
THE IMPACT OF AI ON LECTURERS IN HIGHER EDUCATION INSTITUTIONS

Assist. Prof. James Osondu

Sofia University “St. Kliment Ohridski”. Bulgaria

Abstract: This paper uses a descriptive research methodology to show the impact of AI on lecturers in higher education. The data used in this paper was from previously published scholarly papers. Firstly in the introduction, some instances of how AI is being used in education were pointed out and secondly some characteristics or roles of lecturers were pointed out and categorized. Thirdly, some instances of how AI is being used in education to help lecturers in carrying out their roles successfully include were pointed out and the effect of AI on specific lecturing characteristics were analyzed. And finally, the paper ends with Challenges and Concerns, A glimpse into the future of AI in education and a conclusion and references.

Keywords: AI, AI Tools, Lecturing.

JEL: O47, O33, D83, C88

Introduction

In the rapidly evolving education sector, artificial intelligence has emerged as a keystone innovation, revolutionizing the teaching, and learning process. Some examples of how AI is being used in education include:

- Humanoid robots in classrooms,
- AI tutors that personalize education,
- AI systems that enhance student learning experiences,
- AI tools equip teachers with powerful resources to meet the diverse needs of their students.

Therefore, based on the points, the Development of lecturers depending on AI cannot be overlooked. Moreover, the roles and responsibilities of college and university faculty members are closely tied to the central functions of higher education. Correspondingly, college and university faculty members undertake research, teaching, and service roles to carry out the academic work of their respective institutions. Each of these roles enables faculty members to generate and disseminate knowledge to peers, students, and external audiences. Therefore, advancements in AI are transforming education and creating new opportunities for both students and teachers. AI systems are transforming the way students learn by providing personalized and interactive educational experiences.

We examine the significant impacts of AI in crucial areas such as personalization, tutoring, and streamlining administrative tasks, thereby

transforming our current understanding of the education system. According to (Bangun, Sabaruddin & Valianto, Budi & Suharjo 2019) A lecturer has an important role in the repertoire of science, technology, and art. The main role of the lecturer, among others, is transforming, developing, and disseminating science, technology and art, which is framed in various activities of the Tridharma of Higher Education (Siregar, Zulkarnain & Lumbanraja, P. & Salim, S.R.A 2016) which include activities: (a) Carrying out education and teaching / learning; (b) Carry out research; and (c) Carry out community service and (d) Implement other supporting factors. According to the study by (Guterres, Antonio & Goncalves, Agostinho & Pereira, Sebastiao.,2025) there were four productivities through learning quality improvements: (1) Goal-Congruent Lecturers and College, (2) Learning System, (3) Lecturers' Paradigm, and (4) College Objectives Quality. Therefore, lecturers are always trying to improve their knowledge. The roles and responsibilities of college and university faculty members are closely tied to the central functions of higher education. Correspondingly, college and university faculty members undertake research, teaching, and service roles to carry out the academic work of their respective institutions. (Gupta 2022)

The following roles and characteristics of lecturers were pulled out from (Gupta 2022) and could be summarized into the following sets or groups namely:

a) Instructional Methods of lecturing, course preparation, exam preparation and assessment, curriculum preparation

b) Duty of a lecturer: Student Engagement, administration of students

c) Continuous Professional Development of the lecturer

d) Holding seminars and tutorials

In the rapidly evolving education sector, artificial intelligence has emerged as a keystone innovation, revolutionizing the lecturing and the learning process. Some examples of how AI is being used in education to help lecturers in carrying out their roles successfully include:

- Humanoid robots in classrooms,
- AI tutors that personalize education,
- AI systems that enhance student learning experiences,
- AI tools equip teachers with powerful resources to meet the diverse needs of their students.

The above advancements in AI are transforming education and creating new opportunities for both students and lecturers. AI systems are transforming the way students learn by providing personalized and interactive educational experiences.

In this paper, I will examine the significant impacts of AI in crucial areas such as personalization, tutoring, and streamlining administrative tasks,

thereby transforming our current understanding of the education system and the roles of a lecturer.

