University Teachers' Attitudes towards Artificial Intelligence across Professional Fields

Sofiya Dermendzhieva [1], Nikolai Tsankov [2], Lazar Stosic [3], Daniela Tasevska [4], Elmira Bakidzhan [5]

[1] *South-West University "Neofit Rilski", Ivan Mihailov 66, Blagoevgrad, Bulgaria*
[2] *Trakia University, Student town, Stara Zagora, Bulgaria*
[3] *University Union „Nikola Tesla", Cara Dusana, Beograd, Serbia*
[4] *St. Cyril and St. Methodius University, Teodosiy Tarnovski 2, Veliko Tarnovo, Bulgaria*
[5] *Kazakh Academy of Sport and Tourism, Abay Ave 85, Almaty, Kazakhstan*

Abstract **– This study analyzes the cultural, disciplinary and organizational factors in the use of Artificial Intelligence (AI), and reveals the key role of teachers in the digital transformation of higher education. Respondents are representatives of different professional fields and countries, but the sample examines their participation through the prism of a global interdisciplinary perspective. It is assumed that the affiliation of university teachers to a particular professional field determines their attitudes towards the integration of Artificial Intelligence in teaching. A standardized questionnaire is applied, which includes: demographic information; experience with AI; attitude scales adapted from specific models; resistance to the use of AI; understanding of the potential of AI and understanding the risks of integrating it into the learning process. Data are analyzed using descriptive statistics, ANOVA/MANOVA for group differences, regression analysis and SEM for determinants of the intention to use AI, cluster analysis for user profiling and thematic coding of open-ended responses. Thus, the study contributes to the understanding of the mechanisms through which personal motivation, professional identity and institutional environment interact to shape attitudes towards the use of AI.**

The results show diverse disciplinary perspectives and reveal the dual nature of the process of integrating AI in higher education: 1) They identify a need for both positive attitude formation and digital skills development; 2) They clarify the determining importance of professional fields - as specific, organizational and cultural contexts in which technologies are introduced. The conclusions practically contribute to the adaptation of higher education to the digital age.

Keywords **– Artificial Intelligence, higher education, lecturer attitudes, digital competence.**

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Corresponding author: Sofiya Dermendzhieva,
South-West University "Neofit Rilski", Ivan Mihailov 66, Blagoevgrad, Bulgaria
Email: sofger@swu.bg

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1. Introduction

The digital transformation of higher education is increasingly recognized as a key indicator of the quality of teaching and learning. Reforming pedagogical practices in higher education is not a simple and straightforward process. It involves certain policies (instances) whose role is focused on increasing the digital competence of university teachers, taking into account the needs of students and their professional prospects. Universities are faced with the challenge of preparing students belonging to the digital generation and adapting to the accelerating pace of technological innovation. This finding confirms that Artificial Intelligence (AI) is among the most transformative forces in education, changing teaching, learning and academic roles. For university teachers, this change requires not only updating digital competences, but also redefining their professional identity: to function as mediators between human-centered pedagogy and technologically-oriented processes.

AI technologies offer significant opportunities to personalise learning, optimise workloads and support students in real time. However, they also introduce challenges related to ethics, data privacy and academic integrity.

Understanding academic attitudes towards AI adoption is therefore crucial, as the readiness and motivation of university lecturers directly determine how effectively AI can be integrated into higher education institutions. This study explores the attitudes of university academics towards Artificial Intelligence in higher education across professional fields and national contexts. By adopting an interdisciplinary approach, the aim is to map both general trends and disciplinary differences, thereby contributing to the global debate on the digital transformation of higher education.

2. Literature Review

Research on Artificial Intelligence (AI) in education has expanded significantly over the past decade. Several key areas have been identified:

