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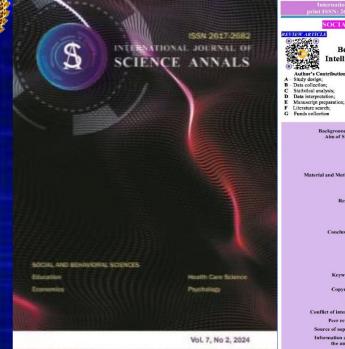
Benefits and Challenges of Using Artificial Intelligence by Stakeholders in Higher Education

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SOCIAL AND BEHAVIORAL SCIENCES, Education

### Benefits and Challenges of Using Artificial Intelligence by Stakeholders in Higher Education



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The benefits and challenges of using artificial intelligence (AI) in higher education are discussed. This has been the subject of a great deal of discussion among the general public and in the academic periodicals.

The aim of the study: to specify the benefits and challenges of using AI in academic university teaching based on a review of periodical research, and to develop a classification of directions for the use of artificial intelligence in higher education for interacting stakeholders.

on, generalisation, systematisation to define the benefits and challenges of the use of AI by stakeholders; classification and modelling to develop a classification of directions for the use of AI in higher education.

Results: It highlights the key benefits and challenges of using AI in academic university teaching that stakeholders face. Classification of directions of AI use in higher education is developed. The following four criteria are highlighted: content of education; forms and methods of teaching; diagnosing of learning outcomes;

Conclusions: AI offers exciting new prospects for its application in higher education, but there are also many concerns about its rapid development First and foremost, there are the issues of the ethical and legal implications of using AI in higher education. The results of the study are important for stakeholders involved in developing literacy and prepare all higher education institutions for the intensive pro information technology development in the coming years is highlighted.

> artificial intelligence, higher education, benefits of artificial intelligence, challenges of artificial intelligence, stakeholders in higher education.

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> ducation has been considered in numerous studies Researchers (Bhaskar et al., 2021; Melnyk & Pypenko, 2020; Pypenko & Melnyk, 2020; Raimundo et al., 2021) have studied the challenges and benefits of blockchain technology in different areas of education. They have

luded that blockchain technology can be applied to

problems of efficiency, effectiveness, privacy ol, technological improvement and others. It ld also be noted that despite the positive aspects of chain, some researchers (Loukil et al., 2021) argue several concerns continue to undermine its adoption ucation, such as legal, immutability and scalability

we will look in more detail at artificial intelligence ologies, which also have advantages and some us disadvantages. This has generated widespread oversy among scholars, which continues to be ted at conferences, on the pages of journals and in

us first consider the ethical and legal aspects of cial intelligence in higher education. Previous dicals (Al-Zahrani & Alasmari, 2024) have largely ted to the need to pay attention to ethical iderations and recommendations for AI s such as privacy, security and bias.

cta-review by Bond et al. (2024), which examined xtent and nature of AI research in higher education, al, methodological and contextual considerations in e research, as well as interdisciplinary approaches application of AI in higher education.

(2024) proposes a human-centred approach to the of AI in higher education that promotes equitable is to knowledge while respecting privacy and . Discussed through the lens of third generation ity theory, which explores the interaction between activity systems in higher education: AI teachers, ibdeb et al. (2024) state that AT-based chatbots have

intential to be integrated into education. However, ag other things, a review of curricula, continuing as soon as possible: control of artificial ation strategies and compliance with industry

ral studies have identified different approaches to essing the legitimacy of AI use that stakeholders in er education may face. At their core, however, they to issues of AI licensing, which is an important tool. The study conducted by Malgier and Pasquale iwn practical experience of working in 4) focuses on the issues of regulating AI through s, we have developed a classification of AI ing. Such licensing should be applied to many risk areas of AI. The authors believe that "without arances that the abuse of AI has been consistent should not accede to the large-scale of Education. cation of AI now underway". Ex-ante licensing of nd Methods of Teaching. dictions committed to enabling democratic rnance of AI (Malgier & Pasquale, 2024).

