



Bridging the Artificial Intelligence Divide: Faculty and Student Perspectives in Higher Education

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This study examines attitudes, emotional responses, and usage patterns of artificial intelligence tools among university professors and students in higher education. Using a quantitative approach with structured survey questionnaires, data were collected from 136 professors and 323 students across universities in North Macedonia. Chi-square tests and effect size analyses (Cramér's V) were conducted to determine statistically and practically significant differences between groups. The analysis revealed both convergence and divergence in stakeholder perspectives. Professors demonstrated strong support for institutional policy development, formal training programs, and expressed heightened concern about academic integrity and ethical implications. They exhibited greater curiosity about AI technologies and emphasized comprehensive frameworks. Conversely, students showed pragmatic approaches, employing AI tools more frequently for practical tasks such as research paper preparation and grammar checking, while expressing lower concern about potential negative consequences. Both groups expressed similar concerns about AI's impact on originality and critical thinking, indicating shared recognition of fundamental educational risks. Emotional responses showed minimal differences, with only curiosity and concern differing meaningfully. The convergence areas provide foundations for collaborative policy development, while divergent perspectives on institutional mechanisms highlight the need for dialogue that bridges viewpoints and ensures AI integration strategies address concerns and priorities of all community members.

Keywords: artificial intelligence (AI), higher education, faculty-student perspectives, emotional responses, effect size analysis

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INTRODUCTION

The rapid expansion of artificial intelligence (AI) has reshaped the global landscape of education, prompting universities to reconsider traditional models of teaching, learning, and academic governance. Higher education institutions worldwide increasingly rely on AI-based tools for instructional support, assessment, research activities, administrative efficiency, and personalized learning. Research agendas in the field of AI (e.g. Bhullar et al. 2024; Hwang et al. 2020; Lodge et al. 2023; Peters and Tukdeo 2024; Sahar and Munawaroh 2025) emphasize the increasing significance of AI technologies and their impact on education, learning, and instruction, especially in higher education. Despite these global developments, the regulatory, strategic, and institutional frameworks governing the use of AI in universities vary significantly across countries. This creates differences in how students and academic staff perceive, adopt, and ethically utilize AI technologies.

In the Republic of North Macedonia, the integration of AI into higher education is occurring within a context of evolving national policies and incomplete regulatory structures. The country has not yet adopted a dedicated law on artificial intelligence, nor a comprehensive national AI strategy. Instead, several strategic documents such as the National ICT Strategy SMART/MK 2030, the Strategy for the Implementation of the Right to Personal Data (2025–2030), and the Roadmap for Digital Transformation 2024–2030 indirectly address the implications of AI for public institutions, including universities. These documents highlight the need for digital transformation, innovation, ethical data governance, and capacity building, but they do not provide concrete guidelines for the use of AI in higher education. As a result, universities in North Macedonia operate in a regulatory vacuum, relying primarily on internal policies, institutional ethics codes, and the general provisions of the Personal Data Protection Act. Against this backdrop, there is a growing need to empirically examine how academic communities in North Macedonia engage with AI and how they perceive its role in higher education. The main goal of the present study is to explore and compare the perceptions, practices, and perceived impacts of AI tools among university students and professors. By integrating these perspectives, the research seeks to identify barriers, ethical dilemmas, and examples of good practice for effective AI integration in teaching and learning. The study aims to contribute to the growing body of empirical evidence that can guide higher education institutions in developing pedagogically sound, ethically grounded, and inclusive AI policies. Ultimately, this research recognizes that the collaboration between humans and intelligent systems is not merely a technological innovation but a cultural and epistemological shift. The central question is not whether AI will transform higher education it already has but how educators and learners can co-evolve with these technologies in ways that preserve human creativity, critical inquiry, and ethical responsibility (Al-Zahrani & Alasmari, 2024; Bond et al., 2024). A nuanced understanding of perceptions and practices will help shape a more resilient and reflective academic community capable of navigating the promises and perils of AI-assisted learning. By comparing the perspectives and experiences of students and faculty, it will identify key factors that promote or hinder the use of AI tools. This will

enable the formulation of policy recommendations, training programs, and pedagogical approaches that advance human-AI collaboration in academic settings.

Literature Review

The growing body of research on AI in higher education is informed by several theoretical perspectives that help explain how students and faculty perceive, adopt, and engage with AI technologies. The Technology Acceptance Model (TAM; Davis, 1993) offers a foundational framework for understanding technology adoption, proposing that individuals' intention to use a technology is determined primarily by their perceived usefulness the degree to which they believe it will enhance their performance, and perceived ease of use the degree to which they expect it to require minimal effort. Applied to AI in educational contexts, TAM helps explain why students, who often experience AI as an intuitive and time-saving tool, tend to adopt it more readily than faculty, who may weigh its risks more carefully against pedagogical goals. Social constructivism (Vygotsky, 1978) further contextualizes these differences by emphasizing that knowledge, attitudes, and practices are shaped through social interaction and institutional culture. In academic settings, this means that faculty and student perceptions of AI are not formed in isolation but are influenced by disciplinary norms, peer behavior, and institutional policies. Finally, the concept of AI literacy, defined as the ability to critically evaluate, ethically use, and effectively collaborate with AI systems (Long & Magerko, 2020), provides a lens through which to examine the competency gaps and training needs identified across both groups. Together, these frameworks guide the interpretation of findings throughout this study.

