

Implementing AI in Higher Education – Qualitative Inquiry on International Students’ Perspectives

Alina Iorga Pisica¹ and Rodica Milena Zaharia²

¹⁾²*Bucharest University of Economic Studies, Bucharest, Romania.*

E-mail: maxdirectconsulting@yahoo.com; E-mail: milena.zaharia@rei.ase.ro

Please cite this paper as:

Iorga Pisica, A. and Zaharia, R.M., 2024. Implementing AI in Higher Education – Qualitative Inquiry on International Students’ Perspectives. In: R. Pamfilie, V. Dinu, C. Vasiliu, D. Pleșea, L. Tăchiciu eds. 2024. *10th BASIQ International Conference on New Trends in Sustainable Business and Consumption*. Almeria, Spain, 6-8 June 2024. Bucharest: Editura ASE, pp. 388-394

DOI: 10.24818/BASIQ/2024/10/038

Abstract

This study aims at exploring university students’ perspectives on Artificial Intelligence (AI) implementation in Higher Education institutions (HE), focusing on the positive and negative aspects of AI use. Twenty-seven international students from six universities from Georgia, Italy, the Netherlands and the UK, specialising in Applied Mechatronics, Business Information Technology, Computer Science and Engineering and Social Sciences and Humanities, expressed their views on the implementation of AI in HE, highlighting the potential benefits, while at the same time, revealing their concerns about this process. Qualitative research methods using an online open-questions guide was employed to achieve the purpose of the study. The findings of the study indicate students’ favourable attitude towards working with AI for educational, professional, or personal reasons and their perspectives on the potential negative implications that may arise. The results suggest that AI has not only the inherent capacity for reshaping the learning experience and the educational landscape in general, but also for changing society’s ethical attitudes in a negative way. The findings of the study align with recent literature on the topic, offering educators, AI developers and policy makers a springboard to develop and sustain individuals’ performance in accordance with the requirements of the digital era, while remaining vigilant about the threats it poses. This study can lead to a better understanding of the technological challenges posed by a human-intelligent machine alliance.

Keywords

Artificial Intelligence , Higher Education, international students’ perspectives, qualitative research.

DOI: 10.24818/BASIQ/2024/10/038

Introduction

Artificial Intelligence has generated a lot of academic debate, proportionately to the proliferation of AI tools that professors and university students use in their educational activities, due to the cost-free and widespread availability of different software, which enables users to personalise teaching and learning, to be time-efficient, to access resources instantly and conveniently and to develop the highly sought-after digital skills which 21st century job market requires in terms of employability prospects (Crompton and Burke, 2023; Pisica et al., 2023; Wang et al., 2023). Nevertheless, the drawbacks of AI use are imminently highlighted, as there is increasing evidence of its negative impact, since this field is relatively new and the consequences of AI implementation cannot be properly weighed yet (Chan and Hu, 2023; Pisica et al., 2023). Artificial Intelligence is changing the landscape of today’s society and universities are challenged to either harness this technology so that they could gain strategic advantage to upskill their students or fail to adopt new technological trends and consequently lose this competitive advantage (Bates et al., 2020; Pisica et al., 2023).

This study incorporates views and perspectives of international university students, by analysing the positive and negative factors, which impact AI implementation in Higher Education, inferred from the responses of twenty-seven international students from six European universities located in Georgia, Italy, the Netherlands, and the UK, specialising in Applied Mechatronics, Business Information Technology, Computer Science and Engineering and Social Sciences and Humanities. This article consists of the

following sections: literature review on students' perspectives on AI implementation, it continues with methodology, and it finally presents the findings, the results, and the limitations of the study. Despite its qualitative nature, this study contributes to a better understanding of students' perspective on AI, helping HE stakeholders to design guidelines and strategies for curricula development, for academic staff training and to develop ethical protocols, safe-guarding AI implementation.

1. Review of scientific literature

AI is the use or study of computer systems or machines that have some of the qualities that the human brain has, such as the ability to interpret and produce language in a way that seems human, recognize or create images, solve problems, and learn from data supplied to them (Cambridge Online Dictionary).