1. Personalized Learning via AI

The impact of AI-powered adaptive learning systems on student engagement and academic performance is significant (Atadoga et. al. 2024) ;(Dada et. al. 2024). Studies have shown that personalized learning experiences lead to increased student engagement, motivation, and academic achievement. By providing students with individualized instruction and support, AI-powered adaptive learning systems can help them reach their full potential and succeed academically. In conclusion, AI-powered adaptive learning systems offer personalized learning experiences that cater to individual student needs. By analyzing student performance data and creating customized learning paths, these systems can improve student engagement, motivation, and academic performance (Huang, Lu & Yang 2023) ;(Okogwu et. al. 2023).

Another important aspect of personalized learning through AI is its ability to provide immediate and targeted feedback to students (Ambele et. al. 2022) ;(Olatoye et. al. 2024). AI-powered systems can analyze student responses to quizzes, assignments, and other assessments in real-time, providing instant feedback on their performance.

One of the key benefits of personalized learning through AI is its ability to accommodate diverse learning styles and needs (Olurin et. al. 2024).

it has been documented that AI-powered tools, such as intelligent tutoring systems and adaptive learning platforms, have the potential to enhance personalized learning experiences (Liu et al. 2022). These systems can analyze student data, provide tailored feedback, and recommend individualized learning pathways, allowing lecturers to address the diverse needs of students more effectively. Even though a lot of advancement has been done recently here, according to (Agatova, Olga & Latipova, Liliya. 2025) there is still a need to develop AI tools for educational purposes.

2. Intelligent Tutoring and Support

Intelligent tutoring systems, a significant advancement in AI education, provide unparalleled support for student learning. By providing real-time assessment and intelligent feedback, these AI tutors help students navigate the complexities of new material, acting as an always-on resource that supplements traditional teaching methods.

Intelligent tutoring systems are computer-based educational systems that provide immediate and personalized instruction or feedback to learners, usually without intervention from a human teacher.

3. Modifying Teaching Methodologies

Artificial Intelligence (AI) is transforming teaching methodologies by providing educators with innovative tools and techniques to enhance

instruction, streamline administrative tasks, and foster critical thinking skills among students (Al-Hamad et. al. 2023) (Kaggwa et. al. 2024).

This review explores the role of AI in reshaping teaching methodologies, focusing on its impact on instructional design, feedback mechanisms, and student engagement. AI-powered tools are revolutionizing the way lecturers manage administrative tasks such as grading, lesson planning, and student assessment. For example, AI-powered grading systems can automatically score assignments, quizzes, and exams, saving educators valuable time and reducing the burden of manual grading.

Similarly, AI-powered scheduling tools can help educators efficiently organize their teaching schedules, allocate resources, and coordinate activities

AI-powered tools can also assist educators in personalizing learning experiences for students. These tools can analyze student performance data to identify areas where individual students may need additional support or enrichment (Ali et. al., 2024), (Usman et. al. 2024). For example, AI can recommend specific resources or activities to help struggling students grasp difficult concepts, while providing advanced materials to students who are excelling. This personalized approach to learning can help ensure that all students are challenged at an appropriate level and can reach their full potential.

4. Transforming Assessment

Assessment is a critical component of the education process, providing educators with valuable insights into student comprehension, learning progress, and instructional effectiveness (Matitaputty et al. 2024). Artificial Intelligence (AI) is revolutionizing assessment practices by offering innovative tools and techniques that enhance the efficiency, accuracy, and personalization of assessments. This review explores the role of AI in revolutionizing assessment, focusing on AI-powered assessment tools, real-time analysis of student responses, and insights into student comprehension and learning progress

5. Organizational Optimization

Administrative processes are integral to the efficient functioning of educational institutions, encompassing tasks such as student enrollment, scheduling, and resource allocation (Muhabbat et al. 2024). Artificial Intelligence (AI) has emerged as a powerful tool for optimizing these administrative processes, offering benefits such as increased efficiency, improved accuracy, and enhanced decision-making. This review explores the role of AI in administrative optimization, focusing on its application in student enrollment and scheduling, resource allocation and management, and overall efficiency and effectiveness in educational institution management.

6. Administrative Efficiency: AI can streamline administrative tasks for lecturers. Automated grading systems can assess assignments and provide

immediate feedback, reducing the time spent on manual grading (Grainger et al., 2020). Additionally, AI-powered tools can assist with course scheduling, student support, and other administrative duties, freeing up lecturers' time for more meaningful interactions with students and research activities (Onifade et al. 2015); (Ankamah 2019).