yk and Pypenko (2023), exploring the legitimacy of using A.1-based chatbots in scientific research, proposed a new method for indicating the involvement and identify the challenges (problems) of AI and the role of chatbots in a scientific publication. sy researchers on the directions for the use of Researchers (Melnyk & Pypenko, 2023) have developed telligence in higher education for interacting a basic logo that can be used to signify chatbots'

technical capability, and applicability

'ary (2019) noted that the main application of cal education is to support learning, due to its rovide personalised feedback. However, the us has limited the use of AI in curriculum assessment of student learning.

(2023) highlighted the following four key domains of AI application in educatio eaching, assessment and administration, in teen roles were identified. Let us focus on are of interest to us for the purposes of the dy: the use of AI in student learning. For the domain, four main roles are highlighted isks based on individual competence; y in digital environments.

l. (2021) argue that AI and ML are essential es that enhance learning, primarily through skills, collaborative learning in higher institutions, and an accessible research

il. (2023) describe such benefits of AI in can facilitate learning and provide both id teachers with personalised attention and he effectiveness of AI tools and applications tual and augmented reality, voice assistants, tools, chatbots, gamification, learning and norammes, instant assessment, etc.

ors also point to shortcomings that need to be a technologies in terms of careful monitoring. and legislation to avoid ethical violations ility dilemmas and bias; adaptation of higher stakeholders to new technologies and

an analysis of current publications and the ation in higher advantion in 4 main direction the directions of implementing AI in academics are calling for a consensus on d responsible implementation of AI in

tering of Educational Services. ons for the use of AI in higher education for stakeholders are illustrated in Figure 1.

notocol was consistent with the ethical 1. Benefits for the content of education (analysing huge amounts of data and transforming it into educational f the 1975 Declaration of Helsinki as 2. Benefits of forms and methods of teaching (use of

024-2/SRIKRPOCH dated 10.08.2023) xciting new prospects for its use in higher education, but

there are also many concerns about its rapid Most researchers expressed concern about the ethical and

> 2022). The promises and challenges of artificial intelligence for teachers: a systematic review of https://doi.org/10.1007/s11528-022-00715-v

> Chan, K. S. & Zarv, N. (2019). Applications and challenges of implementing artificial intelligence in medical education: Integrative review. JMIR

8 of administering educational services

demic standards and quality of education he planning of educational processes, cost-

hat digital literacy and the readiness of all

in higher education for the intensive process

classification of directions for the use of AI

holders for the challenges they may face in

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56(3) g/10.1080/15391523.2022.2121344 I., Dumangiu, M., Ranković, M., M., Paun, D., & Mihorcanu, I loring opportunities and challenges of elligence and machine learning is cation institutions. Sustainability, Article

g/10.3390/su131810424 . & Boukadi, K. (2021). Blockchain education: a systematic literature cation and Information Technologies. 797. https://doi.org/10.1007/s10639-

quale, F. (2024). Licensing high-risk :lligence: toward ex ante justification stive technology. Computer Law & Review 12 Article 105899 rg/10.1016/j.clsr.2023.105899

cation allows us to specify the benefits and & Pypenko, I. S. (2024). Artificial as a factor revolutionizing higher international Journal of Science

rg/10.26697/ijsa.2024.1.2 Pypenko, I. S. (2020). How wil echnology change education future? I Journal of Science Annals, 3(1), 5-.org/10.26697/ijsa.2020.1.1 Pypenko, I. S. (2023). The legitimac

intelligence and the role of ChatBots publications. International Journal of rg/10.26697/ijsa.2023.1.1

This research did not receive any outside funding or tential benefits and risks of artificial in education. Bartin University 'aculty of Education, 13(2), 232-244 https://doi.org/10.14686/bucfad.1416087

Pisica A I Edu T Zabaria R M & Zabaria R (2023). Implementing artificial intelligence in higher education: Pros and cons from the perspectives of academics. Societies, 13(5) Article 118. https://doi.org/10.3390/soc13050118

opportunities to improve planning, implement immediate feedback and assessment. In addition, these scholers have identified several limitations and challenges to the use of AI by teachers, including limited

Pypenko, I. S. (2024). Benefits and challenges of using artificial intelligence by stakeholders in higher education.