AI in education is one of the fields impacted by technology and innovative tools and solutions are emerging with the purpose of identifying gaps in learning, improving educational content, and ultimately leading to academic success (Bates et al., 2020).

The educational sector benefits from AI curriculum, which enables students to progress faster and more efficiently so that their learning goals are achieved at a pace in accordance with the ever-changing demands of 21st century and the increase in the international student market is considered to be the pillar reason to accept AI implementation (Holmes et al., 2022). Consequently, universities need to concentrate on the resources linked to the “infrastructure and on the support offered to students in order to gain knowledge about how to make use of AI efficiently” (Duffett et al., 2024).

AI can facilitate the process of learning. Chatbots and digital techniques for personalising and adapting learning to characteristics or needs of groups or individuals directly help the process of learning (Bates et al. 2020; Zhai, 2022), not to mention the support offered with data collection and analysis when students conduct research (Chan and Hu, 2023). What is more, information and communication technology (ICT) solutions enhance the educational process through “borderless, virtual education” (Pucciarelli and Kaplan, 2016) and HE institutions become international providers and, to survive and flourish, they need to approach the digital learning environment with a different mindset so as to develop dynamic and competitive strategies (Pucciarelli and Kaplan, 2016). Furthermore, AI can enhance operational efficiency through task automation of key administrative areas, facilitating enrollment and registration processes (Chen et al. 2020; ,21).

Nonetheless, AI can also generate harmful effects, risks and challenges. Universities should “thoroughly” explain “the risks associated with AI implementation” and clarify “personal data and privacy issues” (Duffett et al., 2024).

Therefore, proper control over it is mandatory and close monitoring, rules and legislation are bound to be issued to avoid breach of ethics, privacy dilemmas, AI autonomous decisions and biases (Bhutoria, 2022; Zhai, 2022). Concerns about the accuracy of artificially-generated content are frequently expressed (Chan and Hu, 2023), since the validity of the information cannot always be guaranteed. Additionally, AI refined tools may lead to the replacement of professionals in different fields (Zhai, 2022) despite their “higher professional status” (Guerriero, 2017), which is perceived as a threat to the career development of future generations (Chan and Hu, 2023). What is more, the detrimental effects of totally relying on AI content can clearly be outlined. AI tools are “not able to separate original data from artificial data”, therefore this generates “hallucinations” (Pires, 2023). As a consequence, the internet might be “pervaded with low-quality, synthetically generated content” (Open Strategy, 2024). Subsequently, students using AI-based learning tools may rely on the inaccurate content, thus losing their own ability to learn and produce original content, in addition to becoming uninterested and bored with the educational process (Phan, 2023).

2. Research methodology

The present study employs qualitative research (Saldaña, 2013) exploring the perspectives of twenty-seven international students studying at 6 universities from 4 European countries: Georgia, Italy, the Netherlands and the UK. The research involved an online open-questions guide, using Google Forms. Each respondent was informed about the academic purpose of data collection and all ethical guidelines of data privacy were followed. The study was conducted between January 2024 and March 2024.

This work is part of a larger study, based on similar qualitative research methodology that involves the perspectives of different HE stakeholders (Pisica et al., 2023).

Two main questions were asked 1) What are, in your opinion, the advantages and the opportunities of implementing AI in Higher Education? and 2) What are, in your opinion, the disadvantages and the threats of implementing AI in Higher Education?

The respondents' opinions were codified by the researchers and the codes emerged "through shared interpretation and understanding of the phenomenon" (Saldaña, 2013). The coders discussed the themes and an agreement on the relevance of the topics was reached (Saldaña, 2013). The interpretation followed "paper and pencil" approach (Björk, 2012) as the total number of responses was manageable.

As the sample of students is quite limited, no comparisons (specialisation, gender, countries, etc.) have been considered.

The results should be interpreted from an exploratory perspective.

3. Results and discussion

The study highlights positive and negative aspects of AI implementation, students perceiving AI tools as valuable, acknowledging their various benefits in terms of personalised learning, but, at the same time, they understand the negative implications, concerning ethical issues and privacy. The positive and negative aspects identified and the codes generated by the students' responses are presented in Figure no. 1 and Figure no. 2 below.

