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MODERN TECHNOLOGIES IN HIGHER EDUCATION

ABSTRACT

Artificial intelligence represents a technological shift present in all areas of life, including higher education. As part of self-directed education, students are increasingly using AI-based technologies that significantly improve their learning process and its organization. One of the key issues, should become the normalization of the rules for the use of this technology at the level of each university within the autonomy of the university. Otherwise, issues related to the use in the educational process by both lecturers and students resemble the so-called “free America”. The author of this paper unequivocally advocates that the use of modern technologies be based on the principle of transparency and take place within normatively defined limits.

Keywords: artificial intelligence, higher education, ethics.

INTRODUCTION

Artificial intelligence is widely regarded as the most significant technological change since the popularization of the Internet. “Artificial” - means: created by man, in order to replace the natural counterpart. In other words: artificial intelligence is non-biological intelligence[1]. It covers many areas of today's global economy, from trucking to the medical care system to the justice system[2]. It is widely believed that there is no area where AI will not find application, and the transition from the analog world to the digital world, on a global scale, has already taken place[3].

[1] E. A. Płocha, O pojęciu sztucznej inteligencji i możliwościach jej zastosowania w postępowaniu cywilnym, „Prawo w działaniu. Sprawy Cywilne”, 2020, No. 44, p. 277.

[2] M. Lang, Reviewing Algorithmic Decision Making in Administrative Law, 2021 26-2 Lex Electronica 195,
2021 CanLIIDocs 2276, <https://canlii.ca/t/tcbx>, accessed 2024.02.22.

[3] https://businessinsider.com.pl/technologie/nowe-technologie/trzy-technologie-zdefiniuja-nasza-przyszlosc-na-liscie-nie-tylko-ai/2grderj, accessed 2024.07.24.

Artificial intelligence is attempting to make computers perform the same activities that were previously performed by humans. They require psychological skills such as perception, association, prediction or planning; enabling them to achieve their goals[4]. AI actions are based on statistics and probability.

The origins of artificial intelligence, related to the concept of creating intelligent machines as independent entities, can be traced back to the late 18th and early 19th centuries[5]. A. Lovelace and her friend and colleague, mathematician Ch. Babbage, came up with the concept of a programmable machine, which is considered the prototype of the modern computer[6].

A. Turing is also considered one of the pioneers of AI. In 1935, he described an abstract computing machine with unlimited memory and a scanner that moved back and forth, reading and noting symbols as it encountered them. The scanner's actions were guided by a program of instructions that was stored in the machine's memory as symbols. This concept led to the idea of a machine operating based on its own program with the ability to modify or improve it.

Since John McCarthy coined the term "artificial intelligence" in the 1950s, it has become a pivotal concept in technological advancements worldwide[7]. It has appeared in every area of life and science. AI is now occurring in areas that previously seemed reserved for decision-making by human beings.

Artificial intelligence is based on the interpretation of very large amounts of data, used in algorithms. According to the modern definition, artificial

[4] M. A. Boden, Sztuczna inteligencja jej natura i przyszłość, Łódź 2020, p. 13, in original: Artificial Intelligence: A very short Introduction, Oxord University Press, 2018.

[5] A. Krasuski, Status prawny sztucznego agenta. Podstawy prawne zastosowania sztucznej inteligencji, Warszawa 2020, p. 8.

[6] P. Oksanowicz, A, Przegalińska Sztuczna inteligencja. Nieludzka, arcyludzka, https://books.google.pl/books?id=f73TDwAAQBAJ&pg=PT34&hl=pl&source=gbs_selected_pages&cad=2#v=onepage&q&f=false; accessed 2022.10.16.

