Exploring the Influence of Artificial Intelligence on Higher Education: Case study in University of Brighton

Greta Jani[1]

Doliana Celaj[2]

[1]Department of Albanian Languages,
Faculty of Education,
"Aleksander Moisiu" University,
Durres, Albania
[2]Bayswater College,
England

Abstract

One of the most discussed and investigated topics in the educational field nowadays is the use of artificial intelligence (AI). This article aims to shed light on the use and effects of artificial intelligence (AI) on higher education. It also explores various studies to analyze the impact of AI tools keeping in view the University of Brighton. The effects of AI on grading and assessment along with learning and teaching processes in examined in this study. Using the qualitative approach of research based on a case study analysis, this paper investigates the use of AI in various aspects of education. It also presents an extensive literature review to support the evidence. The results and findings of this paper highlight that artificial intelligence should be used more extensively in higher education so that it may prove to be helpful in developing new skills for students.

Keywords: Artificial Intelligence (AI), University of Brighton, Higher Education, Learning and Teaching, Impact, Challenges, Opportunities

1. Introduction

Artificial Intelligence (AI) has been growing rapidly and has become an important component of the fourth industrial revolution. In the education sector, the use of AI holds particular prominence as it has revolutionized learning, teaching, and administration processes in higher education institutions (V, et al., 2021 p.10424).[i] The University of Brighton is one of the leading institutions in the world that focuses on the use of AI. It believes in enhancing its operational and academic efficiency through technological evolution. The University of Brighton was established in the year 1859 and it is known for its commitment to academic excellence, social impact, and innovation (Times Higher Education, 2024).[ii] The university has successfully embraced advancements in science and technology to improve its student experience and quality of education.

The idea of artificial intelligence grew in the mid-20th century when experts like Alan Turing

proposed the theoretical framework for machine intelligence (Mahajan, 2023).[iii] With the passing years, the use of AI has become practical with advancements in data science, algorithms, and computing power in different areas. The question of whether or not AI can effectively succeed in standardizing teaching methods while keeping up with the progress of higher education is currently drawing much attention. Considering the positive and negative sides of AI in the context of higher education at the University of Brighton is an intricate issue that requires close scrutiny. The other side may bring success in creating a context where student results will be enhanced, administration procedures will be improved, and the learning process and teaching practice will be personalized. On the one hand, however, the use of AI technologies in higher education could pose the same issues as those of data privacy, job displacement, and ethics. Therefore, the role of AI in higher education should relate to the learning, research, and administration of the university.

The present study will critically analyze the application of artificial intelligence in higher education, specifically focusing on the University of Brighton as an instance of its usage.It also aims to examine the challenges, benefits, and ethical concerns related to the use of AI in higher education. Also, it provides recommendations for the effective use and implementation of AI in higher education. This article holds crucial implications for stakeholders of higher education comprising educators, policymakers, students, universities, and providers of technology. By assessing the impact of AI on the learning, administration, and teaching processes of the University of Brighton, this study sheds light on the challenges and opportunities linked to artificial intelligence in higher education. Through this study, institutional effectiveness and educational outcomes can be enhanced through proper curriculum design, strategic decision-making, and policy development using AI.

2. Literature Review

2.1 The Role of AI in Higher Education

Including higher education, the transformative evolution of Artificial Intelligence (AI) has the impending power to revolutionize every digital or automation sector (Abgaryan, et al., 2023 p.80).[iv] The introduction of AI in not only administrative but also learning and teaching methods across the world has been explored by universities worldwide. The current section will provide an overview of the secondary information available when it comes to the application, implications, and potential challenges of integrating AI in higher education.

2.2 AI Applications in Higher Education

AI technologies have revolutionized higher education through different operations, whether it is automating administrative operations or executing personalized learning plans. The primary use of AI observed so far in higher education is to create learning systems that can adapt to creating content and methods for individual students (Pedro, 2019).[v] The purpose of such systems is to target the area in which particular students are lacking with the help of algorithms and machine learning, and subsequently provide interventions in those areas.

Furthermore, there is also a rise in the use of Chatbots, which offer students personalized responses to help them select courses and provide assisting material and learning resources. These chatbots offer real-time assistance in helping students act as virtual tutors and offer real-time feedback on assignments adding a new dimension to traditional teaching methods and reducing the time consumption of teachers in extra activities.

Similarly, when it comes to administrative functions, AI can be used to automate tasks like student enrolments, scheduling class timings, selecting specific courses, and academic advising. The systems and databases formed with the help of AI technologies can help in time reduction, avoiding bottlenecks, and reducing workload to improve efficiency when it comes to critical decision-making and allocating financial resources.