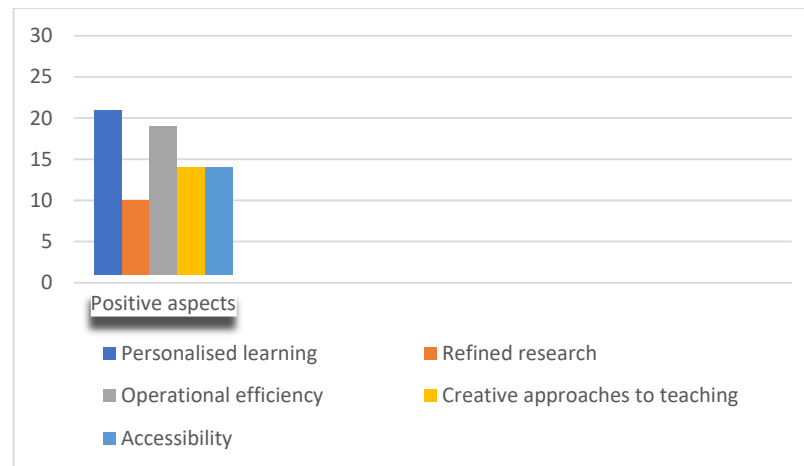


Figure no. 1. Positive Aspects of AI Implementation in Higher Education

Source: Own research

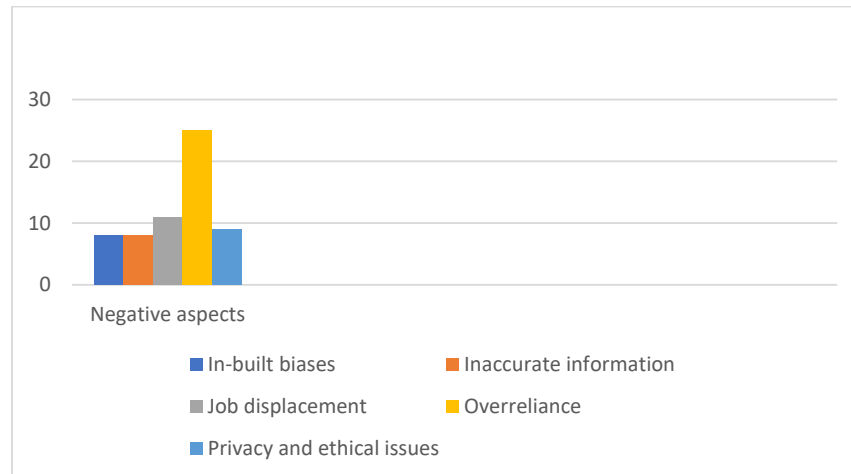


Figure no. 2. Negative Aspects of AI Implementation in Higher Education

Source: Own research

Positive aspects of AI implementation in Higher Education

Most respondents perceived the process of AI implementation in HE as beneficial and imminent, generating the following improvements: *personalised learning, refined research, operational efficiency, creative approaches to teaching and accessibility.*

- **Personalised learning**

Almost all respondents (21 students) agreed that AI can provide personalised learning, as it can learn “from students’ preferences and habits” (S1), acting as an “individual tutor” (S3) for each student, providing them with personalised content (S26), individualised materials that match their learning needs, driving student success, enabling them to “systematize and structure their approach” (S19) to courses and supporting learning (S25). This can lead to a “better understanding of certain topics” at their own pace, allowing students to “ask follow-up questions until they are sure they have understood every bit of the explanation.” (S3)

- **Refined research**

Almost half of the respondents (10) consider AI an indispensable tool in the research process in terms of its ability to “identify patterns and generates hypotheses” (S1) and “feedback” (S6) faster, making research more efficient (S25) so that students can concentrate more on future directions for their research (S21), prompting advanced research methods as its capabilities are vast and it can “gather and process academic data in better ways” (S2), leading to “new discoveries and innovations” (S1).