[7] The term “artificial intelligence” was developed at a 1956 workshop held in Darmouth, attended by J. McCarthy. https://ebook.pwn.pl/wp-content/uploads/2022/04/Sztuczna-inteligencja_ebook_Final.pdf?utm_source=google&utm_medium=cpc&utm_campaign=0048_ebookownia&gclid=EAIaIQobChMIkZmI7dvdhwMVTFyRBR37HR0mEAAYAiAAEgI6N_D_BwE, s. 27, accessed 2024.08.05.

intelligence encompasses an area of knowledge that includes fuzzy logic, evolutionary computing, neural networks, artificial life and robotics, and one of its unique features is the ability to learn[8]. Importantly, it can take into account new circumstances, in the course of solving a problem[9]. In other words, artificial intelligence is the ability of a machine to mimic or imitate natural intelligence[10]. It involves creating models of intelligent behavior and building programs that are capable of reproducing such behavior[11]. As a result, artificial intelligence should be understood as a system that allows performing tasks requiring a process of learning and taking into account new circumstances in the course of solving a given problem, which can, to varying degrees - depending on its design - act autonomously and interact with the environment[12]. Its essential feature is to strive for continuous improvement and to choose the most effective results for the future [13]. Importantly: the ability to learn a given system is a prerequisite for a system to qualify as AI [14].

[8] https://www.parp.gov.pl/component/content/article/63599:sztuczna-inteligencja-wlascicielem-praw-do-utworu-badz-wynalazku.

[9] T. Zalewski, Definicja sztucznej inteligencji, [in]: Prawo sztucznej inteligencji, (red.) L. Lai, (red.) M. Świerczyński C. H. Beck 2020, p. 2.

[10] T. Zalewski, Definicja sztucznej inteligencji …, p. 14.

[11] Zob. szerzej P. Oksanowicz, A, Przegalińska Sztuczna inteligencja. Nieludzka, arcyludzka, https://books.google.pl/books?id=f73TDwAAQBAJ&pg=PT34&hl=pl&source=gbs_selected_pages&cad=2#v=onepage&q&f=false; accessed 2024.11.17.

[12] T. Zalewski, Definicja sztucznej inteligencji …, p. 3. A glaring example of artificial intelligence, an important feature of which is the ability to learn, is the actions of the Deep Blue robot, which has already won a chess game against the master Garry Kasparov nearly 30 years ago. The first winning game took place on February 10, 1996.After losing the match, Kasparov said that at times he saw deep intelligence and creativity in the machine's moves, which he himself did not understand https://pl.wikipedia.org/wiki/Deep_Blue; accessed 2024.05.30.

Thus, as early as 1997, IBM engineers showed the world that a computer/device is capable of making decisions in a way that surpasses even the most powerful human minds.

[13]According to M. Bogusz, artificial intelligence will never match the true, M. Bogusz, Spotkanie tradycji z technologią, czyli garść refleksji na temat wykorzystania generatywnej sztucznej inteligencji w naukach prawnych, [in:] B. Kowalczyk, K. Kulińska – Jachowska, Ł. Prus, M. Tabernacka, (ed.), Prawo administracyjne jako miejsce spotkań. Księga jubileuszowa dedykowana Profesorowi Jerzemu Supernatowi, , Wrocław 2024, p. 731.

[14] T. Zalewski, Definicja sztucznej inteligencji…, p. 14.

PRESENCE IN HIGHER EDUCATION OF PLATFORMS DEDICATED TO TEACHING

Nowadays, modern teaching platforms make it possible to realize learning in an interactive one-on-one format. This is one of the most effective methods of education. This is served, among others, by the "MentorHub.AI" platform. The learning process within this platform is supported by a personal AI teacher, who guides the student and answers all questions in real time.

Another example is the "OIAI" program, which offers a personalized AI teacher who is able to improve learning efficiency in any educational group. A system created by the Otermans Institute, OIAI creates digital teachers They can support each student along their educational path, teaching them new skills according to their abilities and requirements. OIAI uses digital avatars controlled by human teachers and artificial intelligence. In this way, OIAI can ensure an appropriate level of teaching quality, regardless of the differences that exist in real life between different teachers or different students[15]. Among the unquestionable advantages of the OIAI system is that it allows a real-time human-like interaction to arise between the student and the virtual teacher. The virtual teacher provides immediate feedback and is available at any time 24/7 (for students who like to study before noon, he is available before noon, and for students who like to study at night, he is available at night). It allows them to learn at their own pace, and the effectiveness of the learning process noticed by the students increases their confidence.

