World Journal of Advanced Engineering Technology and Sciences
eISSN: 2582-8266
Cross Ref DOI: 10.30574/wjaets
Journal homepage: https://wjaets.com/

(RESEARCH ARTICLE)

Faculty readiness and attitudes toward AI integration in university teaching: A Developing Country's Perspective

Ashish Basak [1,*], SK Muhammad Yeasin [1], Sanjana Shahnaj [2] and Zakia Zohra Shurovi [2]

[1] *Department of Business Administration, Shanto-Mariam University of Creative Technology, Bangladesh.*
[2] *Department of English, Shanto-Mariam University of Creative Technology, Bangladesh.*

World Journal of Advanced Engineering Technology and Sciences, 2025, 16(01), 041-048

Publication history: Received on 16 May 2025; revised on 01 July 2025; accepted on 04 July 2025

Article DOI: https://doi.org/10.30574/wjaets.2025.16.1.1202

Abstract

Background: Artificial Intelligence (AI) is increasingly transforming higher education globally, yet its integration remains limited in developing countries. Faculty readiness and attitudes play a critical role in successful AI adoption in university teaching. This study investigates these factors in the context of Bangladesh.

Methods: A descriptive cross-sectional survey was conducted among 100 university faculty members across various disciplines in Bangladesh. A structured questionnaire measured faculty readiness and attitudes using Likert-scale and categorical items. Descriptive statistical methods were applied to analyze the data.

Results: Findings reveal low levels of faculty readiness for AI integration. Mean scores indicate limited familiarity with AI concepts (M=2.51) and low institutional support (M=1.20). Few faculty had received AI training (M=1.71), resulting in low confidence using AI in teaching (M=2.78). Despite these gaps, attitudes were moderately positive: faculty agreed that AI could enhance teaching (M=3.62) and would become essential in the future (M=3.59). Major challenges include lack of time, training, and institutional backing. Workshops and incentives were identified as key support needs.

Conclusion: While faculty in Bangladesh show interest in AI, low readiness and inadequate support hinder adoption. Strategic investments in training, infrastructure, and policy development are essential to advance AI integration in higher education.

Keywords: Artificial Intelligence; Faculty Readiness; Bangladesh; University

1. Introduction

Artificial Intelligence (AI) has emerged as a transformative force in education, reshaping pedagogical practices, administrative operations, and student engagement (Brooker, R., 2023). In developed nations, AI has been increasingly integrated into university-level teaching to personalize learning, automate administrative tasks, and enhance academic performance (Rizvi et el, 2017). However, in developing countries, the integration of AI in higher education remains inconsistent and largely unexplored (Razak at el, 2028). One critical factor influencing this integration is the readiness and attitude of faculty members, who serve as the primary agents of educational change (Voithofer, R., and Cheng, S. L.,2019). Understanding faculty preparedness and perceptions toward AI adoption is crucial for formulating effective implementation strategies (Chassignol et. el, 2018). Artificial Intelligence (AI) is reshaping educational landscapes globally, offering innovative methods to enhance teaching and learning. In developed countries, universities have started integrating AI tools like intelligent tutoring systems, automated grading, and personalized learning platforms (Seo et el, 2021). However, in developing countries such as Bangladesh, the integration of AI in university teaching is

* Corresponding author: Ashish Basak

still emerging (Islam and Alam, 2021). Faculty members play a crucial role in this digital transformation. Their readiness defined in terms of skills, knowledge, infrastructure, and willingness and their attitudes toward AI are critical factors for successful implementation. This research aims to evaluate the current level of faculty readiness and their attitudes toward AI integration in higher education institutions in Bangladesh. Understanding these elements can inform policymakers and educational leaders in developing effective strategies for AI adoption in the academic sector.

1.1. Research objectives

The primary objectives of this study are

- To assess the current level of faculty readiness for AI integration in university teaching in Bangladesh.
- To explore faculty attitudes toward the use of AI technologies in teaching and learning.
- To identify the challenges and barriers faculty face in integrating AI into their teaching practices.
- To recommend strategies for improving faculty readiness and encouraging positive attitudes toward AI integration in higher education.

1.2. Research questions

- What is the current level of faculty readiness for AI integration in university teaching in Bangladesh?
- What are faculty members' attitudes toward AI in the context of teaching and learning?
- What institutional, technological, and pedagogical challenges do faculty face in AI adoption?
- What strategies can enhance faculty readiness and promote a positive attitude toward AI in university teaching?

