solely on productivity. This indicates that gender differences stem not from resistance to technology but from differences in values and expectations.

When all results are considered together, it becomes difficult to explain gender differences in AI use simply through knowledge or general attitudes toward technology. The findings of this study suggest that differences in AI use between men and women in higher education are less about who possesses greater technical skill and more about the disciplinary environments and professional values that guide everyday academic practice. AI use in academic settings is closely shaped by disciplinary expectations and everyday professional routines. In that sense, the findings point to a broader understanding of digital transition in higher education, where patterns of AI adoption are shaped not only by individual confidence, but also by the academic environments in which individuals work. These results indicate that efforts to strengthen AI literacy in higher education should take into account disciplinary differences and the professional values that shape academic work, rather than focusing only on presumed gaps in technical skills.

4. Conclusion

The use of artificial intelligence in the academic environment is strongly shaped by gender differences, which stem more from socialization and scientific areas than from actual disparities in knowledge. The rapid development and widespread application of artificial intelligence are transforming higher education, with AI becoming not only a technological tool but also a factor influencing pedagogical practices, academic routines, and the professional roles of teachers. The results of the presented research show that, although men and women assess their AI knowledge similarly, differences emerge in the way and frequency of practical use. Men are more likely to rely on generative AI tools such as ChatGPT in their daily work, while women - particularly in the social sciences and humanities - approach AI with greater emphasis on ethical, pedagogical, and research considerations. These differences do not arise from genuine variations in technological competence but from entrenched social expectations, differing professional roles, and long-standing processes of socialization.

The findings confirm that disciplinary gender structure shapes both the perception and purpose of AI use - STEM fields tend to support an instrumental, productivity-oriented approach, whereas the social sciences foster a more reflective, critical stance toward technology. Differences in the perceived usefulness of AI also stem from value frameworks: men more often highlight efficiency, while women incorporate a broader academic and ethical context into their evaluation.

Overall, the results indicate that gender differences in the use of artificial intelligence do not reflect a lack of knowledge but rather differences in motivations, work environments, and social patterns. Therefore, improving AI literacy in higher education should focus not only on technical skills but also on creating a supportive environment that values different approaches to technology. Strengthening digital confidence, reducing gender stereotypes, and ensuring institutional support can enable more equal, meaningful, and inclusive use of AI tools in academic settings. It is also necessary to develop inclusive programs that respect these diverse approaches. Future policy should support varied forms of technology use and address imposter syndrome through targeted mentoring. Educational programs should align with the needs of users, mentoring should help build confidence and reduce insecurity, and institutions should acknowledge and appreciate different ways of engaging with AI, including ethical considerations as an essential component of technological literacy.

The next step in research is to monitor how AI affects the long-term quality of teaching and academic work, particularly by tracking gender differences in experiences and confidence with technology. Future development should move toward an inclusive environment that respects and encourages diverse ways of engaging with digital technologies, as well as the ethical and social dimensions of AI use, especially across different academic disciplines.

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