It is worth mentioning that one of the non-public higher education institutions in Poland has recently been using a modern educational platform for the process of education in the field of "Law" in a part-time mode. The basic premise of the part-time studies, which at the Business School is called: " RealTime Online" is to conduct classes at a distance - via the Internet.

Students can participate in them without leaving home, from anywhere in the country and the world with access to the network. This allows students to combine the study process with professional development, personal commitments and even travel. At the Higher School of Business - National Louis University, the advanced Cloud Academy platform is used in the educational process. Visits to the academy are required, for example, for workshops or thesis defense. Importantly, teaching materials - including lectures or recordings of exercises - can be automatically saved on the Cloud

[15] https://oiai.oiedu.co.uk/educators; accessed 2025.02.02.

Academy platform. This makes it possible for students to return to the issues discussed at any time. This is an extremely useful option not only before exams, but also in any situation in which a student has not been able to attend class on the original date. It is worth mentioning that recording lectures and listening to them again can be of particular importance for the growing number of dyslexic students[16].

USE OF AI BY STUDENTS

Regardless of educational platforms, students on their own initiative can use AI programs available to anyone in the educational process. Generative artificial intelligence is a tool that can be used to work with text, i.e. to write publications or grant proposals, but also to process data, generate visualizations, create presentations and slides, and manage teams. A survey of the ways in which artificial intelligence is used in academic activities was conducted in 2024, by 170 students of the Faculty of Management Engineering at Bialystok University of Technology, in areas such as learning, research and time organization. The survey included a questionnaire to assess preferences for using various AI tools, including ChatGPT, Microsoft Copilot, Google Gemini, DEEPL, applications that support organization and material retrieval, and image generation tools (Midjourney)[17].

As a result of the above study, it was found that in self-directed education, students are increasingly using artificial intelligence-based technologies to significantly improve their learning process and organization. ChatGPT helps students create ideas, write essays, solve problems and answer questions in various fields, offering instant proofreading and support. On the other hand, DeepL, an AI-based advanced translator, makes it easier for students to translate academic texts and materials into various foreign languages, which is particularly useful for research and writing scientific papers. In turn, tools such as MidJourney and Magic Studio are used for the creative aspects of education, allowing the creation of advanced visualizations,

[16] https://www.wsb-nlu.edu.pl/pl/wpisy/czym-sa-studia-realtime-online-i-czy-warto-wybrac-taka-forme-ksztalcenia; accessed 2025.03.30.
[17] https://wiz.pb.edu.pl/akademia-zarzadzania/wp-content/uploads/sites/3/2024/09/5.3.-K.-I.-Raszyd-A.-Wesolowska-K.-Tomaszewska-Sztuczna-Inteligencja-w-nauce-%E2%80%93-jak-studenci-wykorzystuja-AI-w-edukacji-wyzszej_with_metadata.pdf; accessed 2024.12.12.

graphics and multimedia projects[18]. The survey shows that currently nearly half or, more precisely, 49% of students say they regularly use generative artificial intelligence tools. In contrast, only 22% of lecturers say they use them regularly, indicating a big difference in the use of such tools between the two groups of users[19].

ETHICS AND LEGITIMATE USE OF ARTIFICIAL INTELLIGENCE IN THE TEACHING PROCESS VS. THE AUTONOMY OF A HIGHER EDUCATION INSTITUTION

The institution of autonomy of universities, which are administrative establishments, plays an important role with regard to higher education institutions. It is guaranteed by Article 70(5) of the Polish Constitution, stating: "the autonomy of higher education institutions shall be ensured on the principles laid down by law." Autonomy is expressed in the right to independently enact internal laws governing the functioning of higher education institutions. Its expression is the validity of internal acts of higher education institutions, regulating the rights and obligations of students and doctoral students[20].Such acts should be issued at the university level with regard to the issue of use of AI by users of a given administrative establishment (students and doctoral students, as well as lecturers), in the course of the scientific and teaching process.