2. Literature review

2.1. Introduction to AI in Higher Education

Artificial Intelligence (AI) is increasingly becoming a disruptive force in higher education, with applications ranging from intelligent tutoring systems, adaptive learning platforms, plagiarism detection tools, automated grading systems, to administrative support systems (Zawacki-Richter et al., 2019). AI holds the potential to personalize learning, increase efficiency, and free up time for faculty to focus on more meaningful pedagogical tasks Holden, (H., and Rada, R.,2011). However, the effective implementation of AI in university teaching hinges not only on infrastructure but significantly on the faculty's readiness and willingness to adopt such technologies (Venkatesh et al, 2003).

2.2. Faculty Readiness for AI Integration

Faculty readiness refers to the preparedness, skill levels, digital literacy, and psychological readiness of instructors to use AI in teaching. Readiness is not only technical but also pedagogical faculty must understand how AI can be aligned with curriculum goals (Popenici and Kerr, 2017). In developed contexts, universities often offer structured support, workshops, and incentives to build faculty readiness (Luckin et al., 2016). However, in developing countries, readiness is often hampered by infrastructural limitations, limited access to training, and lack of institutional vision (Unwin et al., 2020). A study by UNESCO (2022) highlights that although faculty in the Global South are generally aware of AI tools, they lack formal training, policy support, and confidence to implement these tools effectively.

2.3. Faculty Attitudes Toward AI in Teaching

Faculty attitudes significantly influence the success or failure of AI implementation. These attitudes are shaped by individual experiences, cultural contexts, technological beliefs, and institutional narratives (Selwyn, 2019). While some faculty view AI as a powerful enhancement tool, others perceive it as a threat to academic integrity or fear replacement by automation (Holmes et al., 2021). A study by Chatterjee and Bhattacharjee (2020) among Indian faculty members found mixed attitudes: while many appreciated the efficiency AI tools offer, they also expressed concerns about job security and ethical implications. In Bangladesh, initial findings suggest that faculty are cautiously optimistic but face socio-cultural and administrative barriers to adoption (Islam and Alam, 2021).

2.4. Challenges in AI Integration in Developing Countries

Faculty in developing countries face unique challenges when integrating AI into teaching: Many universities in developing countries lack the necessary technological infrastructure such as high-speed internet, reliable electricity, or cloud computing platforms (Kafyulilo, 2015). Faculty often do not receive adequate training or ongoing support to build competence in AI applications. Moreover, there is a gap in AI-specific pedagogical training (UNESCO, 2022). Concerns

around data privacy, algorithmic bias, and lack of local language AI tools hinder adoption (Popenici and Kerr, 2017). Many institutions in the Global South do not have clear policies or strategic plans for AI in education, leading to fragmented and isolated efforts (Zawacki-Richter et al., 2019).

2.5. Opportunities and Positive Drivers

Despite these challenges, there are also promising opportunities. Increasing mobile and internet penetration, growing government interest in EdTech, and international collaboration have created a fertile ground for AI integration (Islahi, F.,2019). Faculty who engages in global academic networks or receives international training tend to demonstrate higher readiness and more positive attitudes (Luckin et al., 2016). Additionally, university-industry partnerships and open-access AI tools can empower faculty in resource-constrained environments to explore innovative teaching practices (Holmes et al., 2021).

3. Research methodology

This study employed a quantitative research design to evaluate faculty readiness and attitudes toward the integration of Artificial Intelligence (AI) in university teaching, using Bangladesh as a case study representing developing countries. The methodology aimed to systematically gather measurable data on faculty perceptions, preparedness, institutional support, and perceived challenges related to AI integration.

3.1. Research Design

A descriptive cross-sectional survey approach was adopted. This method is suitable for assessing current attitudes, experiences, and readiness levels at a single point in time. The research was designed to collect primary data through structured questionnaires, enabling statistical analysis of faculty responses.

3.2. Population and Sampling

The target population comprised faculty members from various universities in Bangladesh, representing different disciplines and academic levels. A purposive sampling technique was employed to select participants who are involved in teaching at higher education institutions. A total of 100 faculty members participated in the study, ensuring a diverse representation of age, gender, academic discipline, and teaching experience.

3.3. Data Collection Instrument

Data was collected using a structured questionnaire that included both Likert-scale items and multiple-choice questions. Responses related to readiness and attitudes were measured on a five-point Likert scale**,** ranging from 1 (Strongly Disagree) to 5 (Strongly Agree), while some binary and categorical questions were also included.

