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Understanding What Drives AI Adoption in Higher Education: An Extended Technology Acceptance Model Approach

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Abstract

With the advancement of AI and its inevitable pervasiveness in many aspects of human life, there is an impetus to examine the determinants of its application in educational institutions. Based on Technology Acceptance Model, this study explores factors influencing the attitudes of teachers from higher education institutions in Serbia toward adopting AI. A total of 312 respondents participated in a survey, and their responses were analyzed using the PLS-SEM approach. It was found that self-efficacy and the lack of stress had a positive impact on the perceived ease of AI use. Prospects toward collaboration with colleagues and the positive image strongly impacted the perceived benefits of AI usage. In turn, both perceived ease of use and perceived benefits of AI usage positively impacted respondents' attitude toward adopting AI. Special attention has been paid to the perception of ethical issues teachers are facing in the process of AI adoption, and the results indicate the relation between ethical considerations and perceived ease of use and attitudes toward AI. The findings are pertinent for higher education institutions evaluating the potential for implementing AI in teaching and research, as well as policymakers aiming to develop proper framework for the wider AI implementation.

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Introduction

In recent years, artificial intelligence (AI) tools have experienced remarkable growth and widespread adoption across nearly all sectors of the economy. Higher education is not an exception, facing numerous changes brought about by AI integration (Fütterer et al., 2023). The significance of AI in higher education is immense, and it has become an important subject of scholarly investigation (e.g. Zhang et al., 2021; Crompton & Burke, 2023; Maphosa & Maphosa, 2023; Bahroun et al., 2023; Bates et al., 2020; Cordero et al., 2025; Xue, Ghazali, & Mahat, 2025). Implementation of AI tools in higher education tends to significantly upgrade education, by transforming teaching, learning and assessment processes (Sova et al., 2024). The application of AI in higher education institutions brings numerous advantages, improving internal processes and external partnerships, which contributes to greater overall performances, strengthening their global image and competitiveness.

Previous studies have pointed out that attitudes and beliefs of university teachers play a pivotal role in the acceptance and implementation of AI technologies in the context of higher education (e.g. Cabero-Almenara et al. 2024; Al-Mughairi & Bhaskar, 2024; Hazaimeh & Al-Ansi, 2024; Falebita & Kok, 2024; Ofosu-Ampong, 2024; Chandafa & Huang, 2025). The explanation of the process of AI acceptance in higher education institutions (HEIs) is often grounded in some of the well-known theoretical frameworks, such as Technology Acceptance Model (TAM) (e.g. Hu, 2022; Mourtajji & Arts-Chiss, 2024; Zhang et al., 2024; Karan & Chakma, 2025; Herzallah & Makaldy, 2025). Despite many advantages, AI adoption in HEIs also presents various challenges (Yeralan & Lee, 2023) and its implementation does not demonstrate equal pace throughout the world. Students and teachers from lower-income backgrounds may face disadvantages if they lack access to AI-driven educational tools (Liu et al., 2021; Spector, 2024). In Serbia, AI is becoming more and more present in higher education, however still being significantly underused as a teaching tool. However, it is expected that Serbian HEIs would further embrace new technologies and adopt innovative teaching methodologies in order to meet expectations imposed by technological advancements (Kuleto et al., 2021) and contemporary market. This field is also still very insufficiently covered by empirical research within the national context (Popović Šević et al., 2025), which indicates strong urge to decrease this gap. Research on the acceptance of AI technologies by HEI teachers is crucial as it allows better understanding of the factors which influence their attitudes and willingness to use AI tools. Such findings help identifying key behavioural motivators and barriers, thereby encouraging more effective and wider application of AI in the academic environment. On such basis, this study provides insight into the causal mechanisms influencing perceived ease of AI tools use, perceived benefits from AI adoption (their usefulness), self-efficacy and the role of ethical considerations in shaping HEI teachers' attitudes toward AI implementation in teaching. The research model presented in this paper illustrates the structure of the feedback loop defined by the aforementioned variables.

Following the introduction, the first section of the paper presents the development of hypotheses within a relevant theoretical framework. The second section details the research methodology. The fourth section interprets and discusses results based on the primary research model. The final section of the paper concludes the study and outlines key findings and research limitations.