As AI tools become more accessible, their use in academic work has increased dramatically prompting both enthusiasm and apprehension about their pedagogical and ethical implications (Bond et al., 2024; Castillo-Martínez et al., 2024). Human-AI collaboration in educational contexts is becoming an increasingly important area of inquiry, especially regarding how different stakeholders, students and faculty, perceive and engage with AI tools. Recent empirical studies indicate that students employ AI tools for various educational purposes, including text summarization, idea generation, translation, and assistance in writing assignments (Ravšelj et al., 2025). In contrast, faculty members tend to approach AI with greater caution, emphasizing issues of plagiarism, misinformation, and the erosion of critical and creative thinking skills (Kim et al., 2025). This discrepancy in attitudes suggests a growing need for comparative research exploring how both groups perceive and practice AI use, and how these perceptions influence learning and teaching effectiveness. AI applications in education are being used to automate tasks, generate content, support learning, and analyze data to improve teaching practices. According to Wu and Chen (2025), generative AI represents a paradigm shift in higher education, enabling new forms of interaction and cognitive support while demanding new models of pedagogical integration. This shift is not merely technological but also cultural and institutional, requiring academia to reconsider the traditional roles of instructors and learners. Today, AI systems can produce essays, solve mathematical problems, and generate code or data analysis outputs - all in seconds (Al-Zahrani & Alasmari, 2024). Such developments challenge long-standing pedagogical assumptions about originality, authorship, and intellectual

effort. For example, when AI can generate coherent arguments or provide creative ideas, educators must reconsider what constitutes authentic learning or valid assessment. At the same time, systematic reviews show that the rapid pace of AI adoption has outstripped the development of ethical frameworks and pedagogical strategies to guide its responsible use (Bond et al., 2024; Castillo-Martínez et al., 2024). Bond and colleagues (2024), in their meta-systematic review of AI in higher education, argue that while the volume of AI-related research has increased exponentially, much of it remains descriptive, lacking empirical rigor and ethical grounding. They highlight three urgent needs: greater methodological robustness, interdisciplinary collaboration, and explicit attention to issues of ethics and equity. Similarly, Castillo-Martínez et al. (2024) found that most published studies focus on technological affordances rather than on learning outcomes or institutional governance, leaving a gap between innovation and implementation. One of the most pressing concerns identified in recent literature is academic integrity. The ease with which AI tools can produce grammatically correct and well-structured texts raises fears of plagiarism and misrepresentation (Kim et al., 2025; Ravšelj et al., 2025). In their global study involving over 23,000 higher education students, Ravšelj et al. (2025) observed that while a large portion of students viewed ChatGPT as a helpful learning assistant, they also expressed uncertainty about what constitutes acceptable versus unethical use. Many students admitted to using AI for idea generation and writing improvement, yet a significant number were unaware of their institutions' policies on AI use. This finding underscores the need for clear guidelines and transparency regarding AI-supported learning. Faculty members, on the other hand, frequently express ambivalence.

Kim et al. (2025) found that while faculty recognize the pedagogical potential of generative AI for instance; in personalizing feedback or simulating real-world scenarios they remain concerned about its impact on students' motivation and analytical reasoning. Instructors often feel underprepared to guide students in ethical and effective AI use. This highlights another critical issue: the professional development of educators in the era of AI. Without adequate training, teachers may either prohibit AI altogether or allow uncontrolled use, both of which can undermine pedagogical goals (Al-Zahrani & Alasmari, 2024; Bond et al., 2024). Research shows that students generally hold favorable attitudes toward AI tools, especially when used for problem-solving, feedback, and academic enhancement. For instance, Li et al. (2025) found that students who use generative AI for collaborative problem-solving report increased confidence and autonomy in their learning processes. However, perceptions vary depending on academic discipline, technological literacy, and ethical awareness. Faculty members, on the other hand, often express more cautious or skeptical views. Krause, Panchal, and Ubhe (2025) observed that many educators are concerned about potential misuse of AI, particularly regarding academic integrity, originality of student work, and the erosion of critical thinking. While some instructors incorporate AI tools into their teaching for material preparation or student performance analysis, others hesitate due to lack of training, institutional constraints, or ethical concerns. Dong, Chen, and Wu (2025) highlighted that while students view AI as a facilitator of learning, faculty often see it as a challenge to maintaining academic standards. This discrepancy underscores the need for dialogue and mutual understanding about the potential and limitations of AI in