- **Operational efficiency**

More than two thirds of the respondents (19 students) view AI implementation in administrative departments as “time-saving” (S14), using less paper and energy through task automatization, leading to “reduced costs” (S1) and improved “student support services” (S3), by “coming up with structure and system “ (S19) and being overall “less bureaucratic” (S20) when tackling trivial tasks that “would rather be considered tedious or boring if they were to be done by a human” (S3), improving “the experience of students and staff alike” (S4), ensuring better planning and implementation of activities for teachers (S27). In addition, “teaching methods that are digitalized are more cost-effective than real professors” (S24).

- **Creative approaches to teaching**

Fourteen students believe that AI has the potential to reshape education, since it can assist “educators in creating more effective instructional materials, assessment and teaching methodologies”, which can “lead to improved learning outcomes and higher student success rates” (S5) owing to flexibility in teaching, “creating new insights that could not be applied to teaching methods before AI” (S24) and the “potential for innovative outlook on teaching and learning which has been following a monotone (and somewhat outdated) trajectory for way too long” (S27). Working with AI, professors can “make the courses more up-to-date” (S13), they can “free their time to focus on more strategic activities” (S3), which require creativity and critical skills that only humans are capable of, thus enhancing the overall educational

experience, adding to the existing curricula innovative study materials as a result of universities “becoming more equipped and updated, in line with the use of this technology” (S11). One respondent emphasised the idea that “a new field of study in tech may arise” (S18), while another one believed that “new ways of interpretation of information that an average IQ person cannot think of” may be generated (S17).

- **Accessibility**

Fourteen students expressed their views on AI being accessible from anywhere, easy to use and convenient. “The opportunities that may arise are that the limits of a human mind are removed and we can learn a lot of things about any subject with just one click, without searching in many thick books” (S7). Students revealed that the “easy access to a plentitude of information in a very shory period of time” (S17) can offer “equal chances for everyone” (S11) “from everywhere” (S12), making “students ready for real life, after university” when undoubtedly “they will utilise AI tools” (S5,23).

Negative aspects of AI implementation in Higher Education

- **In-built biases**

Without careful use, AI can generate biases towards certain groups of people, widening the digital divide among students, almost a third of the students (eight students) agreeing on this potential drawback of AI implementation. “AI systems often rely on collecting and analysing large amounts of data” (S4) and they can have biases, “since the data they are trained on may also be biased. Thus, the model can amplify this bias, that can lead to greater issues further down the line” (S7), being difficult to identify “what the correct role of AI should be” (S27). AI can lack fairness and can temper with people’s opinions and ideas, building subjectivity among students and educators which can consequently reflect artificially-created thoughts, rather than external facts.

- **Inaccurate information**

Eight students consider that AI provides inaccurate information that students can absorb without verifying, which can negatively impact them.”A lot of wrong answers given by AI bot can lead to a wrong opinion about certain subjects” (S10) as users accept the “unreliable” (26) answers “without checking the information” (S17). AI relies on information available on the World Wide Web, which “may be filled with misinformation and no sources to back it”, resulting in “absolute failure” (S18).

- **Job displacement**

Eleven students expressed their concerns with regard to potential job displacement, since traditional roles in education may be switched to smart content creators, “good teachers losing their jobs” (S5), as “the older generation still being mostly in teaching have an outdated view” (S27) and also because of the limited skills of the young generation, who might not be qualified for their roles since they lack reduced crucial skills due to “missing on important concepts” (S10), cheating, retaining less information, “skipping over the learning process” (S2) or not being able to cope with the newly-created methods.

- **Overreliance**

Almost all the students (twenty-five students) consider that if AI is implemented in HE, students will overuse it, relying heavily on technology, becoming “unduly dependent on AI to solve problems and come up with ideas” and “their capacity for original thought, inventive situational adaptation may be restricted” (S6). AI can inhibit intellectual growth, users losing “their desire to learn certain subjects” (S13), “their ability to work on their own” (S21, S25), becoming “lazier” (S20) and losing “their drive” to work (S23), “teachers taking a less active role in teaching” (S20), overall “dehumanising learning experiences” (S16).