Literature Review and Hypotheses Development

Technology Acceptance Model (TAM) represents one of the most represented theoretical frameworks used to explain the process of new technology acceptance (Davis, 1989; Davis & Venkatesh, 1996). TAM explains AI acceptance through two key variables - perceived benefits of AI usage (its usefulness) and perceived ease of use, which further influence user attitudes, willingness and intention to use, and ultimately actual use of such technology. In addition to these basic elements of the model, researchers have been adding a variety of variables in order to develop an extended TAM (e.g. Chen et al., 2024; Mustofa et al., 2025). Lately, TAM has been applied for the purpose of explaining the factors that influence AI adoption in many economy and business sectors, so as well as in higher education (e.g. Teo et al., 2011; Hu, 2022; Mourtajji & Arts-Chiss, 2024; Falebita & Kok, 2024; Karan & Chakma, 2025; Hazzan-Bishara et al., 2025).

Within the TAM, ease of use (EOU), as perceived by users, refers to the degree to which users believe that the technology will be easy to learn and use. As defined by Aljarrah, Elrehail and Aababneh (2016), this concept can be explained as: “the degree to which a user believes that using a particular system would be effort-free”. Thus, it refers to the level of simplicity or effortlessness perceived by users, needed for the purpose of interacting with AI tools. So, the technology would be observed as easy to use, if it demands minimal effort, cognitive burden and complexity (Geddam et al., 2024). HEI teachers often encounter challenges when integrating new technologies; however, AI tools that require minimal training can lower barriers to their adoption in teaching. The perceived EOU of AI-based tool is strongly correlated with their intuitive integration into existing teaching frameworks and alignment with teaching objectives. EOU is essential to ensure that teachers can benefit from AI tools within a short period and without significant disruptions to their usual workflows (Khlaif et al., 2025).

Perceived self-efficacy (PSE) determines whether a person would initiate certain behaviour, how much effort they would invest and for how long (Bandura, 1977). This construct is thus considered to be a significant behavioural factor in various research context (Slijepčević & Krstić, 2020), including the acceptance of modern technologies (Ajzen, 2002). As explained by Tschannen-Moran and Woolfolk Hoy (2001), self-efficacy of teachers reflects their belief in personal ability to teach, establish and maintain teaching regulations and stimulate students' motivation to learn. Zhang et al. (2024) noted that teachers who demonstrate high perceived self-efficacy are confident in their ability to effectively plan, organize and execute academic tasks. In educational contexts, PSE reflects teachers' confidence that they are able to implement and leverage AI systems to improve pedagogical outcomes (Wang et al., 2021). This construct has been recognized as a “pivotal factor in investigating individuals' intention to adopt and utilize technology” (Yao & Wang, 2024). In the research done by Hong (2022), grounded on TAM, self-efficacy appeared to be important determinant of intention to adopt AI technology. Similarly, self-efficacy was identified as positive predictor of the AI use in the classroom by Ramos Salazar and Peeples (2025). By reducing administrative burdens, personalizing teaching and learning experiences, improving student engagement and the quality of feedback, AI tools are generally considered valuable additions to academic environments (Mubin et al., 2013; Cabero-Almenara et al., 2024; Al-Mughairi & Bhaskar, 2024).

Within the higher education context, PSE is observed as one of the factors influencing teachers’ adoption of AI

in teaching (Herzallah & Makaldy, 2025). PSE has been found to positively and significantly influence users' perception of AI tools' ease of use (Al Darayseh, 2023; Falebita & Kok, 2024; Hazzan-Bishara et al., 2025). Thus, it can be assumed that the perceived ease of use (EOU) largely depends on HEI teachers' perceived self-efficacy (PSE) in teaching and learning processes. Based on these considerations, the first hypothesis is proposed:

H1: HEI teachers' self-efficacy positively impacts the perceived ease of use of AI tools.

Anxiety and stress (STR) in facing new technologies has already been confirmed in the literature as a prominent phenomenon (e.g. Venkatesh & Bala, 2008; Ragu-Nathan et al., 2008). In spite of remarkable capabilities of AI implementation in various areas of life and business, it is also causing certain psychological difficulties (Cengiz & Peker, 2025). Research by Bhaskar (2023) indicates that professors with lower digital literacy levels experience higher stress when adopting AI tools, particularly when required to quickly adapt to new technologies. Stress from application of AI tools is often related to the fear of job displacement due to AI technology (Brougham & Haar, 2018). This fear is often linked to a perceived loss of control over the teaching process, further contributing to the perception of AI tools as complex or unpredictable. Technical difficulties, such as software malfunctions, system downtime, or data analysis errors, can further increase stress levels (Johnson et al., 2016). STR can influence an individual's ability to effectively utilize resources, including educational tools and technology platforms, causing them to observe AI tools as more difficult to use. The relationship between STR and the perceived EOU can be understood in terms of cognitive load and the interaction between individuals and their environment, such as technology or academic tools (Uwosomah & Dooly, 2025). High stress levels can reduce cognitive capacity, impairing focus, decision-making, and problem-solving skills (Sweller et al., 2011), thereby negatively impacting technology usage. Those teachers experiencing high anxiety levels may perceive tasks as more challenging, even if AI tools themselves are designed for ease of use. This interaction between STR and EOU can create a negative feedback loop, where anxiety hinders AI adoption and actual use (e.g. Zhang et al., 2023; Sallam et al., 2024; Chen et al., 2024). Given that reducing anxiety and stress can enhance the perceived ease of AI tool use in higher education teaching, leading to higher engagement and adoption rates, the second hypothesis is proposed:

H2: HEI teachers' stress influences the perceived ease of use of AI tools.

Perceived benefits of AI usage (also entitled perceived usefulness) (USG) represent an important element of TAM, and it can be explained as "the degree to which a user believes that using a specific system would enhance the job performance" (Aljarrah et al., 2016). It reflects users' subjective evaluation of the utility/effectiveness of AI tools in increasing their job performance or making the accomplishment of tasks easier (Geddam et al., 2024).

The use of artificial intelligence in HEIs offers numerous advantages and opens up new prospects for collaboration (PRO) among teachers. AI tools help academics identify relevant research partners, enter international academic networks and facilitate interdisciplinary exchanges (Akinwalere & Ivanov, 2022). AI facilitates global collaboration by improving data management, connecting scholars across borders, and addressing challenges such as language barriers through AI-powered translation tools and time zone differences via virtual research assistants (Crompton & Burke, 2023). It improves efficiency and decision-making, leading to more successful collaborative initiatives, planning and resource allocation (Taboada et al. 2023; Ruiz et al., 2020). Owoc, Sawicka, and Weichbroth (2021) reported that AI enables universities to develop strategic approaches for joint research projects

and funding applications, increasing their visibility on the international stage. On the basis of this, it would be reasonable to assume that, by being aware of collaborative possibilities brought by AI implementation, HEI teachers would also see AI tools as highly beneficial for the development of collaborative initiatives at institutional and personal level. This leads to the third hypothesis:

H3: Prospects for collaboration (PRO) with other HEI have a positive impact on the teachers' perception of benefits of AI usage (perceived usefulness).

The integration of AI technologies in teaching, research, and administrative processes not only enhances operational efficiency, but also strengthens the academic image and public perception of HEIs. Institutions which adopt AI publicly demonstrate their commitment to innovation and technological advancement and eagerness to engage with cutting-edge technologies (Katsamakas et al., 2024). A well-managed, efficient institution with modernized operations, based on the succesful utilisation of AI, enjoys a more positive image in the public (Slimi, 2023). A tech-driven environment signals that an institution is attentive to student needs, dedicated to the improvement of the quality of the learning experience, thus reinforcing a positive image. Also, HEIs that effectively utilize AI to manage research output, organize conferences and facilitate collaboration are more likely to be recognized as leaders in their respective fields (Nguyen, 2023). Considering a potential for substantial impact of AI implementation on public perceptions of HEIs, it can be assumed that teachers who will observe AI as more beneficial to their work if they consider it will contribute to their professional credibility and more favourable image, leading to the fourth hypothesis:

H4: Image building (IMG) has a positive impact on teachers perceived benefits of AI usage (perceived usefulness).

Despite multiple advantages of applying AI in higher education, concerns regarding bias, privacy and security, huge volume of data to be processed, transparency, ownership and accountability and its influence on teaching practices remain significant (Anderson & Anderson, 2021; Devi et al., 2023; Pack & Maloney, 2024). Concerns also extend to tendency to bring excessive standardization in student evaluation, potentially overlooking creativity, critical thinking and other qualitative factors, evaluated by teachers (Wright & Shultz, 2018). Implementation of AI in teaching and curriculum design should be carefully managed to support diverse teaching methods rather than enforcing a rigid, standardized approach (McGarr, 2020). HEI teachers who attach more importance to ethical considerations may be more sceptic or more selective in accepting AI tools in education, as they evaluate them, not only according to their functionality, but also according to potential ethical implications. Also, teachers who consider ethical aspects can develop a deeper understanding of the advantages and limitations of AI technology, which allows them to responsibly integrate these tools into teaching in a way that improves the educational process and prepares students for the ethical use of AI, which leads to the fifth hypothesis:

H5: HEI teachers' ethical considerations influence the perceived benefits of AI usage (perceived usefulness).