educational processes. By understanding the potential and negative effects, we can take steps to ensure the benefits of AI in education. It isn't just about understanding AI but developing skills such as critical thinking and creativity. Understanding AI will become increasingly important in the process of forming responsible, educated citizens, with the ability to make decisions and advocate for themselves in an increasingly automated world. Ethical and governance dimensions are now central to the discourse on AI in higher education. Al-Zahrani and Alasmari (2024) emphasize that AI adoption brings not only pedagogical challenges but also sociocultural and legal ones including data privacy, algorithmic bias, and the unequal distribution of technological resources. They argue for institutional frameworks that promote transparency, fairness, and human-centered design in educational AI systems. These frameworks must also recognize that AI is not neutral; it reflects the biases and assumptions of its developers, potentially reproducing inequalities within academic contexts. Equity of access is another recurring theme. Students from technologically disadvantaged backgrounds may lack the devices, digital literacy, or internet access necessary to benefit from AI-based learning tools (Bond et al., 2024). This "AI divide" mirrors earlier digital divides and risks widening educational inequalities. Universities therefore face the dual challenge of integrating AI into curricula while ensuring that such integration does not reinforce existing social disparities. Questions of data privacy, algorithmic transparency, accessibility, and digital inequality require careful examination. Wu and Chen (2025) emphasized that AI integration must be accompanied by clear ethical frameworks and policies that safeguard the interests of all participants in the educational ecosystem.

Pedagogically, AI offers opportunities to re-imagine assessment and feedback. Studies show that when used thoughtfully, AI can support formative feedback, language learning, and self-assessment (Castillo-Martínez et al., 2024). GenAI could provide personalized and real-time feedback experiences, adapting to each student's learning capacity and pace (Chiu, 2024; Su & Yang, 2023). However, uncritical use can foster surface learning where students prioritize rapid completion of tasks over reflective understanding (Ravšelj et al., 2025). Effective integration thus requires explicit scaffolding: educators need to teach students how to use AI as a cognitive partner rather than a shortcut. Despite these insights, there remains limited empirical evidence on how perceptions and practices differ between students and faculty within specific institutional contexts. The comparative dimension is critical: understanding both groups' perspectives allows researchers to identify not only individual attitudes but also systemic barriers to responsible AI use. As Kim et al. (2025) note, aligning faculty and student expectations is essential for creating coherent institutional policies.

The central question is not whether AI will transform higher education it already has but how educators and learners can co-evolve with these technologies in ways that preserve human creativity, critical inquiry, and ethical responsibility (Al-Zahrani & Alasmari, 2024; Bond et al., 2024). The global workforce increasingly relies on AI-driven solutions, leading to a growing imperative for students to develop AI literacy to ensure they are future-ready (Gabriel et al., 2022).

Although artificial intelligence has increasingly become integrated into higher education processes worldwide, research on this topic in North Macedonia remains at

an early stage. Existing studies primarily focus on students' perspectives and on limited applications of AI tools, such as ChatGPT (Mijoska Belshoska & Trenevska Blagoeva, 2024; Neshkovska et al., 2025). However, there is still a lack of comprehensive analyses that compare the perceptions and practices of both students and university professors, as well as investigations addressing the ethical, pedagogical, and institutional implications of AI use in teaching and learning. As higher education in North Macedonia faces challenges related to digitalization, innovation, and the ethical application of new technologies, research into perceptions and practices related to artificial intelligence gains particular importance. Understanding how students and professors experience and use AI technology can contribute to the development of national policies, university strategies, and digital literacy programs that will enable the responsible and effective use of AI in an academic context.

In the Republic of North Macedonia, the process of formalizing policies and regulations related to AI is at an early stage, which directly affects the attitudes and perceptions of academic staff and students regarding this technology. Although there is currently no specific law on artificial intelligence, the country has adopted several documents that indirectly touch this area. According to the analysis of the Metamorphosis association, in 2021 the state established a working group to prepare an AI strategy, but the process is not completed, and the document has not yet been adopted (Metamorphosis, 2024). This lack creates a regulatory vacuum, in which educational institutions themselves create internal rules for the use of AI, based on general ethical and legal principles. Universities are moving towards the gradual implementation of AI tools, but under the strong influence of European regulations and ethical standards. The future development of the national AI strategy will be crucial for creating a safe and transparent framework in which the academic community can fully utilize the potential of this technology.

METHOD

The general aim of this study is to investigate the use of artificial intelligence in higher education, focusing on both students and university professors. Specifically, the study seeks to identify the frequency and purposes of AI usage, explore perceptions and applications in teaching and learning processes, examine ethical considerations associated with AI use, and assess the emotional responses elicited by AI among different user groups.

Research questions

In accordance with the research aim, the following research questions were formulated:

1. How frequently do students and university professors use AI-based tools in an academic context?
2. For which specific academic activities do students and professors use AI in the learning and teaching process?
3. What ethical dilemmas and attitudes arise regarding the use of AI in higher education?
4. What emotional reactions does the use of AI provoke in students and professors?

Research sample

The research sample was selected using a combination of convenience and purposive sampling. Participants were recruited from both public and private universities across the Republic of North Macedonia, with the aim of ensuring institutional diversity and broad geographic representation. Faculty members were contacted directly through their institutional email addresses, while students were reached through course coordinators and university social media channels. Participation was voluntary and anonymous, and all responses were collected in November 2025. A total of 323 students participated in the study, of whom 145 were male and 178 were female. The sample included participants across different years of study: 81 first-year students, 81 second-year students, 58 third-year students, 91 fourth-year students, and 12 fifth-year students. The sample also included 136 university professors, comprising 96 women and 40 men. In terms of age distribution, 18 professors were up to 35 years old, 40 were between 35 and 45, 47 were between 45 and 55, and 31 professors were aged over 55. This diverse sample structure ensures a balanced representation of both students and faculty members across gender, academic level, and age groups, supporting the reliability and generalizability of the study's findings.