- **Privacy and ethical issues**

Another major concern expressed by a third of the students (nine students) is related to ethical dilemmas regarding a multitude of hindrances that AI use generates and to unethical ways of obtaining data. “Institutions must ensure that they have robust data protection measures in place to safeguard sensitive information and comply with relevant regulations” (S4). Privacy problems should be assessed “before deciding to invest in AI technology” (S6).

Conclusions

This study reveals students’ awareness of the need to integrate AI into their educational experience due to its great potential and imminent use in different fields. The opinions expressed by these twenty-seven international students revealed that personalised learning, refined research, operational efficiency, creative

approaches to learning and accessibility are the main advantages to be considered when implementing AI in Higher Education. Nonetheless, the study also emphasises the possible negative outcome of AI implementation which may be generated by a lack of rigorous control which can lead to in-built biases and inaccurate information and by the absence of clear sets of regulations which can result in privacy and ethical issues, adding to students' concerns regarding job displacement and overreliance. Understanding students' perspectives plays a crucial role in the process of reshaping 21st century education through responsible use of AI technology. Therefore, university managers should encourage research into AI implementation in order to grasp the benefits of this technology and create an ethically competitive educational system, while aligning with the requirements of other sectors which demand future employees who are able to make full use of updated sets of digital skills, thus responding to the students' concerns regarding career prospects. As other studies emphasised (Duffett et al., 2024, Pisica et al., 2024), in the near future, universities need to rethink their strategies and adapt curricula to the existing reality with the purpose of harnessing the benefits of AI use, fostering independent and critical thinking to achieve a realistic perspective and also to limit the risks that AI tools are posing. Universities have the opportunity to create equity through access to knowledge, to empower education with forward thinking solutions for a variety of stakeholders and clear the path from education to employment, shaping the future workforce and granting them opportunities to succeed.

As the implementation of AI in HE is highly likely to occur due to its potential gain as a strategic advantage, the findings of the study align with recent literature on the topic, offering educators, AI developers and policy makers a springboard to develop and sustain individuals' performance in accordance with the requirements of the digital era and, at the same time, to remain vigilant about the threats it poses.

Taking into consideration the qualitative nature of the study and the limited number of participants, the results cannot be generalised to a certain generation of students or a certain geographical area. The aim of the study is to provide genuine insights into the perspective of students on the implementation of AI in HE, as students represent the main stakeholders of any university system. Despite the limitations, the results of the present study contribute to a better understanding of a highly debated topic (AI in HE). The study is a starting point of future research that may employ surveys, comparative analyses or experiments. Additionally, the findings of the study are relevant in terms of offering different angles of students' perceptions which are in line with other international research findings.

Acknowledgement(s)

This paper was co-financed by The Bucharest University of Economic Studies during the PhD program of the first author.

References

- Bates, T., Cobo, C., Mariño, O. and Wheeler, S., 2020. Can artificial intelligence transform higher education? *International Journal of Educational Technology in Higher Education*, 17(1), pp.42. <https://doi.org/10.1186/s41239-020-00218-x>.
- Bhutoria, A., 2022. Personalized education and Artificial Intelligence in the United States, China, and India: A systematic review using a Human-In-The-Loop model. *Computers and Education: Artificial Intelligence*, 3, p.100068. <https://doi.org/10.1016/j.caeai.2022.100068>.
- Björk, P. and Kauppinen-Räsänen, H., 2012. A netnographic examination of travelers' online discussions of risks. *Tourism Management Perspectives*, 2(3), pp.65–71. <https://doi.org/10.1016/j.tmp.2012.03.003>.
- Cambridge Online Dictionary. *artificial intelligence*. [online] Available at: <<https://dictionary.cambridge.org/dictionary/english/artificial-intelligence>> [Accessed 1 February 2024].
- Chan, C.K.Y. and Hu, W., 2023. Students' voices on generative AI: perceptions, benefits, and challenges in higher education. *International Journal of Educational Technology in Higher Education*, 20(1), p.43. <https://doi.org/10.1186/s41239-023-00411-8>.
- Chen, L., Chen, P. and Lin, Z., 2020. Artificial Intelligence in Education: A Review. *IEEE Access*, 8, pp.75264–75278. <https://doi.org/10.1109/ACCESS.2020.2988510>.
- Crompton, H. and Burke, D., 2023. Artificial intelligence in higher education: the state of the field. *International Journal of Educational Technology in Higher Education*, 20(1), p.22. <https://doi.org/10.1186/s41239-023-00392-8>.