As defined by Geddam, Nethravathi and Hussain (2024), attitude towards AI tools (ATT) can be referred to as "the user's overall subjective evaluation or perception of a particular technology or system". Attitudes are the sum of user's feelings, opinions, and beliefs regarding certain AI system, its benefits and complexity, as well as

satisfaction and enjoyment from its usage. In the literature, attitudes towards AI tools in the context of the Technology Acceptance Model (TAM) often refers to the user's assessment of the usefulness and ease of use of AI tools, which shapes their intention to use those tools.

The perceived EOU plays a crucial role in shaping AI users' attitudes. When AI systems are intuitive and seamlessly integrated into existing workflows, users are more likely to develop positive attitudes toward their adoption. Venkatesh (2000) highlights that reducing cognitive load and perceived risk through user-friendly technology fosters a more favourable attitude toward its use. Users are more enthusiastic about AI when they perceive the technology as user-friendly, leading to higher adoption rates in the workplace (Palade & Carutasu, 2023). Pushpakumar et al. (2023) emphasize that AI tools with intuitive interfaces, clear outputs, and straightforward guidance promote a positive perception of AI. Chatterjee and Bhattacharjee (2020) found that employees in academic institutions rated AI platforms more favourably when they were intuitive and customized to their specific needs.

Some of the recent studies suggested a relationship between perceived EOU and probability of users to develop positive attitudes and accept new technology (Chibisa et al., 2022; Toros et al., 2024; Tan et al., 2024). Within the TAM framework, the findings of Herzallah and Makaldy (2025) and Felebita and Kok (2024) indicated a positive association between perceived EOU and positive attitude of teachers towards AI implementation. A direct effect of perceived EOU on teachers' attitudes toward technology usage was also confirmed by Saidi et al. (2022). Based on these insights, the sixth hypothesis is formed:

H6: Perceived ease of use has a positive impact on HEI teachers' attitudes toward AI adoption and implementation.

Numerous studies highlight how benefits associated with AI, such as improvements in productivity, efficiency and decision-making contribute to positive perceptions of such technology. This indicates that users' perceptions about the usefulness of AI in higher education predict attitudes toward the application of those tools (Chibisa et al., 2022; Toros et al., 2024; Felebita & Kok, 2024). By basing their research on TAM, Mustofa et al. (2025) found out that perceived benefits of AI usage (USG) in educational environment significantly influenced users' attitudes. Kumar et al. (2024) found that users who experience AI-driven personalization tend to be more open and enthusiastic about AI adoption. Kshetri (2023) highlighted how AI fosters innovation and strengthens competitive advantages, resulting in increased enthusiasm for AI adoption. Almaiah et al. (2022) examined AI adoption in an online education and argued that efficiency gains and improved learning experiences strongly influenced positive attitudes toward AI implementation. Drawing on the TAM, Herzallah and Makaldy (2025) found a significant positive relation between perceived usefulness of AI and positive attitudes of teachers. A positive relationship between perceived usefulness and users' attitudes towards AI was also confirmed by Tan et al. (2024) and Low, Wut and Pok (2025). On the basis of existing evidence that wide-ranging benefits of AI contribute to its increased adoption, the following hypothesis is formulated:

H7: Perceived benefits of AI usage have a positive impact on HEI teachers' attitudes toward AI adoption and implementation.

Ethical considerations (ETH) surrounding AI use in higher education represent an increasingly important topic in academic discussions (Taddeo & Floridi, 2018). Concerns about bias, privacy, transparency and accountability raises concerns about accountability and trust in AI applications (Ilić et al., 2021). A broader concern is the risk of AI-driven dehumanization in education. While AI can personalize learning experiences and automate tasks, it should not replace the human relationships essential to education (Selwyn, 2019; Cordero et al., 2025). Research findings of Shao et al. (2024) showed that perceived AI ethics mediated between self-efficacy and technological factors, which further led to positive attitude toward AI technologies. In the research conducted by Migdadi et al. (2024), ethical awareness and users' attitudes toward AI significantly predicted actual intention to use. Additionally, it was founded that ethical aspects of generative AI positively influenced users' perception of such technology (Liu & Du, 2025). Therefore, it can be supposed that ethical considerations encourage HEI teachers to more deeply analyse the benefits and risks of AI in education, which can increase their trust and perception of the responsible use of AI tools, thereby forming more positive attitudes towards their application. This leads to the final hypothesis:

H8: HEI teachers' ethical considerations have an impact on their attitudes toward AI adoption and implementation.