Research design and instrument

The study employed a quantitative research design using a structured online questionnaire to examine attitudes, perceptions, and experiences related to AI in higher education. The questionnaire consisted of two main sections:

1. Demographic information, including age, gender, occupation, level of education, and frequency of AI use.
2. AI-related perspectives, including closed-ended, open-ended, and Likert-scale questions examining attitudes toward AI, its role in teaching and learning, academic uses, and ethical and emotional implications.

The survey instrument was developed based on a review of relevant literature and aligned with the study's research questions. To ensure content validity, the questionnaire was evaluated by two experts in pedagogy and educational technology, who reviewed the items for clarity, relevance, and alignment with the research objectives. To assess the internal consistency of the instrument, Cronbach's alpha was calculated separately for each group. For the student questionnaire (22 items, $n = 323$), Cronbach's alpha yielded $\alpha = 0.894$, indicating good internal consistency. For the faculty questionnaire (22 items, $n = 136$), Cronbach's alpha yielded $\alpha = 0.923$, indicating excellent internal consistency (Nunnally, 1978).

Data analysis

The collected data were analyzed using descriptive and inferential statistical methods. Frequency distributions were calculated to examine response patterns among students and professors. To identify statistically significant differences between the two groups, chi-square (χ^2) tests of independence were conducted for each survey item. Because chi-square significance can be influenced by sample size, effect sizes were calculated using Cramér's V to assess the practical significance of observed differences. Statistical

significance was assessed at the $\alpha = 0.05$ level. Effect sizes were interpreted according to Cohen's (1988) guidelines, allowing the results to reflect both statistical reliability and practical importance.

FINDINGS AND DISCUSSION

Research Question 1: How often do university professors and students use AI tools in an academic context?

To address the first research question, descriptive statistics were used to examine the frequency with which university professors and students engage with AI-based tools in their academic activities. Effect sizes (Cramér's V) were calculated to assess the practical significance of observed differences.

Table 1

Chi-Square test results and Effect sizes for differences in AI tool usage frequency between professors and students

How often do university professors and students use AI tools in an academic context?	χ^2	df	p	Cramér's V	Effect Size	Significant
I actively use AI tools (ChatGPT, Grammarly, Copilot, etc.) when preparing academic assignments.	12.151	4	0.016	0.087	Small	Yes
AI helps me save time when studying and preparing projects.	28.716	4	<0.001	0.134	Medium	Yes
AI improves my cognitive processes, analysis and synthesis of information.	9.682	4	0.046	0.078	Small	Yes
Artificial intelligence is a valuable resource for academic work.	13.190	4	0.010	0.091	Small	Yes
I believe that the use of AI should be integrated into curricula.	17.962	4	0.001	0.106	Medium	Yes
AI increases my creativity and motivation to learn.	13.495	4	0.009	0.092	Small	Yes
Artificial intelligence can be a "mentor" in the learning process	23.693	4	<0.001	0.122	Medium	Yes

The chi-square analysis indicates statistically significant differences between professors and students across all seven items ($p < 0.05$). Overall, students reported higher levels of acceptance, perceived usefulness, and willingness to integrate AI tools into academic activities compared to professors. Effect sizes ranged from small ($V = 0.078$) to medium ($V = 0.134$), suggesting consistent but moderate differences between the groups. These findings align with broader global trends, as 86% of students report using AI in their studies, with 54% doing so on a weekly basis, while faculty adoption consistently lags - with 61% of faculty having used AI in teaching, the vast majority doing so only minimally (Rong & Chun, 2024).

The strongest difference was observed for the perception that AI helps save time ($V = 0.134$), where students strongly viewed AI as an efficient tool that accelerates information processing. This is consistent with evidence showing that saving time is the primary motivation for student AI use, cited by 51% of students, followed closely by improving the quality of their work at 50% (Higher Education Policy Institute, 2025). Professors expressed more reserved views, reflecting their emphasis on analytical depth

and methodological rigor. Even among faculty who are familiar with generative AI, actual use for direct instructional tasks remains limited (Krause et al., 2025).

Students also demonstrated greater support for viewing AI as a learning "mentor" ($V = 0.122$) and for integrating AI into university curricula ($V = 0.106$). Professors were more cautious, likely due to concerns related to academic standards and insufficient pedagogical preparation for AI integration. Students tend to outperform faculty in practical AI knowledge and tool familiarity (Hasan et al., 2024), which may partly explain the greater confidence students demonstrate when engaging with AI. At the same time, among academic staff who have already adopted AI, the vast majority intend to continue using it, suggesting that once faculty cross the adoption threshold, sustained engagement becomes likely (Sahar & Munawaroh, 2025).