The role of universities is to promote scientific and teaching openness - including to - modern IT tools, but the manner and scope of their use should be normalized. More and more universities are issuing recommendations for their students, indicating the limits of AI use. An example is the solutions adopted at Kozminski University, whose authorities issued a communiqué, informing about the rules for using ChatGPT and making it mandatory for students who support themselves with artificial intelligence capabilities in their work to mark

[18] https://wiz.pb.edu.pl/akademia-zarzadzania/wp-content/uploads/sites/3/2024/09/5.3.-K.-I.-Raszyd-A.-Wesolowska-K.-Tomaszewska-Sztuczna-Inteligencja-w-nauce-%E2%80%93-jak-studenci-wykorzystuja-AI-w-edukacji-wyzszej_with_metadata.pdf; accessed 2024.09.09.

[19] https://homodigital.pl/genai-zmieni-wyzsze-uczelnie-jak-bardzo-i-kto-skorzysta/; accessed 2025.01.30.

[20] P. Dańczak, Inne (nietypowe) postępowania szczególne, [in:] (ed.) A. Matan, Postępowania autonomiczne i szczególne, Postępowania niejurysdykcyjne, Warszawa 2021, p. 834.

such contributions in an appropriate manner. This university adopted the premise that "the use of generators such as ChatGPT must be based on honesty and transparency. It is a necessity to accurately mark where generators have served as support for”[21].

There is no doubt that issues related to the use of AI in the educational process should be normalized in detail, both in reference to the scope of use of such tools by the lecturer and the student. Ethical issues should first decide that any use of AI should be disclosed, regardless of whether it is the student or the lecturer. In each case, it should also be precisely reported to what extent the prepared text or presentation was created using artificial intelligence.

At the same time, universities should recommend a critical approach to the knowledge obtained from the content generators, as well as to the results obtained by the content generators, taking into account the risk of their bias, susceptibility to faulty sources or errors in answers[22]. In addition, one of the solutions that is raised in the academic community is to change the form of credits and exams in the direction of valuing oral exams because they exclude any possibility of using AI tools[23].

UNIFIED ANTI-PLAGIARISM SYSTEM

As of 2019, the Unified Anti-Plagiarism System (JSA) is operational in Poland. It is available free of charge to all universities - both public and non-public. As of this moment, universities are obliged to check every bachelor's and master's thesis for plagiarism in the JSA as part of the procedure for defending such thesis. This obligation stems from Article 76(4) of the July 20, 2018 Law on Higher Education and Science, “if the thesis is a written work, the university shall check

[21] https://www.kozminski.edu.pl/pl/news/akademia-leona-kozminskiego-z-rekomendacjami-dotyczacymi-wykorzystania-chatgpt; accessed 2024.08.09.
[22] https://forsal.pl/lifestyle/edukacja/artykuly/8702805,korzystania-z-aplikacji-typu-chatgpt-sa-rekomendacje-dla-srodowiska-akademickiego.html; accessed 2024.08.09.
[23] A. Musiał, *Sztuczna inteligencja w służbie nauki. Gdzie są granice wykorzystania AI w pracy naukowca*?, Progress. Journal of Young Researchers 14/2024, ISSN 2543-8638 DOI: https://doi.org/10.26881/prog.2024.14.03, p. 7