Method

The survey was conducted on a sample of 312 teachers of privately and state-owned universities and colleges in Serbia within the period October-November 2024. The study encompassed a diverse sample of HEI teachers from 18 Serbian universities (eight publicly funded and ten privately owned), as well as teachers from colleges. Respondents were contacted via official email addresses that were accessible via the Internet (institutional websites) or via professional network of contacts. The participation in the study was entirely voluntary, and respondents were thoroughly informed about the objective and purpose of the study prior to giving consent to participate.

The questionnaire consisted of 33 questions which demanded marking answers on a five-point Likert scale. The questions were randomized to avoid the halo effect, as recommended by Wirtz and Bateson (1995). The constructs and items that were included in the questionnaire were adopted from the relevant literature (Saukkonen et al., 2021; Algerafi et al., 2023; Osman et al., 2024).

Results and Discussion

Sample

The number of valid responses was 312. A substantial proportion of respondents were women, accounting for 56.1 percent of the sample, while male respondents represented the remaining 43.9 percent. Respondents were mainly employed by state-owned tertiary institutions (90.7 percent), and 77.2 percent of them worked at universities. As regarding area of teaching and research, social and humanistic sciences combined with technical and technological sciences accounted for two-thirds of the sample. Unsurprisingly, PhD holders dominated with 76.6 percent. Teachers with more than 20 years of work experience made the most numerous group. By contrast,

the smallest group had 5.1 - 10 years of work experience (11.5 percent).Finally, the AI knowledge was reported as basic or non-extent by a majority of respondents, which was taken into account when analyzing results. This knowledge gap was best reflected in the fact that among several AI platforms, participants reported using only ChatGPT (45 percent of cases) as a tool in teaching and/or research or none. Respondents were more likely to acquire AI knowledge through their 'own research' and 'scientific publications' in comparison with via training offered by their educational institutions (see Table 1).

Table 1. Sample Statistics

Characteristics	Option	No	Percent
Gender	Female	175	56.1%
	Male	137	43.9%
Tertiary education	State-owned	283	90.7%
	Private	29	9.3%
Type	Faculty/University	241	77.2%
	College	41	13.1%
	Vocational Studies Academy	30	9.6%
Area of teaching and research	Social and humanistic sciences	100	32.1%
	Natural and mathematical sciences	34	10.9%
	Technical and technological sciences	113	36.2%
	Interdisciplinary and multidisciplinary sciences	5	1.6%
	Art	9	2.9%
	Medical sciences	51	16.3%
Education	PhD	239	76.6%
	MA	40	12.8%
	MSc	12	3.8%
	Specialization studies	8	2.6%
	Integrated studies	5	1.6%
	Other	1	0.3%
	BSc	7	2.2%
Work experience	Up to 5 years	47	15.1%
	5.1 - 10 years	36	11.5%
	10.1 - 15 years	56	17.9%
	15.1 - 20 years	54	17.3%
	20+ years	119	38.1%
AI knowledge level	Expert	17	5.4%
	Advanced	53	17.0%
	Middle	66	21.2%
	Basic	164	52.6%
	None	10	3.2%
	I did not want to answer	2	0.6%

Characteristics	Option	No	Percent
AI knowledge acquired*	Within HEI	65	17.2%
	Scientific publications	127	33.6%
	Own research	162	42.9%
	Traditional media	0	0.0%
	Social networks	0	0.0%
	Specialized portals	0	0.0%
	No interest	14	3.7%
	I did not want to answer	2	0.5%
	Other	8	2.1%

*Answers could be multiple, and the total number of recorded responses was 378 from 312 respondents.

PLS-SEM Analysis

As many of constructs were likely to be reflective, authors followed Hair et al. (2011) to provide relevant analyses. The loadings for selected items were mainly larger than 0.708, which implied a strong relationship with latent constructs. However, the values for Ethics1 and Usage5 were close to 0.7 and, following further evaluation, these questions were retained in order to strengthen the analysis. Internal consistency reliability measured by Cronbach's Alpha was greater than 0.7 for all constructs, while composite reliability measurements ρ_a and ρ_c, which take into account the actual weights of indicators in the PLS-SEM model or focus on the total variance, respectively, were all larger than 0.7. Finally, the convergent validity examined by Average Variance Extracted (AVE) was always larger than 0.62, which was significantly higher than the threshold of 0.5 (Table 2).