In other areas, active use of AI tools, cognitive enhancement, creativity, and perceiving AI as a valuable academic resource, effect sizes were small ($V = 0.078$ – 0.092). These results indicate that although students report higher adoption rates, both groups recognize the potential usefulness of AI. Overall, the findings suggest a generational and experiential divide in AI adoption. Students tend to approach AI pragmatically as a helpful and motivating tool, whereas professors engage with it more cautiously, emphasizing potential pedagogical risks, including concerns about academic integrity, skepticism toward AI-generated content, and insufficient faculty training (Bond et al., 2024). Nevertheless, the moderate effect sizes indicate that these differences are not insurmountable and highlight the importance of professional development, institutional policies, and pedagogical frameworks that support responsible AI integration.

From a TAM perspective (Davis, 1993), students' higher adoption rates reflect stronger perceptions of usefulness and ease of use, while faculty's more cautious engagement suggests that perceived risk and insufficient training mediate their acceptance of AI tools.

Research Question 2: For which specific academic activities do students and professors use AI in the learning and teaching process?

Table 2

Chi-Square test and Effect sizes results for academic activities in which AI is Used

Academic activities in which students and professors use artificial intelligence	χ^2	df	p	Cramér's V	Effect Size	Significant
for literature searches	3.172	2	0.205	0.063	Small	No
for designing teaching materials/ preparation of presentations, essays	25.657	2	<0.001	0.179	Medium	Yes
checking or improving grammar, proofreading text	1.106	2	0.575	0.037	Small	No
exam preparation	32.623	2	<0.001	0.202	Medium	Yes
creating visual displays (graphs, tables...)	4.812	2	0.090	0.077	Small	No
for the preparation of research papers	84.896	2	<0.001	0.325	Large	Yes

Chi-square tests and effect size analyses were conducted to examine differences in the academic activities for which students and professors use AI tools.

Literature search and research paper preparation

No statistically significant difference was found in the use of AI for literature searches ($\chi^2 = 3.172$, $p = 0.205$, $V = 0.063$), indicating similar adoption patterns among professors and students. Both groups reported moderate to frequent use of AI for retrieving scientific information, suggesting that AI has been integrated into information-search workflows. In contrast, the preparation of research papers revealed the strongest divergence in the study ($\chi^2 = 84.896$, $p < 0.001$, $V = 0.325$), with a large effect size. Students reported substantially higher levels of frequent AI use in research writing, whereas professors were far more likely to report never using AI for this purpose. This gap likely reflects students' perception of AI as a writing assistant, while professors remain cautious due to concerns about academic integrity, originality, and scholarly standards. This divergence aligns with broader findings in the literature: students frequently use AI for idea generation and writing improvement, yet many remain unaware of institutional policies governing such use (Ravšelj et al., 2025). At the same time, the generation of fabricated citations, a known limitation of some AI models, further complicates the use of AI in scholarly writing and raises additional concerns about authorship and originality (Lund et al., 2025).

Content creation and design

The use of AI for preparing presentations, essays, and teaching materials showed significant differences with a medium effect size ($\chi^2 = 25.657$, $p < 0.001$, $V = 0.179$). Students reported more frequent use, while professors were more likely to avoid using AI for such tasks. This pattern suggests that students perceive AI as a practical productivity tool, whereas professors remain cautious about delegating creative or pedagogical tasks to AI. Research has shown that when structured prompting techniques are applied, AI tools such as ChatGPT demonstrate considerable potential in supporting educators in the design of instructional activities, though their effectiveness depends heavily on how inputs are formulated (Dertli & Yıldız, 2025).

The creation of visual displays (graphs or tables) did not reach statistical significance ($\chi^2 = 4.812$, $p = 0.090$, $V = 0.077$). Both groups reported relatively low usage levels, indicating that visualization tasks are still perceived as requiring human judgment or that existing AI tools are not yet widely trusted for this purpose.

Language and grammar support

The use of AI for grammar checking and proofreading showed no significant differences between groups ($\chi^2 = 1.106$, $p = 0.575$, $V = 0.037$). Both professors and students reported similar usage patterns, suggesting that language support tools represent one of the most widely accepted and least controversial AI applications in academic work. Research has indicated that students employing AI writing tools show marked gains in writing fluency, grammatical accuracy, and coherence (Ranalli, 2021). These findings align with global trends observed in recent research on AI in education. For instance, (Alharbi 2023) emphasizes the pedagogical value of automated writing assistance tools in foreign language classrooms, noting their ability to provide instant feedback and enhance writing skills.

Exam preparation

Significant differences were observed in the use of AI for exam preparation ($\chi^2 = 32.623$, $p < 0.001$, $V = 0.202$). Professors reported very low use, which is expected given their role, whereas a notable proportion of students reported using AI to support their study processes. However, many students still reported never using AI for exam preparation, suggesting either limited awareness of its potential, ethical concerns, or institutional restrictions. This finding reflects a broader pattern where student use of AI for assessment, related tasks remains inconsistent, partly due to unclear institutional policies and varying levels of AI literacy (Lund et al., 2025).