3.4. Data Analysis

The collected data were analyzed using descriptive statistical methods**,** including: Means and standard deviations to summarize central tendencies and variation in responses. Frequencies and percentages to illustrate the distribution of responses regarding barriers and support mechanisms. All analyses were conducted using statistical software (e.g., SPSS or Excel), allowing clear interpretation of faculty readiness levels, prevailing attitudes, and institutional challenges.

4. Results and discussion

The results of the descriptive statistical analysis indicate significant gaps in faculty readiness for integrating Artificial Intelligence (AI) into university teaching. Among the 100 respondents, the mean score for familiarity with basic AI concepts was 2.51 (SD = 1.37) on a five-point Likert scale, suggesting that most faculty members have a limited understanding of foundational AI principles. Similarly, the average score for possessing sufficient technical skills to implement AI tools was slightly higher at 2.85 (SD = 1.26), yet it still falls below the

Table 1 Faculty Readiness for AI integration

Faculty Readiness					
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
Familiar with basic concepts of Artificial Intelligence (AI)	100	1.00	5.00	2.5100	1.37433
Technical skills are sufficient for implementing AI tools	100	1.00	5.00	2.8500	1.25831
Used AI tools in teaching	100	1.00	5.00	2.4500	1.21751
Received training related to AI tools for teaching	100	1.00	2.00	1.7100	0.45605
Confident using AI-based tools in the classroom	100	1.00	5.00	2.7800	1.38957
Institution provides access to AI tools or platforms for teaching	100	1.00	2.00	1.2000	0.40202
Aware of the ethical issues related to the use of AI in education	100	1.00	5.00	2.8400	1.26906
Valid N (listwise)	100				

midpoint, indicating a lack of confidence in technical preparedness. Actual usage of AI tools in teaching was also low (M = 2.45, SD = 1.22), reflecting minimal practical application of these technologies in the classroom setting. Notably, the majority of participants reported not receiving any formal training related to AI tools, as evidenced by a low mean of 1.71 (SD = 0.46) on a binary scale (1 = No, 2 = Yes). This lack of training likely contributes to the low confidence levels in using AI in teaching (M = 2.78, SD = 1.39). Moreover, institutional support appears to be severely lacking; the mean score for access to AI tools or platforms provided by the institution was only 1.20 (SD = 0.40), indicating that very few universities are offering the necessary resources. Although awareness of ethical issues surrounding AI in education had a slightly higher mean score of 2.84 (SD = 1.27), it still indicates that many faculty members are not fully informed about the ethical implications of AI integration. Overall, the findings point to critical deficiencies in faculty preparedness, institutional infrastructure, and training opportunities, which must be addressed to foster effective and responsible adoption of AI technologies in higher education teaching practices.

Table 2 Faculty Attitudes Toward the use of AI Technologies

Faculty Attitudes					
	N	**Minimum**	**Maximum**	**Mean**	**Std. Deviation**
AI tools can enhance the quality of teaching and learning	100	1.00	5.00	3.6200	1.30871
Interest in learning more about AI applications in education	100	2.00	4.00	3.1200	0.99778
AI may reduce the teacher's role in education	100	1.00	4.00	2.5000	0.71774
AI can support personalized learning experiences for students	100	2.00	4.00	3.2000	0.77850
AI will become essential in future teaching and learning	100	2.00	4.00	3.5900	0.55222
Students are ready to engage with AI-based learning environments	100	3.00	4.00	3.5200	0.50212
Valid N (listwise)	100				

Descriptive statistics were employed to analyze faculty perceptions of Artificial Intelligence (AI) in education, based on responses from 100 participants. The results indicate a generally positive outlook on the integration of AI into teaching and learning. The highest level of agreement was found for the statement that "AI tools can enhance the quality of

teaching and learning" (M = 3.62, SD = 1.31), although responses were somewhat varied. Participants also agreed that AI will become essential in future education (M = 3.59, SD = 0.55) and that students are ready to engage with AI-based learning environments (M = 3.52, SD = 0.50), both showing strong consensus. Moderate interest was expressed in learning more about AI applications in education (M = 3.12, SD = 0.998). Notably, the statement "AI may reduce the teacher's role in education" received the lowest mean score (M = 2.50, SD = 0.72), indicating relative disagreement or neutrality. Overall, the findings suggest that while educators recognize the transformative potential of AI, they do not perceive it as a threat to their professional roles.