E-ISSN 2240-0524
ISSN 2239-978X

Journal of Educational and Social Research
www.richtmann.org

Vol 14 No 4
July 2024

2.3 Benefits of AI in Higher Education

If AI technologies are integrated properly in higher education, it can result in result in huge benefits not only for students but also for institutions and teachers working there. The introduction of personalized learning pathways and support for individual interactive learning methods are the primary benefits that AI is providing these days. Every student is different with different needs, AI-powered systems analyze individual results and identify hot spots of weaknesses that can be improved with the help of Adaptive learning systems. These adaptive learning systems then tailor instructional and helping learning material to address those specific needs.

Moreover, with the help of interactive sessions by creating engaging learning material based on student interaction, AI technologies can help in improving the understanding of basic concepts. The course content can also be retained for a longer period of time with the help of AI algorithms Augmented and Virtual Reality, which can help in simulating real-world scenarios (Khan, et al., 2021 p. 139).[vi]

The decision-making processes of educational institutions can also be improved with the help of AI, which can result in improved operational efficiency and resource allocation. AI-powered data analytics tools can help in the understanding of trends and predict future events based on probability after analyzing large portions of historical data.

2.4 Ethical Considerations and Challenges

Despite the benefits of AI and its integration into Higher education, it still poses challenges and has ethical questions attached to its potential adoption. The primary concern in the adoption of AI-powered systems is the potential bias one can integrate AI-powered algorithms, which can lead to discrimination. Such biases can result in unfair treatment of certain sections of students which in many cases can only intensify the already existing inequalities.

Furthermore, the questions of privacy are associated with AI-driven technologies which can cause potential security concerns in educational institutions (Shwedeh, et al., 2024 p.212).[vii] AI technologies for personalized systems usually require personal information which raises concerns over transparency and ethical use of student's data. The need for better security and robust system for data protection is needed in every institution that employs AI-powered systems for their management and educational planning.

The institution may introduce a technology whether the workforce in the system is ready for its adoption or not. Professional development and pieces of training for both faculty and staff are the need of the hour if institutions want to implement AI-powered technologies in the management and learning systems. There is also a challenge of human replacement as certain jobs will be replaced by AI technologies that were usually performed by people, which will require learning and adopting new skills for the existing staff in order to keep up with the change.

2.5 Impact of AI on Teaching and Learning Processes

The use of AI is increasingly growing and it is influencing the teaching and learning processes in higher education. Immediate support is provided to students through the use of chatbots and AI-powered virtual assistants. Any queries related to assignments or other course contents can be addressed with 24/7 accessibility (Ocaña-Fernández, et al., 2019 p.561).[viii] There are various learning analytics tools that help in tracking the progress of students and predict their performances in the future. Such tools can also prove to be helpful for refining teaching strategies and optimizing curriculum designs.

Thus, the information that has been discussed in this section lays emphasis on the benefits, challenges, potential applications, and ethical considerations with regard to the use of AI in the field of education. If AI is used effectively in the educational field, it would bring an immense

E-ISSN 2240-0524
ISSN 2239-978X

Journal of Educational and Social Research
www.richtmann.org

Vol 14 No 4
July 2024

improvement to the teaching and learning methods. But this also requires proper management so that the related risks can be avoided. However, artificial intelligence can make the learning environment better and also make the learning process student-centered and more inclusive.

3. Methodology

3.1 Research Design

The three most common research design techniques are quantitative, qualitative, and mixed-method design. This article employs the mixed-method approach as it analyzes a case study to examine the impact of artificial intelligence on higher education at the University of Brighton. This includes the methodical approaches and diagrams used in the case study that are examined to enhance the transparency and credibility of the article.

3.2 Research Method

A suitable research method helps increase familiarity with the theme and topic and elucidates comprehension. Three common methods of research are used to collect information and clarify the basis of the outcomes of the study. These research methods are exploratory, empirical, and constructive research methods.

The exploratory research approach is employed to ascertain and convey the primary concept and subject matter of the study. This approach is especially helpful when studying a topic that is unknown or poorly understood. In this study, exploratory research is used to explore students' perceptions of AI integration in higher education. This study involved interviewing and holding focus groups with students and teachers to get preliminary information and pinpoint important themes and issues.