it before the diploma examination using the Unified Anti-Plagiarism System." This system, as stipulated in Article 351(1) of the said law, is maintained by the Minister, thus providing support in preventing violations of copyright and related rights. The Unified Anti-Plagiarism System uses the data contained in the repository of written theses and the database of documents in promotion proceedings. Analogous checking measures are taken in accordance with Article 188. paragraph 4 for doctoral theses. The use of JSA by all universities in Poland guarantees the appropriate standardization of anti-plagiarism examination with regard to the same reference databases and according to the same algorithms, which at the same time ensures uniform treatment of all students - authors of engineering, bachelor's, master's and doctoral theses. This is because they are analyzed using the same tool. In 2024, the JSA gained a new feature by adding a module that evaluates to what extent a thesis was written using AI. From then on, any unit running a degree or doctoral school can investigate completely free of charge whether a thesis has been written using AI. The detection method used by the JSA system is based on the hypothesis that the greater the regularity in a text, the more likely it is that it was produced by a language model. Such an assumption is rooted in the design of the algorithm, which is capable of generating regular and predictable text. The Unified Anti-Plagiarism System does not give 100% certainty that a text is plagiarized or was written by artificial intelligence. The result of examination by the JSA indicates only probability. Therefore, the final decision on whether to return the work to the student belongs to the promoter. This is because it is he who verifies the report received from the JSA and determines whether the thesis is original[24].

The use of artificial intelligence in this type of academic work may be compatible with academic integrity, but only if it is treated as a complementary tool. The student should remain the author of the idea and have a dominant contribution to the content of the work[25].

RISKS

[24] https://www.gov.pl/web/nauka/jsa--promotor-sprawdzi-czy-student-korzystal-z-technologii-chatgpt; accessed 2025.01.31.
[25] F. Nalaskowski, Prace naukowe tworzone przez sztuczną inteligencję. Oszustwo czy szansa, „Studia z Teorii Wychowania", Tom XIV/ 2023, pp. 170 - 171.

Despite the perceived benefits of students' use of AI, there are apparent concerns about the risk of creating an overdependence (if not all, then many) of students on these tools, which may consequently lead to their less engagement and limit their independent and constructive thinking. In view of this, it seems crucial to strike a balance between the use of AI while promoting independent and creative thinking by students, who should treat the technology only as an auxiliary. It is also of concern that so far few universities in Poland have decided to regulate the problem under analysis and indicate that any use of image, sound or text generators, of which AI is an essential component, should be disclosed Precise rules in this regard have been developed and implemented by Oxford University. From the recommendations there, "Students should be aware that artificial intelligence tools cannot replace human critical thinking or the development of scientific arguments based on evidence and subject knowledge, which form the basis of their university education (...) Inauthorized use of AI is subject to plagiarism laws and subject to academic penalties. In the event that a lecturer permits the use of generative artificial intelligence in the preparation of a paper for an exam, students should clearly communicate how it was used in their paper[26].

In light of the above considerations, it becomes crucial to consciously use artificial intelligence within the framework allowed by the internal law of a given university. At the same time, its use should be based on the principle of transparency and should take place within certain limits.

NOWCZESNE TECHNOLOGIE W SZKOLNICTWIE WYŻSZYM

Streszczenie

Sztuczna inteligencja stanowi zmianę technologiczną obecną we wszystkich dziedzinach życia, w tym w szkolnictwie wyższym. W ramach samodzielnej edukacji studenci coraz częściej wykorzystują technologie oparte na AI, które znacząco poprawiają ich proces nauki i jej organizację. Jedną z kluczowych kwestii, powinno stać się unormowanie zasad korzystania z tej technologii na poziomie każdej uczelni wyższej w ramach przysługującej uczelni autonomii. W

[26] https://www.ctl.ox.ac.uk/ai-tools-in-teaching; accessed 2024.10.10.

przeciwnym razie bowiem kwestie związane z korzystaniem w procesie edukacji zarówno przez wykładowców, jak i studentów przypominają tzw. „wolną amerykankę". Autorka niniejszego pracowania jednoznacznie opowiada się za tym, aby korzystanie z nowoczesnych technologii zostało oparte na zasadzie transparentności i odbywało się w określonych normatywnie granicach.

Słowa kluczowe: sztuczna inteligencja, szkolnictwo wyższe, etyka.

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Zalewski T., Definicja sztucznej inteligencji, [in:] Prawo sztucznej inteligencji, C. H. Beck 2020

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