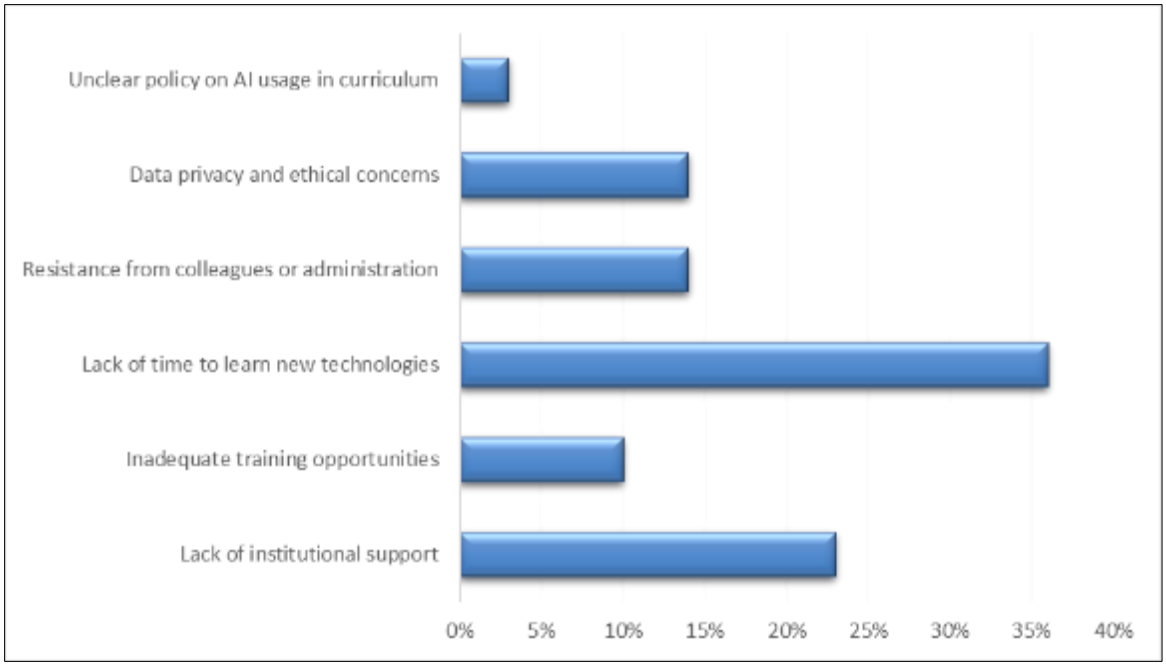

Figure 1 Challenges and Barriers Faculty face in Integrating AI

The data presented in the table highlights the primary barriers and challenges faced by faculty in integrating Artificial Intelligence (AI) into their teaching practices. The most significant obstacle, cited by 36% of respondents, is the lack of time to learn new technologies, indicating that time constraints are a major hindrance to AI adoption. This is followed by a lack of institutional support (23%), suggesting that many faculty members do not receive adequate backing from their institutions to explore and implement AI tools. Resistance from colleagues or administration and concerns regarding data privacy and ethics were each reported by 14% of respondents, reflecting cultural and ethical hesitations in embracing AI in academia. Inadequate training opportunities were noted by 10% of the participants, emphasizing the need for more structured and accessible professional development in this area. Lastly, a small portion (3%) pointed to the absence of clear institutional policies on AI usage in the curriculum as a barrier. These findings underscore the multifaceted nature of the challenges and highlight the importance of strategic institutional planning, training, and policy development to support AI integration in higher education.

