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Ewa NOWICKA*

Artificial intelligence as a challenge for media education

Sztuczna inteligencja wyzwaniem dla edukacji medialnej

Abstract

Aim. The emergence of artificial intelligence arouses great interest on the one hand, but on the other it raises many concerns and doubts. Undoubtedly, elements of artificial intelligence will make a significant contribution to the processes of education, learning, play, and entertainment of children and young people. In the face of these changes, it becomes extremely important to build a more appropriate and responsible attitude towards artificial intelligence, its creative and appropriate use by teachers at school, but also by students and parents themselves. The developed article aims to present the importance of media education in view of the current development of artificial intelligence, which is increasingly finding its way into education in the broadest sense.

Methods and materials. The article uses an overview of views and assumptions to explain the importance of artificial intelligence in education. Beliefs emphasizing the need to practice media education among children and adolescents, as an aid to the proper

* **e-mail: e.nowicka@kmti.uz.zgora.pl**
University of Zielona Gora, Faculty of Social Sciences, Institute of Pedagogy, Wojska Polskiego 69, 65-762 Zielona Gora, Poland
Uniwersytet Zielonogórski, Wydział Nauk Społecznych, Instytut Pedagogiki, Wojska Polskiego 69, 65-762 Zielona Góra, Polska
ORCID: 0000-0003-3241-4921

application of artificial intelligence in education, have been highlighted.
Results and conclusion. Every day there are new opportunities, tasks, and solutions assuming the use of AI, which can be successfully used creatively in education in the broadest sense. On the other hand, however, there are new doubts, limitations, and risks arising from the incompetent use of artificial intelligence in educational activities. Here, an extremely important new role is to be played by media education practiced by teachers, who can explain and demonstrate how AI-based tools and applications should be used in education.

Keywords: artificial intelligence, media education, child, family, school, teacher.

Abstrakt
Cel. Pojawienie się sztucznej inteligencji budzi z jednej strony duże zainteresowanie, ale z drugiej jednak rodzi wiele obaw i wątpliwości. Niewątpliwie elementy sztucznej inteligencji będą miały swój istotny udział w procesie kształcenia, uczenia się, zabawie i rozrywce dzieci i młodzieży. W obliczu tych zmian niezwykle ważne staje się budowanie odpowiedzialnej postawy wobec sztucznej inteligencji, jej twórczego i właściwego wykorzystania przez nauczycieli w szkole, ale także przez samych uczniów i rodziców. Opracowany artykuł ma na celu przedstawić znaczenie i rolę edukacji medialnej praktykowanej przez nauczycieli wobec rozwoju sztucznej inteligencji, która coraz częściej znajduje swoje zastosowanie w szeroko pojętej edukacji.
Metody i materiały. W artykule zastosowano przegląd poglądów i założeń wyjaśniających znaczenie sztucznej inteligencji w edukacji. Podkreślono przekonania akcentujące potrzebę praktykowania edukacji medialnej wśród dzieci i młodzieży, która będzie pomocą w prawidłowym zastosowaniu sztucznej inteligencji w edukacji.
Wyniki i wnioski. Każdego dnia pojawiają się nowe możliwości, zadania i rozwiązania zakładające wykorzystanie AI, które z powodzeniem można kreatywnie wykorzystać w szeroko pojętej edukacji. Jednak pojawiają się też nowe wątpliwości, ograniczenia i zagrożenia wynikające z nieumiejętnego korzystania ze sztucznej inteligencji w działaniach edukacyjnych. W tym miejscu niezwykle ważną i nową rolę ma do spełnienia edukacja medialna praktykowana przez nauczycieli, którzy mogą wyjaśniać i prezentować, w jaki sposób należy wykorzystywać w edukacji narzędzia i aplikacje oparte na sztucznej inteligencji.

Słowa kluczowe: sztuczna inteligencja, edukacja medialna, dziecko, rodzina, szkoła, nauczyciel.

Introduction

Today, we encounter the presence of artificial intelligence practically every step of the way when using the internet, but we are not necessarily aware of it (Lindenberg, 2018). Artificial intelligence (AI) will play a very serious role in educational processes and can be used to transform the entire structure of formal and informal education. Changes in this direction have already been initiated and are considerably advanced in some areas. The fact that attempts to use artificial intelligence in teaching processes are increasing is visible to the naked eye. Artificial intelligence is increasingly being used as a teaching assistant by students. It also acts as a helper for teachers or even as their peculiar partner in the didactic process (Goralski, Górniak-Kocikowska, 2019). The entry of artificial intelligence into education presents teachers, students and also parents with completely new challenges. Every day, new possibilities, tasks and solutions emerge that can be successfully used creatively in education in the broadest sense. However, there are also new doubts, limitations and risks arising from the unskillful use of artificial intelligence in educational activities. At this point, it is important to emphasise the extremely important role of media education carried out by teachers, who can explain and demonstrate how AI-based tools and applications should be used in education.

Artificial intelligence in education

Artificial intelligence is a rapidly growing field of computer science that deals with the creation of computer programs and systems capable of solving and performing tasks that normally require human intelligence. Its subject is the study, analysis and identification of the principles that govern intelligent human behaviour and their use in algorithms and applications (Stylec-Szromek, 2018). Systems operating through artificial intelligence are programmed to make decisions, solve problems, process images, sounds, and natural language and learn from collected data.