Table 2. Loadings, Construct Reliability and Validity

Variable	Items	Loading	Cronbach's Alpha	Composite Reliability (ρ_a)	Composite Reliability (ρ_c)	Average Variance Extracted (AVE)
Attitude (ATT)	Attitude1	0.746	0.809	0.83	0.876	0.641
	Attitude2	0.859				
	Attitude3	0.817				
	Attitude4	0.86				
Ease of Use (EOU)	EOU1	0.778	0.835	0.843	0.89	0.669
	EOU2	0.826				
	EOU3	0.788				
	EOU4	0.877				
Self-efficacy (PSE)	Effic1	0.817	0.89	0.893	0.919	0.694
	Effic2	0.812				
	Effic3	0.862				
	Effic4	0.866				
	Effic5	0.806				

Variable	Items	Loading	Cronbach's Alpha	Composite Reliability (ρ_a)	Composite Reliability (ρ_c)	Average Variance Extracted (AVE)
Ethics (ETH)	Ethics1	0.695	0.71	0.734	0.838	0.635
	Ethics2	0.861				
	Ethics3	0.825				
Image (IMG)	Image1	0.828	0.771	0.776	0.867	0.686
	Image2	0.809				
	Image3	0.847				
Prospects (PRO)	Prosp1	0.761	0.798	0.799	0.869	0.623
	Prosp2	0.791				
	Prosp3	0.815				
	Prosp4	0.79				
Stress (STR)	Stress1	0.845	0.869	0.874	0.905	0.657
	Stress2	0.843				
	Stress3	0.829				
	Stress4	0.714				
	Stress5	0.816				
Usage (USG)	Usage1	0.709	0.856	0.87	0.898	0.639
	Usage2	0.886				
	Usage3	0.838				
	Usage4	0.849				
	Usage5	0.696				

Since PLS-SEM methodology is better at addressing potential violations of normality, sample size or complexity, we have favored this approach over CB-SEM. In addition, differences due to PLS-SEM biases should be minimal (Reinartz, Haenlein, & Henseler, 2009). The χ^2/degree of freedom indicator, which reduces the impact of the sample size on this statistical significance test, was 3.476, being an acceptable value of less than five (Wheaton et al., 1977). Root mean square error of approximation (RMSEA), indicating how well the model fits the population covariance matrix, was 0.064, which fit the upper levels of 0.08 set forth by MacCallum et al. (1996) and 0.07 suggested by Steiger (2007). The path model has been included in Figure 1.

The path coefficients are reported in Table 3, and all critical ratios are significant at a very high level. Therefore, all hypotheses have been supported. Perceived self-efficacy (PSE), and stress (STR) had a positive impact on the ease of use (EOU). These results can be explained through the TAM by the fact that higher level of perceived self-efficiacy (PSE) can increase teachers' confidence in using new technologies. Such findings align with those of Al Darayseh, (2023) and Hazzan-Bishara, Kol and Levy (2025) who also confirmed that tteachers with high self-efficacy and confidence were more likely to observe AI integration as easy and be ready to deal with any difficulties and obstacles during that process.