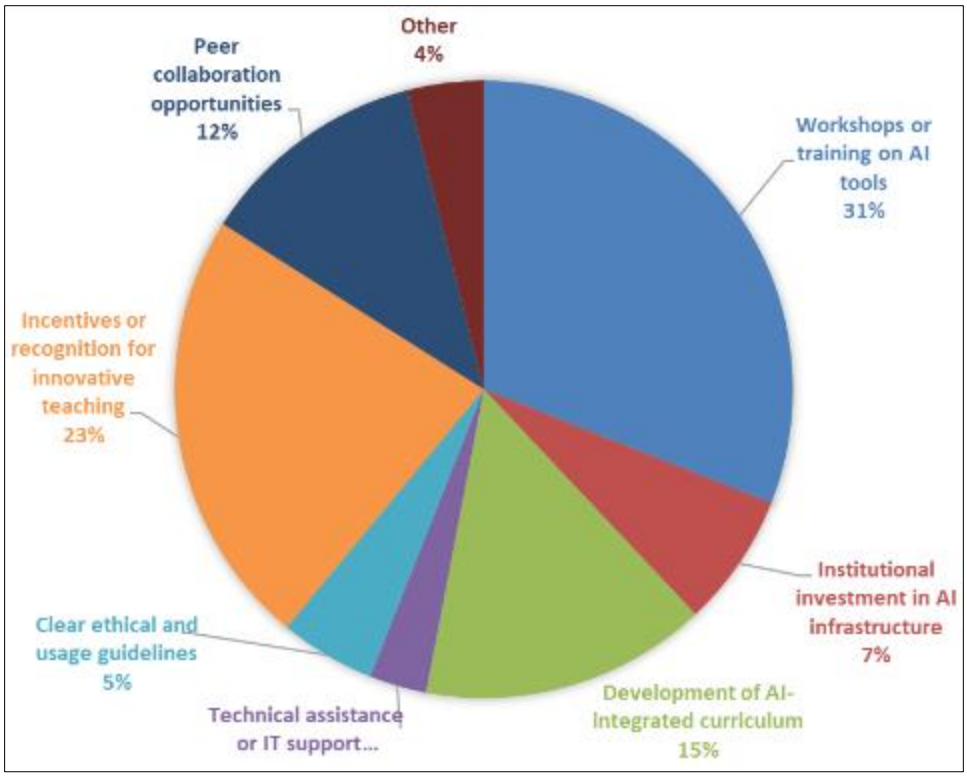

Figure 2 Recommend for Improving Faculty Readiness and Positive Attitudes

The data illustrates faculty perceptions of the most effective forms of institutional support needed to facilitate AI integration in teaching. The highest proportion of respondents (31%) identified workshops or training on AI tools as the most crucial support mechanism, emphasizing the demand for skill development and hands-on learning opportunities. Incentives or recognition for innovative teaching followed at 23%, suggesting that motivation through acknowledgment and rewards could significantly encourage faculty to adopt AI technologies. The development of AI-integrated curricula (15%) and opportunities for peer collaboration (12%) also emerged as important, reflecting the need for structured academic frameworks and collaborative environments. Comparatively fewer respondents highlighted institutional investment in AI infrastructure (7%), clear ethical and usage guidelines (5%), and technical assistance or IT support (3%), indicating these aspects, while relevant, are perceived as secondary to direct training and motivational strategies. The relatively low percentage for "Other" (4%) suggests most faculty needs are captured within the predefined categories. Overall, the findings underscore a strong preference for professional development and recognition to drive AI adoption in higher education.

5. Conclusion

This study explored faculty readiness and attitudes toward the integration of Artificial Intelligence (AI) in university teaching within the context of Bangladesh. The findings indicate that while faculty members generally possess a positive attitude toward AI and recognize its potential to enhance teaching and learning, their actual readiness remains low. The majority of respondents lacked familiarity with AI concepts, technical skills, and access to necessary institutional resources. Additionally, formal training opportunities were scarce, and institutional support was minimal. Despite these challenges, there is a clear interest among faculty to learn more about AI and adopt it in the future, especially with appropriate support and incentives. The study highlights the gap between positive attitudes and practical readiness, revealing a critical need for intervention. Institutional and structural limitations, such as insufficient training, lack of AI-integrated curricula, and minimal technical infrastructure, continue to pose significant barriers. However, the willingness of educators to embrace AI signals an opportunity for strategic development and targeted policy actions to foster AI integration in higher education.

5.1. Recommendations

5.1.1. Professional Development and Training Programs

Universities should organize regular workshops, seminars, and certification courses focused on AI applications in teaching and learning. These programs should be hands-on and tailored to varying levels of technical expertise among faculty.

5.1.2. Institutional Support and Policy Frameworks

Higher education institutions need to establish clear policies and strategic frameworks for AI integration. This includes providing access to AI tools, ethical guidelines, and technical assistance to ensure responsible and effective implementation.

5.1.3. Incentivization and Recognition

Institutions should introduce incentive mechanisms such as awards, grants, or promotion points to encourage faculty engagement with AI technologies and recognize innovative teaching practices.

5.1.4. Curriculum Development and Peer Collaboration

Faculty should be involved in developing AI-integrated curricula that align with pedagogical goals. Opportunities for interdisciplinary collaboration and peer learning can further enhance readiness and confidence.