The constructive research method provides explanations for the research and evaluates models for addressing the research question. It is often used to develop and test theories or frameworks that can solve specific problems. In this study, with the help of educators and technology providers, a new AI-driven learning system was developed, designed to provide personalized learning experiences for students. This system included features such as adaptive learning paths, instant feedback, and tailored study materials based on individual student performance and learning styles. To systematically evaluate the efficacy of this AI-driven tutoring system, a pilot study was conducted at a university in Brighton. The study included two groups of students enrolled in the same course: one group experienced traditional pedagogical methods, while the other group utilized the newly implemented AI-driven tutoring system. The study collected data on several key metrics, including.

- Student engagement: Measured through attendance, participation in discussions, and time spent on learning activities.
- Learning outcomes: Assessed via test scores, assignment grades, and overall course performance.
- Student satisfaction: Gathered through surveys and feedback forms to understand students' perceptions of the tutoring methods.

By comparing the data from the two groups, the study assessed the model's effectiveness in addressing the research issue.

The empirical research method is used to explain the validity of the research using actual data and facts. As the main objective of this article is to explore the influence of artificial intelligence on higher education, this study uses the exploratory method of research. To test theories or provide answers to research problems, this approach required the gathering and analysis of data. The study gathered and evaluated data from academic records before and after the introduction of AI tools in the curriculum, using statistical methods to identify any significant differences. This allowed the

study to empirically evaluate the influence of AI on student performance.

3.3   Research Philosophy

Research philosophies include pragmatism, positivism, interpretivism, postmodernism, and critical realism. Critical realism was adopted in this study since it focuses on reality-based explanations (Lawani, 2021, p. 324). It also shows how to utilize quantitative tools to analyze qualitative data to discover what individuals know. Critical realism research may explain daily actions and consequences, addressing questions about how and why things happen. Critical realists describe social reality as the certainties that give rise to the actualities and processes we perform and examine. Critical realists believe social science can learn more about the world and make solid assertions about it, but these claims are susceptible to change, history, and development.

3.4   Data Collection Method

The practice through which information is gathered and measured is known as the data collection method. Researchers usually use primary and secondary data collection techniques. The data in this study has been collected using secondary sources of information along with analyzing a case study related to the proposed research topic. The secondary sources of information include books, journal articles, periodicals, newspapers, and internet stories. Also, the survey undertaken by Zouhaier Slimi at the Deusto University-Spain is used as a source of data collection.

3.5   Data Analysis

3.5.1 Thematic Analysis

The main strategy used for analyzing the collected data in this study is thematic analysis. It provides an overview of the research and information on several themes related to the study (Neuendorf, 2018 p.215).[ix] The analysis explores the use of AI in higher education by focusing on the key themes, opportunities, and challenges that have been identified through the case study, document review, and other secondary sources.

3.5.2 Enhancing Educational Outcomes

The use of AI technologies in higher education at the University of Brighton is guided by strategic initiatives and it aims to enhance the outcomes of education and operational efficiency. The commitment of the university to use artificial intelligence for administrative automation, data-driven decision-making, and personalized learning is highlighted by strategic project reports and plans.

3.5.3 Transforming Education and Improving Learning

Among the basic reasons for integrating AI in higher education is due to its ability to transform learning methods and teaching techniques. The teaching infrastructure driven by artificial intelligence tailors' educational activities and resources to each student's unique requirements and how they want to learn. The interaction and interviews of the Majority of staff in almost every institution suggest that they are enthusiastic about AI solutions that support dynamic and engaging systems for students. Chatbots based on artificial intelligence-based algorithms, for example, deliver students personalized instruction as well as course-related help in real-time, which adds towards the conventional teaching approaches.

To guarantee fair and equal academic prospects for every student, issues like computational biases and moral difficulties need resolving, showing the necessity of unbiased AI algorithms that are

E-ISSN 2240-0524
ISSN 2239-978X

Journal of Educational and Social Research
www.richtmann.org

Vol 14 No 4
July 2024

agreed upon by a committee and strong management structures.

3.5.4 Managing Resources and Improving Efficiency

If we take the example of the University of Brighton, AI technology is used there to simplify operational tasks outside of the classroom. Computerized academic timetables, educational counseling, and enrolling students in new programs and courses along with other administration solutions save operational workloads and boost productivity. Operational departments' data analytics reveal how AI technologies are integrated into planning systems based on availability and predictive methods, allowing educational institutions to analyze data more quickly and make better decisions.

Notwithstanding the advantages, questions regarding the confidentiality and safety of data are always there, leading to conversations regarding the appropriate collection, retention, and usage of private data in systems that are operated by AI-driven algorithms.