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7. Information Analysis and Research Support: Studies have indicated that AI enables lecturers to conduct research more efficiently by automating data analysis processes (Manser Payne et al. 2021). Besides, literature (Roh et al. 2021) have highlighted that machine learning algorithms can analyze large datasets, identify trends, and generate insights, enabling lecturers to make more informed decisions and accelerate the research process.

8. Content Creation and Delivery: AI technologies have facilitated the creation and delivery of educational content. Natural language processing and machine learning algorithms can automate the generation of instructional materials, assessments, and even online courses (University Science Technology et al. 2017). Lecturers can leverage these tools to save time, ensure content consistency, and enhance the overall learning experience (Arslantas 2022).

9. Collaboration and Networking: AI-based collaboration tools and platforms facilitate communication and collaboration among lecturers and researchers. According to (Mawhinney 2020), virtual meeting platforms, chatbots, and intelligent assistants can enhance real-time collaboration, document sharing, and knowledge exchange. These tools enable lecturers to connect with colleagues globally, enhancing research collaboration and fostering interdisciplinary approaches (Renwick 2011), (Oladele et al. 2022).

10. Ethical Considerations: The literature highlights the importance of addressing ethical considerations associated with AI in education (Chang et al. 2022). Lecturers need to be mindful of issues such as data privacy, algorithmic bias, and the ethical use of AI in assessment (Kasneci et al. 2023). It is crucial to ensure transparency, fairness, and accountability in the design and implementation of AI systems to uphold ethical standards.

11. Lecturers' Roles and Skills: While AI can automate certain tasks, it is recognized that lecturers' expertise, guidance, and mentorship remain critical for effective teaching and research (Al-Sharafi et al. 2022). Lecturers need to develop new skills, such as data literacy, to leverage AI effectively and adapt to the changing educational landscape (Chang Hwang et al. 2022).

12. Collaborative Filtering and Recommender Systems: studies have indicated that AI driven recommender systems are able to make

recommendations for pertinent readings, research papers, and resources depending on the interests and learning curve of each individual student (González González et al. 2019). These tools enable lecturers to create personalized reading lists, suggest further readings, and encourage independent study on subjects linked to their courses or studies (González-González et al. 2019).

Challenges and concerns

Artificial Intelligence (AI) has the potential to revolutionize education by enhancing learning experiences, personalizing instruction, and optimizing administrative processes (Igbokwe 2023) ;(Tan 2023). However, the widespread adoption of AI in education also raises several challenges and concerns that need to be addressed (Uwaoma et. al. 2023). This review explores the key challenges and concerns of revolutionizing education through AI, focusing on data privacy and security, algorithmic bias, and the need for teacher training and support. One of the primary concerns associated with the use of AI in education is data privacy and security. AI systems often rely on vast amounts of student data to personalize learning experiences and make informed decisions. However, this data can be sensitive and must be protected against unauthorized access, misuse, and breaches. Educational institutions must implement robust data protection measures, such as encryption, access controls, and data anonymization, to safeguard student data and ensure compliance with relevant privacy regulations.

A glimpse into the future of AI in education.

As AI continues to evolve and transform various industries, its impact on education is becoming increasingly profound (Ajayi-Nifise et al. 2024); (Mohamed Hashim et al. 2022). The integration of AI into educational systems has the potential to revolutionize learning experiences, personalize instruction, and optimize administrative processes. However, to fully realize the benefits of AI in education, several key challenges must be addressed. This review explores the future directions of revolutionizing education through AI, focusing on addressing challenges to maximize AI's potential, ensuring equitable access to quality education, and exploring the potential of AI to continue transforming education.

Conclusion

Revolutionizing Education Through AI: A Comprehensive Review of Enhancing Learning Experiences has highlighted the transformative potential of AI in education. This review has explored how AI is reshaping teaching methodologies, revolutionizing assessment, and optimizing administrative processes. It has also examined the challenges and concerns associated with

AI in education, such as data privacy, algorithmic bias, and the need for teacher training.

In conclusion, AI has the power to revolutionize education by enhancing learning experiences, reshaping teaching methodologies, and optimizing administrative processes. While there are challenges to overcome, the potential benefits of AI in education are immense. By embracing AI and leveraging its capabilities, educators can create a more effective, efficient, and inclusive education system for all learners

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Assist. Prof. James Osondu

ORCID ID: 0009-0003-4730-2970

Sofia University “St. Kliment Ohridski”

Sofia, Bulgaria

E-mail: josondu@feb.uni-sofia.bg