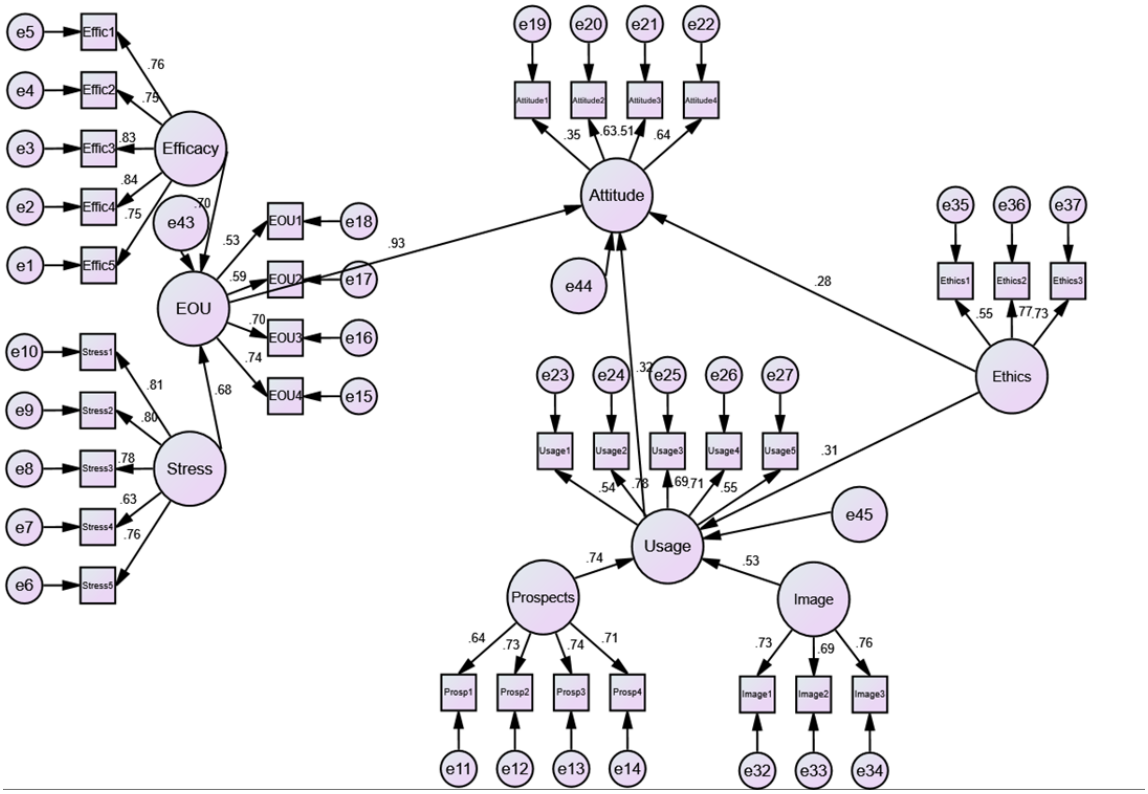

Figure 1. PLS-SEM Model

Table 3. Tested Hypotheses

Hypotheses			Path Coefficient	Critical Ratio	P-value
Self-efficacy (PSE)	-------->	Ease of Use (EOU)	0.695	9,437	0.000
Stress (STR)	-------->	Ease of Use (EOU)	0.684	9,438	0.000
Prospects (PRO)	-------->	Benefits of AI usage/ Usefulness (USG)	0.743	10,932	0.000
Image (IMG)	-------->	Benefits of usage/Usefulness (USG)	0.528	8,947	0.000
Ethics (ETH)	-------->	Benefits of usage/Usefulness (USG)	0.307	5,412	0.000
Ease of Use (EOU)	-------->	Attitude (ATT)	0.929	9,093	0.000
Benefits of usage/Usefulness (USG)	-------->	Attitude (ATT)	0.321	5,916	0.000
Ethics (ETH)	-------->	Attitude (ATT)	0.279	4,525	0.000

Tarafdar et al. (2014) found that stress in using technology along with low self-confidence prevents professionals from using technology enabled innovations. As opposite, when HEI teachers are positive about their ability to excel in teaching and research, in general, they are more likely to positively perceive the ease of use of AI, which

was confirmed by this study. The introduction of AI tools in educational settings certainly requires adequate training to increase users' understanding of the technology and reduce stress levels. Universities that offer continuous training and technical assistance report a higher percentage of professors successfully integrating AI tools without significant increases in stress (Johnson et al., 2016). Therefore, training programs, that combine theoretical knowledge with practical applications, are highly recommended to HEIs, as they can help teachers to develop confidence in using AI technology, thereby reducing anxiety.

Prospects towards collaboration (PRO) with colleagues from other academic institutions, the image of teachers who excels in AI implementation (IMG) and ethical considerations (ETH) all appeared to be relevant for the perceived benefits of AI usage, i.e. its perceived usefulness (USG). Collaboration between universities and external partners, such as other educational institutions, businesses, and research centres has become increasingly complex but also more productive with the support of AI. Even though, to our knowledge, confirmation of the influence of PRO on USG in lacking in available literature, such result is aligned with the notion that AI leads to more successful institutional collaborations (Ruiz et al., 2020; Taboada et al., 2023).

At the same time, the positive image (IMG) of teachers who successfully uses AI can have a motivating effect, encouraging them to perceive its use as simpler and more useful for professional development. Institutions that implement AI gain an advantage in terms of efficiency, transparency, and adaptability, positively influencing their public image. AI enables HEIs to better understand market needs through data-driven insights, and offer personalized experiences, which enables them to present themselves as responsive to the diverse needs of stakeholders, thereby strengthening their public image. HEIs that implement AI, especially in developing countries, are likely to gain a reputation as innovative experts, which positively affects their professional visibility and opportunities for advancement.