3.5.5 Supporting the Technical Systems

The effective adoption of AI always requires a solid intellectual base along with continuous assistance and it would not have been possible if these two were not already present at the University of Brighton. A strong IT team or technical team is extremely important if an institution wants to guarantee AI systems' interoperability, dependability, and flexibility between different stages and operations. IT employee interviews emphasize the need for ongoing professional help and growth to improve technical competence and realize the full value of AI technology in educational institutions.

3.5.6 Ethical Considerations and Potential Challenges

Even if AI has great potential to improve learning methods and streamline operations, there are a number of obstacles and moral issues that need to be taken into account. There are always certain groups in every institution that face institutional and societal biases, these groups may be disadvantaged by discrimination in AI systems due to factors such as gender, color, or income level, which might increase traditional gaps. Stakeholder interviews highlight the significance of inclusion and multiculturalism in the growth of AI to reduce prejudice and provide appropriate access irrespective of color, race, or financial status.

Furthermore, proactive approaches to improving the abilities of staff members are necessary in light of issues related to loss of employment among university workers as a result of AI integration (Jia, et al., 2024 p.8).[x] Academics voice concerns over artificial intelligence's potential to supplant conventional teaching positions, highlighting the significance of teaching methods that appeal to human emotions and the moral ramifications of AI implementation in learning environments.

4. Recommendations and What does the Future Hold?

Participants at the University of Brighton are aware that in order to meet the new demands of the changing environment and grasp chances for a change in the educational environment, continuous innovation and development in AI are necessary. The suggestions include developing multidisciplinary partnerships to investigate AI algorithm-making in developing systems for studies and development of new modules, raising the level of AI knowledge among teachers, learners, and executives, including laying down precise rules for the moral use of Artificial intelligence (Pisoni & Díaz-Rodríguez, 2023 p. 112).[xi]

In order to develop ethical artificial intelligence laws and procedures that put the safety of private information, fairness in the grading process, and social equality first, participants also support ongoing communication and interaction with the larger discussion panels of the university, business collaborators, and legislators.

In summary, an intricate environment of potential, problems, and moral issues is shown by the University of Brighton's case study of integrating artificial intelligence in colleges and universities. The application of AI-based systems necessitates a thorough evaluation of moral standards, a strong understanding of technology, and organizational preparation even if they have the potential to improve learning environments and administrative setups. The University of Brighton can establish a reputation as a pioneer in AI-driven development in educational institutions by aggressively and cooperatively tackling these problems and establishing welcoming, fair learning experiences that equip individuals for the requirements of the 21st century.

5. Results

The analysis of the selected article shows that a qualitative method of investigation has been used. It also used a survey that comprised ten questions and targeted an audience that comprised higher education students, decision-makers, academic staff, and managers. The total number of participants was 92 among which 30 were women and 62 were men. The results of the survey showed that artificial intelligence will have a significant impact on several areas of higher education such as teaching, and learning methods, grading and assessing, careers of future graduates, and skills necessary for future work.
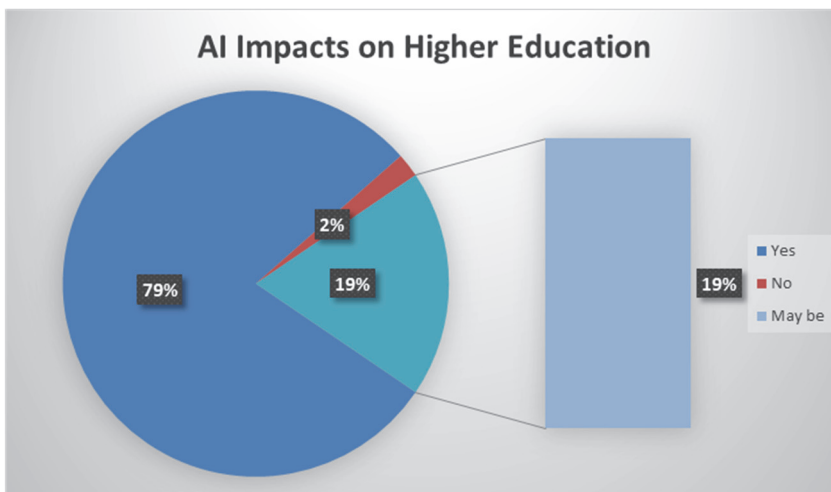

Figure 1:

Relating to the idea of the effects of AI on higher education, the results reveal that 79% of the participants strongly agree that artificial intelligence affects higher education. However, 19% of the participants think that it may or may not affect the higher education system, while only 2% are of the view that AI will not impact higher education at all. Therefore, the results of the survey clearly support the literature review and reinforce the idea that artificial intelligence has a significant impact on higher education.