- Duffett, R., Zaharia, R.M., Edu, T., Constantinescu, R. and Negricea., C., 2024. Exploring the Antecedents of Artificial Intelligence Products' Usage. The Case of Business Students. *Amfiteatru Economic*, 26(65), pp.106-125.
- Guerriero, S., 2017. *Pedagogical Knowledge and the Changing Nature of the Teaching Profession* | *READ online*. [online] oecd-ilibrary.org. Available at: <https://read.oecd-ilibrary.org/education/pedagogical-knowledge-and-the-changing-nature-of-the-teaching-profession_9789264270695-en> [Accessed 1 February 2024].
- Holmes, W., Persson, J., Chounta, I.A., Wasson, B. and Dimitrova, V., 2022. *Artificial Intelligence and Education – A critical view through the lens of human rights, democracy and the rule of law*. [online] Council of Europe. Available at: <<https://rm.coe.int/artificial-intelligence-and-education-a-critical-view-through-the-lens/1680a886bd>> [Accessed 1 February 2024].
- Open Strategy, 2024. *The Risks of Over-Reliance on AI in B2B Content Creation*. [online] Available at: <<https://openstrategypartners.com/blog/the-risks-of-over-reliance-on-ai-in-b2b-content-creation/>> [Accessed 15 January 2024].
- Phan, T.N.L., 2023. Students' Perceptions of the AI Technology Application in English Writing Classes. *Proceedings of the AsiaCALL International Conference*, 4, pp.45–62. <https://doi.org/10.54855/paic.2344>.
- Pires, F., 2023. *Generative AI Goes 'MAD' When Trained on AI-Created Data Over Five Times*. [online] Available at: < <https://www.tomshardware.com/news/generative-ai-goes-mad-when-trained-on-artificial-data-over-five-times> > [Accessed 1 February 2024].
- Pisica, A.I., Edu, T., Zaharia, R.M. and Zaharia, R., 2023. Implementing Artificial Intelligence in Higher Education: Pros and Cons from the Perspectives of Academics. *Societies*, 13(5), p.118. <https://doi.org/10.3390/soc13050118>.
- Pucciarelli, F. and Kaplan, A., 2016. Competition and strategy in higher education: Managing complexity and uncertainty. *Business Horizons*, 59(3), pp.311–320. <https://doi.org/10.1016/j.bushor.2016.01.003>.
- Saldaña, J., 2013. *The Coding Manual for Qualitative Researchers*. [online] SAGE Publications Inc. Available at: <<https://us.sagepub.com/en-us/nam/the-coding-manual-for-qualitative-researchers/book273583>> [Accessed 10 February 2024].
- Saris, W.E. and Gallhofer, I.N., 2007. *Design, Evaluation, and Analysis of Questionnaires for Survey Research. 1st ed.* Wiley. <https://doi.org/10.1002/9780470165195>.
- Wang, T., Lund, B.D., Marengo, A., Pagano, A., Mannuru, N.R., Teel, Z.A. and Pange, J., 2023. Exploring the Potential Impact of Artificial Intelligence (AI) on International Students in Higher Education: Generative AI, Chatbots, Analytics, and International Student Success. *Applied Sciences*, 13(11), p.6716. <https://doi.org/10.3390/app13116716>.
- Weller, S.C., Vickers, B., Bernard, H.R., Blackburn, A.M., Borgatti, S., Gravlee, C.C. and Johnson, J.C., 2018. Open-ended interview questions and saturation. *PLOS ONE*, 13(6), p.e0198606. <https://doi.org/10.1371/journal.pone.0198606>.
- Zhai, X., 2022. ChatGPT User Experience: Implications for Education. *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.4312418>.