- *Adaptive learning systems and intelligent learning*. Adaptive platforms powered by Artificial Intelligence enable personalized instruction, differentiated learning pathways, and improved learning outcomes. Recent systematic reviews demonstrate that AI-driven adaptive learning environments support learner engagement, self-regulation, and academic achievement [1], [2], [3], [14].
- *Automated assessment and learning analytics.* AI is increasingly applied to the automated assessment of essays and other text-based responses, as well as to large-scale learning analytics used for profiling, performance prediction, and the early identification of students who may require additional support [4], [5].
- *Chatbots and virtual assistants*. AI-powered chatbots and intelligent virtual assistants are increasingly used to provide real-time academic support, immediate feedback, and personalized guidance for students. Recent studies indicate that these technologies can enhance learner engagement, improve access to educational resources, facilitate self-directed learning, and increase student satisfaction when integrated within appropriate pedagogical frameworks [6], [7].
- *Ethical and legal issues*. Scholars have highlighted the need for clear frameworks around algorithmic transparency, data protection and academic integrity. Without such guidelines, trust in AI tools remains limited. It has been conclusively established that every new application of AI also offers the opportunity for autonomous systems to use data in ways that can lead to harmful consequences [8], [9].
- *Global practices*. Leading universities such as MIT, Stanford, Oxford, Cambridge and NUS have pioneered the integration of AI into higher education, demonstrating both opportunities and challenges [4], [10]. Their experience shows that integrating AI requires not only technological investment, but also pedagogical innovation, faculty training and ethical governance.
- *Institutional inequalities*. Despite these global efforts, inequalities persist among higher education institutions due to funding, outdated curricula and insufficient digital competence among faculty. The existing differences are evidence that addressing the structural barriers maintained by AI requires the implementation of more inclusive practices, especially in multilingual contexts [11], [12].
- *Research gaps.* Although AI applications have been widely studied, the specialized literature lacks comparative data analyzing the attitudes of university teachers across professional fields and countries. Recent pedagogical discussions also emphasize that the widespread use of generative AI requires a shift from transmitting information toward fostering critical thinking, reflective judgment, and higher-order reasoning among students [13].

This study fills this gap by providing a comparative perspective on the attitudes of teachers in Bulgaria, Serbia, and Kazakhstan.

3. Methodology

The study is pilot and aims to differentiate the attitudes of university professors in different disciplinary and cultural contexts. The hypothesis is that belonging to a particular professional field of higher education influences the attitudes of university professors towards the integration of Artificial Intelligence in teaching.

Five higher education institutions from Bulgaria, Serbia and Kazakhstan participate in the study:

- South-West University “Neofit Rilski” in Blagoevgrad, Bulgaria;
- Trakia University in Stara Zagora, Bulgaria;
- St. Cyril and St. Methodius University in Veliko Tarnovo, Bulgaria;
- University Union “Nikola Tesla” in Belgrade, Serbia;
- Kazakh Academy of Sport and Tourism in Almaty, Kazakhstan.

According to the academic profile of the disciplines taught, lecturers from different faculties are grouped into four global directories: Humanities and Social Sciences, Pedagogical Sciences, Informatics and Computer Science, Sports and Physical Education (Table 1).

Table 1. Mapping of courses into global professional fields

Examples of taught courses	Global mapping of courses in higher education area
Foreign Language, Psychology, Arts, Philosophy	Humanities and Social Sciences
Educational Management, Pedagogy, Pedagogy of Teaching	Pedagogical Sciences
Information Technology, Digital Competence in Education, Computer Modeling	Computer Science and Informatics
Sports, Sports and physical training	Sports and Physical training

The research sample includes 163 teachers from different professional fields and faculties, providing an interdisciplinary and international context for the study (Table 2, Figure 1).

Table 2. Distribution of respondents

Global directories	Number of Respondents
Humanities and Social Sciences	53
Pedagogical Sciences	55
Computer Science and Informatics	27
Sports and Physical training	28

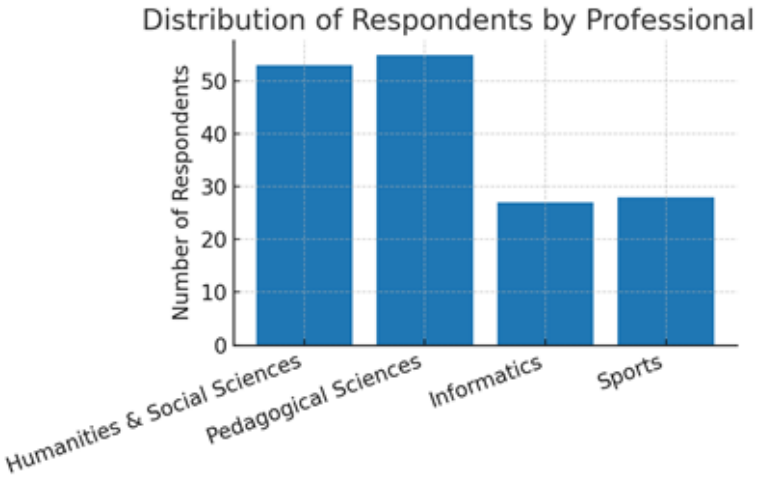

Figure 1. Distribution of respondents by professional field

Data were collected through a structured bilingual questionnaire (English and Bulgarian), piloted prior to implementation. The questionnaire included five main sections:

- Demographic information (country, institution, faculty, academic disciplines, professional fields).
- Experience with AI (frequency, tools, context of use).
- Attitude scales adapted from established models (e.g., TAM, UTAUT):
- Perceived usefulness (PU),
- Perceived ease of use (PEOU),
- Trust and risk,
- Ethics and academic integrity,
- Institutional support,
- Self-evaluation of AI,
- Intention to use,
- Perceived student outcomes,
- Barriers and needs (lack of time, training, policies, technical issues, ethics).
- Open-ended questions (perceived potential and risks of AI in teaching).

Items were rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree). Reliability and construct validity were tested during the pilot phase.

The questionnaire was distributed electronically through institutional mailing lists. Participation was voluntary and anonymous. Respondents were informed about the purpose of the study, confidentiality, and their right to withdraw.

Data analysis included descriptive statistics, ANOVA/MANOVA for group differences, regression analysis, and SEM for determinants of AI use intention, cluster analysis for user profiling, and thematic coding of open-ended responses.

Data analysis combined:

- Descriptive and inferential statistics;
- Descriptive statistics summarized frequencies and means for attitude scales;
- ANOVA and MANOVA were used to test for significant differences between professional fields on multiple dependent variables (PU, PEOU, trust, ethics, support, self-esteem, intention, outcomes);

- Regression analysis identifies which predictors (e.g., digital competence, trust, institutional support) most strongly influence intention to use AI.
- Cluster analysis is used to profile educators into user types such as enthusiasts, cautious users, and skeptics.

4. Result and Discussion

Descriptive statistics summarized demographic data and frequency of AI use. The rating scale (PU, PEOU, Trust, Ethics, Support, Self-Esteem, Intention, Results) allowed for comparison of results across professional domains (Table 3), (Figure 2).

Table 3. ANOVA results: differences across fields

Scale	Humanities, Social sciences (M)	Pedagogical sciences (M)	Computer science Informatics (M)	Sports Physical training (M)	F, p-value
PU	3.0	3.5	4.1	3.3	F=12.3p<.01
PEOU	3.1	3.4	3.9	3.2	F=9.8, p<.01
Trust	2.9	3.2	3.8	3.1	F=10.1 p<.01
Ethics	3.9	3.6	3.2	3.5	F=8.7, p<.05
Intention	3.0	3.5	4.0	3.3	F=11.5 p<.01

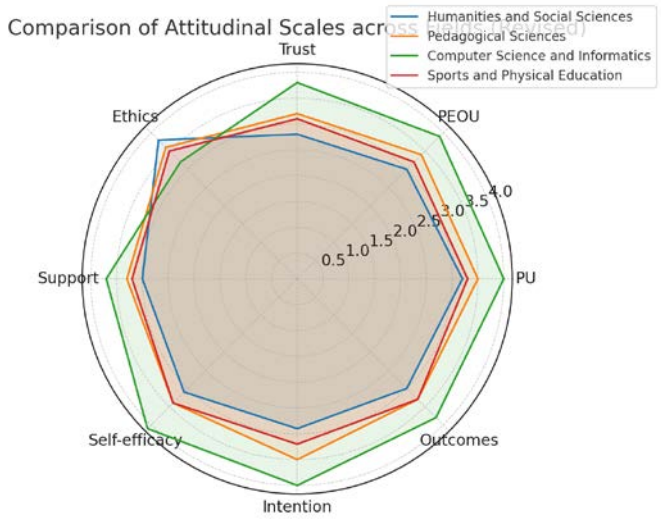

Figure 2. Comparison of attitudinal scales across fields

ANOVA and regression models identified significant differences and predictors (Table 4. Regression analysis: predictors of intention to use AI), (Table 5. Regression analysis: (expanded): predictors of AI intention).

Table 4. Regression analysis: predictors of intention to use AI

Predictor	Beta (β)	Significance (p)
Digital Competence	.42	<.001
Trust	.31	<.01
Institutional Support	.28	<.05
Ethical Concerns	-.15	<.05

Table 5. Regression analysis: (expanded): predictors of AI intention

Predictor	β	SE	t	95% CI	P
Digital Competence	.42	.08	5.25	[.26, .58]	<.001
Trust	.31	.10	3.10	[.11, .51]	<.01
Institutional Support	.28	.12	2.33	[.04, .52]	<.05
Ethical Concerns	-.15	.07	-2.14	[-.29, -.01]	<.05

The statistical analysis identified differences in teachers' attitudes towards the application of AI, given the specifics of the academic disciplines and their affiliation to the specified global directories: Humanities and Social Sciences, Pedagogical Sciences, Informatics and Computer Science, Sports and Physical Education (Table 6).