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### **Research Methods**

A number of theoretical methods were used in the present study:

- 1. To define the benefits and challenges of the use of artificial intelligence by stakeholders:
- analysis,
- synthesis,
- comparison,
- generalization,
- systematization.
- 2. To develop a classification of directions for the use of artificial intelligence in higher education:
- classification,
- modelling.

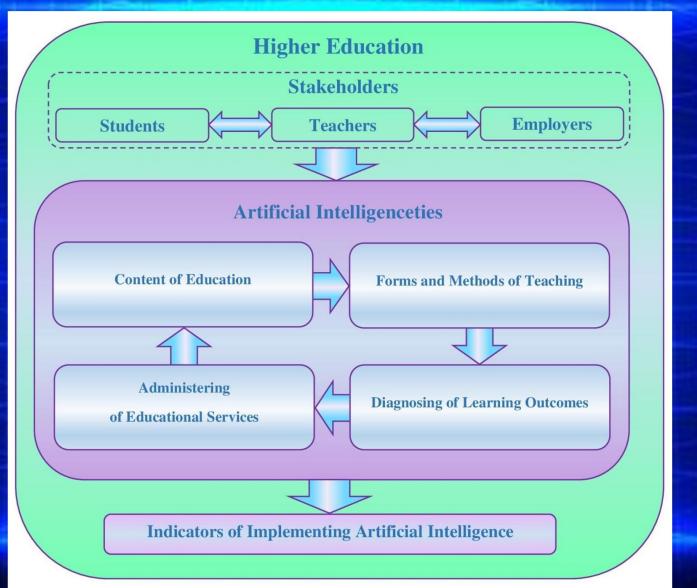


# Classifying the Directions of Implementing Artificial Intelligence in Higher Education

- 1. Content of Education.
- 2. Forms and Methods of Teaching.
- 3. Diagnosing of Learning Outcomes.
- 4. Administering of Educational Services.



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## Key Benefits of Using AI in Higher Education

- 1. Benefits for the content of education (analysing huge amounts of data and transforming it into educational content).
- 2. Benefits of forms and methods of teaching (use of innovative methods and technologies such as virtual and augmented reality; voice assistants; translation tools; chatbots).
- 3. Benefits of diagnosing learning outcomes (no bias, speed of information processing).
- 4. Benefits of administering educational services (raising academic standards and quality of education, optimising the planning of educational processes, cost-effectiveness).





# Significant Challenges Faced by Stakeholders in Using AI in Higher Education

- 1. Challenges for the content of education (creating incorrect information, biasing training data, relying on technology and not having equal access to AI tools).
- 2. Challenges of forms and methods of teaching (lack of human contact, students' lack of technological skills, lack of consideration for language and cultural differences of users, limited exposure of students to different points of view).
- 3. Challenges of diagnosing learning outcomes (biased scoring algorithms, risk of cheating, and no recourse).
- 4. Challenges of administering educational services (limited technical capacity and reliability, threats to privacy and security, ethical and legal implications).





### **Conclusions**

The application of AI in education is a relatively new phenomenon for researchers and practitioners. AI offers exciting new prospects for its use in higher education, but there are also many concerns about its rapid development.

Most researchers expressed concern about the ethical and legal implications of using AI in higher education. Increasingly, academics are calling for a consensus on the safe and responsible implementation of AI in education.

We believe that digital literacy and the readiness of all stakeholders in higher education for the intensive process of information technology development in the coming years is necessary.