5.1.5. Infrastructure Investment

Investment in reliable internet access, digital platforms, and cloud-based AI tools is essential. Government and institutional collaboration can help bridge infrastructural gaps in resource-constrained settings.

5.1.6. Ongoing Research and Monitoring

Further longitudinal studies are recommended to assess changes in faculty readiness and attitudes over time and to evaluate the long-term effectiveness of institutional interventions. By addressing these areas, higher education institutions in Bangladesh and other developing countries can better prepare their faculty to harness the transformative potential of AI in education.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

References

[1] Brooker, R. (2023). Adoption of Artificial Intelligence in Schools: Unveiling Factors Influencing Teachers' Engagement. In International Conference on Artificial Intelligence in Education (pp. 151-163). Cham: Springer Nature Switzerland.

[2] Chassignol, M., Khoroshavin, A., Klimova, A., and Bilyatdinova, A. (2018). Artificial Intelligence trends in education: a narrative overview. Procedia Computer Science, 136, 1624.

[3] Chatterjee, S., and Bhattacharjee, K. K. (2020). Adoption of Artificial Intelligence in higher education: A study on Indian universities. Education and Information Technologies, 25(6), 5081–5097. https://doi.org/10.1007/s10639-020-10289-9

[4] Holden, H., and Rada, R. (2011). Understanding the influence of perceived usability and technology self- efficacy on teachers' technology acceptance. Journal of Research on Technology in Educa- tion, 43(4), 343-367. https://doi.org/10.1080/ 15391523.2011.10782576.

[5] Holmes, W., Bialik, M., and Fadel, C. (2021). Artificial Intelligence in Education: Promises and Implications for Teaching and Learning. Boston: Center for Curriculum Redesign.

[6] Islahi, F. (2019). Exploring teacher attitude towards infor- mation technology with a gender perspective. Con-temporary Educational Technology, 10(1), 37-54.

[7] Islam, M. S., and Alam, K. (2021). Faculty preparedness for technology integration in teaching: The case of universities in Bangladesh. International Journal of Educational Development, 81, 102334. https://doi.org/10.1016/j.ijedudev.2021.102334

[8] Kafyulilo, A. (2015). Challenges for teacher professional development in developing countries. International Journal of Education and Development using ICT, 11(1).

[9] Luckin, R., Holmes, W., Griffiths, M., and Forcier, L. B. (2016). Intelligence Unleashed: An argument for AI in Education. Pearson Education.

[10] Popenici, S. A. D., and Kerr, S. (2017). Exploring the impact of Artificial Intelligence on teaching and learning in higher education. Research and Practice in Technology Enhanced Learning, 12(1), 1–13. https://doi.org/10.1186/s41039-017-0062-8

[11] Razak, N.A., Jalil, H.A., Krauss, S.E., and Ahmad, N.A.(2018). Successful implementation of information and communication technology integration in Malaysian public schools: An activity systems analysis approach. Studies in Educational Evaluation, 58, 17-29.

[12] Rizvi, N. F., Gulzar, S., Nicholas, W., andNkoroi, B. (2017). Barriers in adopting blended learning in a private university of Pakistan and East Africa: Faculty members' perspective. MHealth, 3(5), 18. https:// doi.org/10.21037/mhealth.2017.04.04.

[13] Selwyn, N. (2019). Should robots replace teachers? AI and the future of education. Polity Press.

[14] Seo, K., Tang, J., Roll, I., Fels, S., and Yoon, D. (2021). The impact of Artificial Intelligence on learner- instructor interaction in online learning. International Journal of Educational Technology in Higher Education, 18(1), 1-23.

[15] UNESCO. (2022). AI and Education: Guidance for Policy-Makers. Paris: UNESCO Publishing.

[16] Unwin, T., Kleessen, B., and Hollow, D. (2020). Digital learning and teaching in developing countries: Challenges and opportunities. Comparative Education, 56(4), 515–532.

[17] Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. MIS Quarterly, 27(3), 425–478.

[18] Voithofer, R., and Cheng, S. L. (2019). Mediating factors that influence the technology integration practices of teacher educators. Computers and Education, 128, 330-344.

[19] Zawacki-Richter, O., Marín, V. I., Bond, M., and Gouverneur, F. (2019). Systematic review of research on Artificial Intelligence applications in higher education–Where are the educators? International Journal of Educational Technology in Higher Education, 16(1), 1–27. https://doi.org/10.1186/s41239-019-0171-0