6. Discussion

The results and findings of the study are interpreted in the light of the existing literature are interpreted in the discussion section and it also examines the implications of using AI for higher education institutions. It also helps to explore the potential of artificial intelligence to foster

innovation, transform learning and teaching processes, and enhance the efficiency of higher education institutions. However, there are critical concerns related to this matter such as the need for faculty development, ethical considerations, and equity issues. The discussion also sheds light on the role of leadership of the university in developing a collaborative and innovative culture, and in driving AI initiatives.

It is essential for institutions to implement programs for comprehensive AI literacy that would be beneficial for both teachers and students and enhance their understanding of AI technologies (Kizilcec, 2024 p.14).[xii] It would be more beneficial to offer online courses, seminars, and workshops for promoting digital fluency and the use of AI tools in learning and teaching processes.

Colleges and other higher education institutions need to formulate clear and robust ethical standards for using and creating AI tools in the eLearning context. It is necessary for the departments of education, computer science, and ethics to come together with their coordinates tailed in AI tools to include them in education. The influence of AI on the learning outcomes of students, supervisors, and the workload of instructors should be tracked in order to prevent misuse of these technological advancements.

7. Conclusion

AI applications in higher education at the University of Brighton offer a remarkable chance that will lead to learning, teaching, and an administrative revolution. In the process of respecting ethical considerations and using AI tools objectively, the combination of the new methods and tools leads to a better environment for learning with students as a focus and including them all. Nevertheless, there are various issues associated with this that may include privacy intrusion, job displacement conditions, and biased algorithms. The institutional e-learning system in the university is also evidence of AI application, and we are trying to lead in this by exploring the AI technologies and tools employed, and we intend to facilitate the faculty, improve the operation, and empower students. AI as a positive change tool may be promoted at the at the university through the creation of a collaboration culture, observance of ethical requirements, and innovation development. In this way, legacy can be a big equalizer and also a breaker of existing trends and stagnation by improving the education system for generations to come.

References

135. Neuendorf, K. A., 2018. Content analysis and thematic analysis. Advanced research methods for applied psychology, pp. 211-223.

Abgaryan, H., Asatryan, S. & Matevosyan, A., 2023. Revolutionary changes in higher education with artificial intelligence. Main Issues Of Pedagogy And Psychology, 10(1), pp. 76-86.

Jia, N., Luo, X., Fang, Z. & Liao, C., 2024. When and how artificial intelligence augments employee creativity. Academy of Management Journal, 67(1), pp. 5-32.

Khan, H. et al., 2021. Education system for Bangladesh using augmented reality, virtual reality and artificial intelligence. IEEE, pp. 0137-0142.

Kizilcec, R. F., 2024. To advance AI use in education, focus on understanding educators. International Journal of Artificial Intelligence in Education, 34(1), pp. 12-19

Lawani, A., 2021. Critical realism: what you should know and how to apply it. Qualitative research journal, 21(3), pp. 320-333.

Mahajan, S., 2023. Artificial Intelligence and its Impacts on the Society. Contemporary Social Sciences, 32(4), p.

Ocaña-Fernández, Y., Valenzuela-Fernández, L. A. & Garro-Aburto, L. L., 2019. Artificial Intelligence and Its Implications in Higher Education. Journal of Educational Psychology-Propositos y Representaciones, 7(2), pp. 553-568

Pedro, F. M. S. A. R. a. P. V., 2019. Artificial intelligence in education: Challenges and opportunities for sustainable development, s.l.: s.n.

Pisoni, G. & Díaz-Rodríguez, N., 2023. Responsible and human centric AI-based insurance advisors. Information Processing & Management, 60(3), pp. 103-121.

Shwedeh, F. et al., 2024. AI Adoption and Educational Sustainability in Higher Education in the UAE. In Artificial Intelligence in Education: The Power and Dangers of ChatGPT in the Classroom, pp. 201-229.

Times Higher Education, 2024. University of Brighton | World university ranking. [Online] Available at: https://www.timeshighereducation.com/world-university-rankings/university-brighton#:~:text=The%20University%20of%20Brighton%20can,gained%20university%20status%20in%2019 92.

V, K. et al., 2021. Exploring opportunities and challenges of artificial intelligence and machine learning in higher education institutions.. Sustainability, p. 10424.