Table 6. MANOVA summary: differences between directions

Effect	Wilks' Λ	F	p-value
Direction (4 groups)	0.72	4.56	<.001
Error	-	-	-

Cluster analysis generated teacher profile types (e.g., Enthusiasts, Cautious Users, Skeptics) – Figure 3.

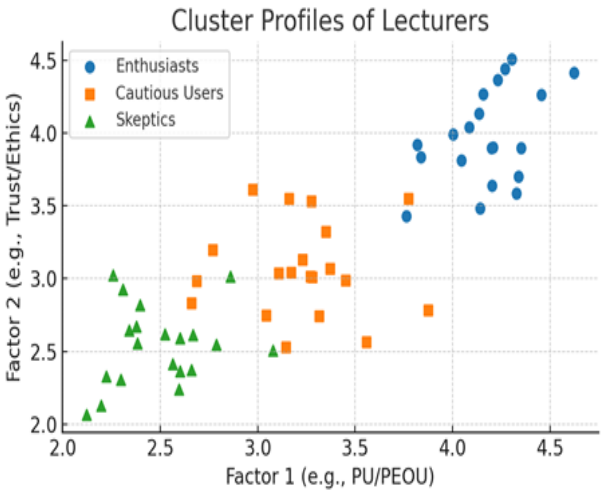

Figure 3. Cluster profiles of lecturers

Qualitative data highlight teachers' perceptions of the potential and risks of integrating AI into the learning process.

The results of this study confirm that belonging to a specific professional field of higher education significantly influences university lecturers' attitudes towards the adoption of AI in teaching.

Lecturers in disciplines from the field of informatics and computer science demonstrate the highest levels of perceived usefulness and readiness to integrate AI, while representatives of the humanities and social sciences remain more cautious due to ethical reservations. Lecturers teaching disciplines from the field of pedagogical and sports sciences show more balanced, intermediate positions.

These differences are consistent with earlier studies demonstrating that successful AI integration in education is closely associated with educators' digital competence, methodological preparedness, and readiness to adopt innovative technologies [3], [15].

The regression analysis further revealed that digital competence was the strongest predictor of intention to use AI, followed by trust and institutional support.

These findings highlight the importance of targeted training and policies that can empower university faculty across professional fields to embrace AI responsibly.

The role of ethical concerns cannot be underestimated. As shown in recent literature [8], [9], ethical issues such as algorithmic transparency, data privacy, and academic integrity directly shape university faculty's willingness to embrace AI tools. Scholars in the humanities, in particular, are more sensitive to issues of fairness, plagiarism, and the potential devaluation of critical and creative skills. Therefore, policies and institutional guidelines should ensure that AI is used to complement, rather than replace, human intellectual input.

Analysis of global practices further supports the argument that institutional context plays a crucial role. International experience demonstrates that sustainable AI implementation requires more than technological infrastructure; it also depends on pedagogical innovation, continuous professional development of faculty, institutional readiness, and ethical governance [11], [12]. Such examples demonstrate that AI integration is a multidimensional process that must balance technological, pedagogical and ethical considerations.

The growing role of AI in fostering multimodal literacy and preparing teachers for contemporary educational environments is increasingly recognized [16].

The results of the study clearly confirm that disciplinary differences are reflected in attitudes towards the use of AI in teaching. Analysis of variance shows statistically significant differences between professional fields, with computer science specialists showing the highest levels of perceived usefulness and readiness for use.

This can be explained by the fact that these teachers already work in a technology-oriented environment, where knowledge of programming and digital tools is an integral part of their professional identity. AI is often perceived by them not as an external innovation, but as a natural extension of their existing practices.

Conversely, representatives of the humanities and social sciences demonstrate lower values of trust and stronger ethical reservations. The reason for this may be the greater sensitivity of these disciplines to issues of morality, values, justice and impact on society. For university professors in these fields, Artificial Intelligence is not just a tool, but a technology with the potential to threaten academic practices related to independent thinking, creativity and critical analysis.