Overall, the results indicate that students are generally more willing to use AI across a wider range of academic tasks, particularly in writing and content creation. Professors tend to adopt a more cautious approach, especially when tasks relate to scholarly production or pedagogical responsibilities. As highlighted by Perezchica-Vega et al. (2024), most faculty have not yet made significant adjustments to their assessment methods in response to AI, which partly explains their more restrained usage patterns across content-creation tasks. Social constructivism (Vygotsky, 1978) helps explain this divergence: faculty, shaped by disciplinary norms of scholarly rigor and academic integrity, construct AI as a threat to authentic knowledge production, whereas students, embedded in peer cultures that normalize AI assistance, construct it as a practical writing tool.

Research Question 3: What ethical dilemmas and attitudes arise regarding the use of AI in higher education?

Chi-square tests of independence and effect size analyses (Cramér's V) were conducted to examine whether professors and students differ significantly in their perspectives on ethical aspects and policies of using AI in higher education.

Table 3

Chi-Square test and Effect sizes results for ethical dilemmas and attitudes toward the use of AI in higher education

Ethical aspects and policy of using AI in higher education	χ^2	df	p	Cramér's V	Effect Size	Significant
There are risks that AI reduces the originality of student work	3.835	4	0.429	0.049	Small	No
Using AI requires new academic and ethical competencies.	53.462	4	<0.001	0.182	Medium	Yes
AI can reduce students' autonomy of thought.	11.117	4	0.025	0.083	Small	Yes
Overreliance on AI can reduce critical thinking.	2.619	4	0.624	0.040	Small	No
AI can make teaching more inclusive and accessible.	5.507	4	0.239	0.058	Small	No
The university should develop clear policies for the use of AI.	52.130	4	<0.001	0.180	Medium	Yes
There are risks of plagiarism and violation of academic integrity through AI.	61.605	4	<0.001	0.196	Medium	Yes
Training is needed on the ethical use of AI in teaching.	70.151	4	<0.001	0.209	Medium	Yes
AI can help students with special educational needs.	7.638	4	0.106	0.069	Small	No
All students should have equal access to AI tools.	6.588	4	0.159	0.064	Small	No
I would like the university to offer a course on using AI in teaching and research.	15.241	4	0.004	0.097	Small	Yes
AI should be part of the digital literacy taught at the university.	43.573	4	<0.001	0.165	Medium	Yes

Chi-square analyses examined differences in ethical perceptions and institutional attitudes toward AI across twelve items. Seven items showed statistically significant differences, while five indicated similar perspectives between professors and students.

Academic integrity and originality

No statistically significant difference was found regarding the belief that AI may reduce the originality of student work ($\chi^2 = 3.835$, $p = 0.429$, $V = 0.049$). Both groups expressed similar levels of concern, suggesting shared awareness of potential risks to academic integrity. This convergence is consistent with findings across multiple studies showing that concerns about originality and authorship are broadly recognized regardless of academic role (Bond et al., 2024; Lund et al., 2025). Concerns about plagiarism and violations of academic integrity revealed significant differences ($\chi^2 = 61.605$, $p < 0.001$, $V = 0.196$), with professors expressing stronger agreement, reflecting their direct responsibility for upholding academic standards. Scholars warn that students may become overly dependent on AI tools, sacrificing opportunities to develop creativity, reasoning, and problem-solving skills Campus Technology (Cordero et al., 2025; Lee et al., 2024; Zhang & Xu, 2025). Similarly, the belief that AI may reduce students' autonomy of thought showed statistically significant but small differences ($\chi^2 = 11.117$, $p = 0.025$, $V = 0.083$). No significant difference was observed regarding concerns that overreliance on AI may reduce critical thinking ($\chi^2 = 2.619$, $p = 0.624$, V

= 0.040), with both professors and students strongly agreeing, indicating that this concern transcends role-based differences.

Competencies and training

Both groups recognized the need for new competencies related to AI use, though their perspectives differed significantly ($\chi^2 = 53.462$, $p < 0.001$, $V = 0.182$). Professors expressed stronger agreement that new academic and ethical competencies are required. The need for training on ethical AI use showed the strongest difference ($\chi^2 = 70.151$, $p < 0.001$, $V = 0.209$). Professors expressed significantly greater support for professional training, likely reflecting their responsibility for teaching and curriculum design. A UNESCO survey of 400 higher education representatives across 90 countries found that, despite high levels of AI use, over half of respondents felt uncertain or hesitant about its effective pedagogical or research application, underscoring the urgency of structured training programs (UNESCO, 2025). The integration of generative artificial intelligence in education should be supported through training, ethical frameworks, clear policies, and collaborative practices (Rios et al., 2026). Similarly, studies conducted in school settings confirm that teachers generally acknowledge the benefits of AI tools such as ChatGPT, yet report only moderate readiness to integrate them into instruction, underscoring the need for continuous professional development and institutional support (Tangkui, 2026).