The relationship between ethical considerations (ETH) and perceived AI usefulness (USG) was positive and statistically significant. Three ETH items in the questionnaire mainly addressed beneficence and non-maleficence, i.e. to do good and to do no harm, which are relevant in preserving privacy and integrity, as two of the five ethical AI aspects claimed by Floridi and Cowls (2019). The positive relationship between the concepts can be elaborated in a way that teachers who are more ethically aware can more easily understand the limits and proper application of AI tools, which reduces uncertainty and makes the technology perceived as more useful. When teachers have confidence that AI can be used in a way that is consistent with professional and moral norms, they are more likely to see it as useful for improving the quality of education and work efficiency.

In addition, it was confirmed that perceived Ease of Use (EOU), perceived benefits of AI usage (USG) and ethical considerations (ETH) demonstrated a positive impact on teachers' attitudes toward AI application. These findings indicate that perceived ease of use (EOU) reduces the effort required to adopt the technology, thus increasing teachers' positive perception of AI acceptance. Research supports the idea that EOU strongly influences attitudes toward AI adoption, indicating that simplified technological solutions foster trust and make the transition from traditional methods to AI-driven tools more seamless. Other studies also confirmed that users' attutudes would be more favourable when technoligies are perceived as effortless and straightforward to use (Chibisa et al., 2022;

Toros et al., 2024; Felebita & Kok, 2024). Also, perceived benefits from AI usage (USG) in teaching process, such as improved efficiency, accuracy, and personalization, make the application of the technology meaningful and worthwhile. These findings are in line with those of other studies (e.g. Teo, 2011; Chibisa et al., 2022; Kim et al., 2020; Toros et al., 2024; Tan et al., 2024; Falebita & Kok, 2024), who also found a positive link between ease of use and usefulness, on the one hand, and teachers' attitudes towards the use of technology on the other.

Finally, ethical considerations (ETH) allow teachers to feel confident about the responsible use of AI, which reduces resistance and increases the development of positive attitudes towards its application. While AI promises to improve the quality of education, the use of AI-based tools in teaching raises a number of critical considerations regarding ethical implications of AI (Mah & Groß, 2024). With this regard, this study underscores the importance of aligning AI adoption with relevant international, such as UNESCO's "Recommendations on the Ethics of Artificial Intelligence" (UNESCO, 2021), and national frameworks and guidelines, that provide a basis for the responsible use of these technologies in education. Additionally, to address these concerns, ethical considerations must be integrated into AI education and teacher professional training, provided by HEIs (Williamson, 2024).

Conclusion

The research highlights the importance of a systemic approach to understanding the perception of teachers regarding integration of AI tools into higher education. The application of AI has multiple positive aspects, such as simplification of administrative tasks, resources optimization, potential to improve teaching and learning experience by making it more personalized, greater research support and improved collaboration. Therefore, it has become obvious that HEIs can enhance research and teaching productivity, as well as cross-institutional and cross-disciplinary partnerships, by integrating AI-based tools in their operations.

Based on a sample of HEI teachers from Serbia, a PLS-SEM study has been applied to examine the multifaceted relationship between self-efficacy, stress, perceived ease of use, prospects for collaboration, image, ethical considerations, benefits of AI usage and attitudes. Eight hypotheses have been outlined, and they were confirmed in our study. Findings indicate that perceived ease of use of AI tools was positively impacted by teachers' self-efficacy and the perceived lack of stress, while potential for image building, prospects in teaching and ethical considerations had an impact on perceived AI usefulness. Finally, perceived ease of use, perceived AI usefulness and ethical consideration played important role in shaping attitude towards the AI application in higher education setting.

Those findings contribute to the existing literature dealing with the understanding of teachers' perspectives on the adoption of AI tools in higher education, especially in the context of developing European country. Obtained results may be valuable for HEIs for the purpose of formulating strategies targeting teachers (e.g. training programs, professional support), aimed to encourage motivating factors and address restraining factors, in order to ensure the appropriate and effective utilization of AI tools. Additionally, by understanding teachers' perspectives, government bodies and policymakers at national levels can design appropriate public policies which deal with effective and ethical use of AI in the area of education.

The study has certain limitations, one of which refers to a focus on a single country, which may disrupt the generalizability of the findings. The limitations of the study also reflect in the lack of respondents' diverse AI knowledge, as majority of respondents had basic and no AI knowledge at all. Moreover, when asked to select among several tools that are used in teaching, the respondents bimodally selected only ChatGPT and no other product. Future research could benefit from expanding the research across countries in the region and beyond and by including additional variables in the reserach model.

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