Teachers in the pedagogical sciences occupy an intermediate position – more positive than the humanities, but more reserved than the computer scientists, with a relatively balanced attitude towards ethical dimensions.

These findings suggest that these attitudes are shaped by two main dimensions:

1) Educators recognize the innovative potential of AI for personalized learning and student support;
2) Educators have reservations about the risk of devaluing the pedagogical role or replacing human expertise.

Teachers from the Sports Sciences Group are positioned in the middle, indicating relative neutrality. The reason may be that academics in this professional field traditionally emphasize the practical, physical, and applied aspects of learning, where the opportunities for direct integration of Artificial Intelligence are less obvious or perceived as secondary.

The regression analysis further confirms that *digital competence* is the strongest predictor of the intention to use Artificial Intelligence. This is logical, since the lack of skills can be a major barrier, even with a positive attitude.

Trust in technology also appears to be a significant factor, suggesting that AI adoption is not determined solely by knowledge but also by psychological readiness to work with automated systems.

Institutional support, although with a more moderate effect, shows that the availability of policies, resources and training from universities can compensate for individual deficits and promote integration.

Ethical concerns, which have a negative impact, reflect the cultural and academic focus on responsible use of technology and fears related to transparency, plagiarism and academic honesty.

Multivariate analysis shows that when attitudes are considered as an aggregate model, *the effect of professional affiliation* remains significant. This supports the conclusion that disciplinary identity is an essential framework within which teachers perceive the potential and risks of artificial intelligence.

Further analysis of the profiles reveals three main groups: *Enthusiasts*, who combine high digital competence with readiness for integration; *cautious users*, who demonstrate moderately positive attitudes but are sensitive to ethical issues; and *skeptics*, characterized by low trust and limited intention to use.

This typology can be explained by the combination of personal skills, disciplinary values, and institutional conditions – for example, the presence or absence of support for experimentation with new technologies. In summary, the numerical analysis not only supports but also explains the observed differences: Higher digital competence and institutional support lead to greater readiness to use AI, while ethical concerns and lower trust limit its adoption.

The reasons for these results can be sought in the peculiarities of disciplinary culture, personal attitudes, and organizational conditions, which together form a complex picture of the acceptance of Artificial Intelligence in higher education.

In summary, this discussion highlights the dual nature of AI integration in higher education: On the one hand, it provides opportunities for personalized learning, optimization of the learning load and improved support for students; on the other hand, it poses ethical, institutional and social challenges.

The results of the study indicate the need for the targeted development of university teachers' professional and pedagogical reflection, as the contemporary educational context requires a transformative change in educational and technological practices within the academic environment.

A balanced approach is therefore needed, one that combines the development of digital competence, institutional support, and robust ethical frameworks. Only then can AI be a driver of inclusive and effective transformation in higher education.

5. Conclusion

The digitalization of higher education is fundamentally changing the professional role of the university lecturer, providing opportunities to support students by integrating Artificial Intelligence into the learning process.

This study goes beyond the well-known challenges associated with the implementation of Artificial Intelligence, including institutional constraints, limited resources, outdated curricula, and the mismatch between traditional pedagogical approaches and the needs of new generations of students.

A distinctive feature of this study is that it applies an approach that allows examining the attitudes of lecturers not so much according to their administrative affiliation, but according to their academic profile towards the global directories in higher education: humanities and social sciences, pedagogical sciences, informatics and computer sciences, health and sports.

The results of the statistical analyses confirm that attitudes towards the use of Artificial Intelligence differ depending on disciplinary affiliation, but there are also universal factors that influence readiness for adoption. Digital competence and institutional support emerge as the strongest positive predictors, while ethical concerns, particularly in the humanities, are a significant barrier.

Their interpretation highlights:

1) The need for both positive attitude formation and digital skills development;

2) The defining importance of professional fields in higher education – as specific, organizational and cultural contexts in which technologies are introduced.

This study contributes to the understanding of the mechanisms through which personal motivation, professional identity and institutional environment interact in the formation of attitudes towards AI.

Its conclusions have practical implications for higher education policy: targeted investment in digital competencies, the development of ethical standards for AI use, and the establishment of supportive institutional frameworks for AI integration are needed [17], [18], [19], [20].

Future research should validate the results with larger and more representative samples, analyze the longitudinal dynamics of attitudes and explore the interaction between cultural, disciplinary and organizational factors. Only in this way can a comprehensive understanding of the role of educators as key agents in the digital transformation of higher education be achieved.

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