Inclusivity and accessibility

No significant differences were found regarding AI's potential to improve inclusivity and accessibility in education. Both groups recognized that AI could support students with diverse learning needs. Similarly, views on equal access to AI tools showed no statistically significant differences, indicating shared concern about ensuring equitable technological opportunities. Universities are called to ensure that all students have access and training to AI tools and resources, regardless of their socioeconomic backgrounds, to level the playing field and promote inclusivity (Chan et al., 2023).

Institutional policy and digital literacy

Significant differences emerged regarding institutional policy development ($\chi^2 = 52.130$, $p < 0.001$, $V = 0.180$). Professors expressed stronger support for the creation of clear university policies governing AI use. Interest in formal AI courses also differed significantly ($\chi^2 = 15.241$, $p = 0.004$, $V = 0.097$), with professors demonstrating stronger support for such initiatives. Similarly, the belief that AI should be included in digital literacy education showed significant differences ($\chi^2 = 43.573$, $p < 0.001$, $V = 0.165$), again with professors expressing stronger agreement, a finding consistent with calls for systemic integration of AI literacy across university curricula (Azevedo et al., 2025; UNESCO, 2025).

Overall, the results reveal both convergence and divergence in ethical perceptions. While both groups share concerns about learning quality, accessibility, and academic integrity, professors demonstrate stronger support for institutional regulation, training programs, and policy development. These findings align with the AI literacy framework (Long & Magerko, 2020), which emphasizes that effective and ethical AI use requires

not only technical familiarity but also critical evaluation skills and institutional scaffolding, both of which remain underdeveloped across faculty and student populations.

Research Question 4: What emotional reactions does the use of AI provoke in students and professors?

Emotional reactions to AI are not merely peripheral concerns but rather fundamental factors that shape adoption patterns, usage behaviors, and attitudes toward technology integration. The data presented in Table 4 demonstrate that both students and faculty experience a range of emotions that warrant careful consideration in policy development.

Table 4

Chi-Square test and Effect size results for emotional reactions to AI usage

Emotional reactions when using artificial intelligence	χ^2	p	Cramér's V	Effect Size	Significant
excitement	5.869	0.053	0.085	Small	No
curiosity	8.087	0.018	0.100	Medium	Yes
confidence	0.286	0.867	0.019	Small	No
concern	8.434	0.015	0.102	Medium	Yes
joy	1.560	0.458	0.044	Small	No
uncertainty	3.811	0.149	0.069	Small	No
fear	3.637	0.162	0.067	Small	No
confusion	2.553	0.279	0.056	Small	No

Chi-square analyses examined emotional responses to AI across eight dimensions: excitement, curiosity, confidence, concern, joy, uncertainty, fear, and confusion. Only two emotions, curiosity and concern showed statistically significant differences between professors and students, while the remaining six demonstrated comparable patterns.

Positive emotions

Excitement did not reach statistical significance ($\chi^2 = 5.869$, $p = 0.053$, $V = 0.085$). Both groups reported relatively low levels of excitement, indicating moderate emotional engagement with AI technologies. Confidence also showed no significant differences ($\chi^2 = 0.286$, $p = 0.867$, $V = 0.019$), suggesting similar levels of self-efficacy in using AI tools among professors and students. Joy similarly showed no significant differences ($\chi^2 = 1.560$, $p = 0.458$, $V = 0.044$), indicating that positive emotional responses to AI are relatively modest across both groups. Research suggests that the reflective and constructive processes of knowledge acquisition through human-computer interaction can bring students learning joy and reduce anxiety, which in turn stimulates continued use of the technology (Li et al., 2024). Curiosity was the only positive emotion showing significant differences ($\chi^2 = 8.087$, $p = 0.018$, $V = 0.100$). Professors reported slightly higher levels of curiosity, reflecting their exploratory engagement with AI's pedagogical implications. This aligns with evidence that curiosity and the desire to explore are closely linked to higher-order thinking and deeper intellectual engagement with new technologies (Xin & Derakhshan, 2025). The modest positive emotions across both groups, low excitement and joy, moderate confidence - indicate that neither population has developed strong enthusiasm for AI. This finding contrasts with previous

research indicating generally positive student perceptions and emotional benefits associated with AI-supported tools. For instance, students in Alshammari's (2025) study reported satisfaction and highlighted the potential of AI tools such as ChatGPT to enhance emotional well-being and complement traditional mental health resources. This discrepancy may be attributed to contextual differences, levels of exposure to AI, or variations in the specific applications of AI across educational settings.

Negative emotions

Concern about AI usage showed statistically significant differences with a medium effect size ($\chi^2 = 8.434$, $p = 0.015$, $V = 0.102$). Professors expressed greater concern, likely due to their responsibility for academic standards and educational outcomes. Uncertainty, fear, and confusion showed no significant differences and very small effect sizes, indicating shared emotional experiences across both groups. Among faculty, concern is often amplified by a sense of responsibility for upholding educational standards and by the recognition that rapid AI integration may outpace available institutional guidance (Kim et al., 2025). Students express concern about losing control over their academic work, struggling to keep pace with new AI tools, and facing blurred ethical boundaries, all of which may intensify feelings of vulnerability and emotional fatigue (Farrelly & Baker).

Overall, the findings suggest substantial emotional similarity between professors and students. While professors display slightly greater curiosity and concern, both groups report moderate emotional engagement and comparable levels of uncertainty when interacting with AI technologies. These results indicate that AI integration generates shared emotional experiences across the academic community, highlighting the importance of institutional support, training, and dialogue to facilitate constructive engagement with emerging technologies. Within a TAM framework (Davis, 1993), the moderate emotional engagement observed across both groups suggests that neither perceived usefulness nor perceived ease of use has yet reached a threshold sufficient to generate strong enthusiasm, pointing to the need for structured exposure and guided integration experiences.

CONCLUSION

This study reveals both convergence and divergence between faculty and students in AI attitudes and usage patterns, with effect size analysis providing crucial insights into the practical importance of observed differences. While statistical significance identifies where differences exist, effect sizes illuminate which differences warrant prioritized institutional attention and which represent shared ground for collaborative policy development.

Effect size analysis revealed three distinct patterns of practical importance. Large practical differences emerged in research paper preparation, representing the most substantial divergence in the entire study and necessitating urgent institutional action given its direct implications for academic integrity and learning outcomes. Medium practical differences clustered primarily around institutional responses—training needs, plagiarism concerns, new competencies requirements, policy development, and exam

preparation. Professors demonstrated stronger support for formal frameworks reflecting their governance roles and accountability for educational standards, while students showed more pragmatic, tool-focused approaches with varying levels of engagement regarding institutional mechanisms. These medium effects indicate meaningful differences in perceived solutions and urgency of formal interventions. Conversely, negligible practical differences emerged across multiple critical domains, revealing substantial alignment. Fundamental concerns about AI's impact on learning outcomes including originality, critical thinking, inclusivity, and accessibility showed minimal practical differences, confirming genuine convergence on core educational values regardless of role. Emotional responses demonstrated predominantly negligible effects, with most emotions showing minimal differences, suggesting both groups navigate fundamentally similar affective landscapes when engaging with AI technologies.

These differential effect sizes provide clear priorities for institutional action. Research writing practices require immediate, comprehensive intervention including clear guidelines distinguishing appropriate from inappropriate AI assistance, faculty development in AI-augmented pedagogy, and potential assessment redesign to maintain authentic skill development. Domains showing medium effects warrant substantial attention through differentiated approaches establishing AI ethics committees comprising both faculty and student representatives, implementing professional development programs teaching faculty pedagogical strategies while cultivating critical AI literacy among students through integrated curricula rather than optional supplements, and aligning with EU Artificial Intelligence Act requirements as North Macedonia prepares for membership. Domains with minimal effects represent genuine alignment that can serve as foundations for collaborative policy development, with shared concerns about learning quality and accessibility providing common ground. Emotional responses also showed similarity, with only curiosity and concern differing significantly, while excitement, confidence, joy, uncertainty, fear, and confusion demonstrated comparable patterns. The positive emotions (very small effects for joy, confidence, excitement) and shared negative emotions (very small effects for uncertainty, fear, confusion) suggest that both groups navigate similar emotional challenges as AI becomes integrated into higher education.

The substantial convergence on fundamental educational concerns combined with meaningful divergence on institutional mechanisms suggests a clear path forward: leverage shared values as foundations while building differentiated support where practical differences warrant distinct approaches. These findings underscore the importance of inclusive stakeholder consultation in developing AI policies. The areas of convergence particularly regarding learning quality and accessibility provide strong foundations for collaborative policy development, while divergent perspectives on institutional mechanisms highlight the need for differentiated communication strategies that demonstrate how formal frameworks serve shared educational values and priorities. Without coordinated efforts to establish common frameworks, ethical guidelines, and pedagogical standards, AI adoption risks exacerbating existing educational inequities, undermining learning outcomes, and creating tension between students' pragmatic tool usage and faculty's pedagogical objectives.

LIMITATIONS

Several limitations warrant acknowledgment. First, the chi-square analysis identifies associations but cannot establish causality; observed differences may reflect role, generational, or contextual factors requiring experimental designs for causal inference. Second, the cross-sectional design cannot capture temporal dynamics as AI technologies and attitudes evolve rapidly. Third, the study context (North Macedonia) may limit generalization to other educational systems with different regulatory environments. Fourth, self-reported data may suffer from social desirability bias, necessitating triangulation with observational or behavioral data. Finally, the survey instrument, while comprehensive, may not capture the full complexity of participants' perspectives that qualitative methods could reveal.

Future research should pursue several directions. Longitudinal studies tracking attitudes over time would reveal how faculty-student gaps evolve as AI matures and whether institutional interventions effectively bridge divides. Intervention studies examining specific policy implementations or training programs would provide actionable evidence for practice. Critical research on learning outcomes should investigate whether different AI usage patterns enhance or undermine skill development, critical thinking, and academic performance. Equity-focused studies must examine whether AI access and literacy differences exacerbate educational inequalities. Cross-cultural comparative research illuminates how regulatory frameworks influence integration practices. Finally, mixed methods approaches combining quantitative patterns with qualitative understanding of decision-making processes would provide comprehensive insight into AI integration dynamics in higher education.

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