Artificial intelligence can be very helpful in education on many levels for students, teachers and the whole education process. One of the applications of artificial intelligence in education is the individualisation of learning. Artificial intelligence can analyse information about students, such as task and test results, learning progress, preferences and learning styles, to adapt teaching materials and teaching methods to their individual needs. As a result, teachers can provide personalised and effective teaching, adapted to the skills and learning pace of each of their pupils. With the help of AI, teachers can create teaching plans adapted to specific student goals and needs.

AI allows for the monitoring of learning progress and the adaptation of materials to interests and abilities, making the learning process more effective and adapted.

Thanks to artificial intelligence, it is possible to analyse pupils' performance, identify their strengths and weaknesses and pinpoint areas that need additional support. This, in turn, enables the teacher to quickly detect learning difficulties in their pupils and take appropriate action based on accurate data analysis. This makes it possible to intervene more quickly and provide support at an early stage when learning difficulties are noticed (Koziej, 2023).

Artificial intelligence offers a variety of tools and applications that can be successfully used in educational processes involving, among other things, the generation of text, voice, and video, as well as presentations, infographics, and websites. Tools based on generative artificial intelligence are excellent for repetition and can support the preparation of lessons, planning exercises, and tasks in a highly individualised way, adapted to the needs of specific students. These can be used to prepare interesting and attractive forms of learning (Kostecka, 2024).

AI can act as an interactive tutor that supports students' learning by helping them understand new material, answering questions, providing additional exercises and personalising the learning process. Such support can be available without a time limit, giving students more flexibility to adapt their learning to their schedules. Enhanced translation mechanisms using artificial intelligence also play an important role in language learning. Appropriate programmes can help translate texts into other languages. Such assistance strongly supports communication between people speaking different languages.

According to Stanislaw Koziej (2023), applications using artificial intelligence can be successfully applied in various areas of education. Writing and text editing tools are very useful for students in correcting spelling and grammatical errors. AI-based applications can support solving mathematical exercises, analysing data, and solving equations in a more interactive and advanced way. AI-based tools can also assist in the design of animations and graphics, and in the generation of simulations and virtual learning experiences that allow learning about diverse areas of knowledge interactively. In addition, with AI-based tools, students can process large amounts of data more quickly and efficiently, and then present them clearly through graphs and presentations. This promotes a better understanding of their findings and makes it easier to communicate them to others.

The November 2023 special issue of the monthly journal *Rynek Pracy, Edukacja, Kompetencje* [Labour market, Education, and Competences] (*Wykorzystanie sztucznej* [Use of artificial]..., 2023) details the areas of use of artificial intelligence in education. This paper lists, among other things, the advantages and limitations, from the perspective of students and teachers, of the use of artificial intelligence in educational activities. The advantages of using artificial intelligence included:

a) from the students' perspective:
- adapting teaching to the individual student's needs;
- individualising learning materials;
- increasing accessibility to the self-learning process;
- improving learning outcomes;
- greater privacy in making mistakes when solving tasks;
- recording and analysing results and achievements.

b) from the teachers' perspective:
- improving learning, focusing on what is most relevant to teaching;
- personalised consultation for students;
- automation in assessment;
- teacher professional development.

Conversely, the limitations of using AI in education are as follows:

a) from the students' perspective:
- lack of human-to-human interaction;
- over-reliance on technology;
- need to check generated content, especially that created by text generators;
- breach of data security.

b) from the teachers' perspective:
- change of existing tasks and responsibilities of the educator/teacher;
- poor ICT skills;
- financial barriers to training and purchase of modern tools;
- need to monitor access to artificial intelligence systems.

Meanwhile, S. Koziej (2023) counts among the main threats to the use of artificial intelligence by students the following:

- Lack of critical thinking caused by over-reliance on artificial intelligence. When students use artificial intelligence as their main source of information, there is a risk that they do not develop the ability to analyse, think insightfully and find the right solutions themselves. This can lead to a reduced ability to effectively analyse and evaluate content from a variety of sources.
- Inadequate trust in artificial intelligence: students may uncritically accept AI-generated content and treat it as true and verified, without additional verification and comparison with other sources of knowledge. Such a situation may contribute to the spread of erroneous and false information.
- Disappearance of face-to-face interactions: the excessive use of AI in education can result in disrupted social relationships between students

and teachers. Face-to-face interactions play an important role in the development of children and young people, as they teach cooperation, interpersonal communication and relationship building.

– Dependence on information and communication technology: pupils may be susceptible to dependence on artificial intelligence as a basic aid to completing tasks in the educational process, which can have a negative impact on the development of problem-solving skills and independent thinking.
– Lack of understanding of emotions: AI can be used in generating conversations and interactions with students, but one of its limitations is the lack of proper understanding and reading of emotions, which are extremely important in face-to-face interactions between students.

According to Marta Kostecka (2024), it is important to consider how to teach with the help of artificial intelligence, to try to understand how AI works, and to transfer this knowledge to students. Understanding the potential of artificial intelligence and its limitations will help teachers, students and also parents to use it correctly to avoid false information and also to create new ways of using it safely.

Niklas Humble and Peter Mozelius (2022) argue that artificial intelligence will improve education but with the support of teachers who will be willing to introduce new solutions in the educational process.

Artificial intelligence properly used in education can contribute to the effectiveness of education. It can be used to personalise the educational process by adapting material to each student's individual needs and learning rate. In addition, AI-based systems can analyse data, identify patterns and provide teachers with valuable feedback so that they can better adapt their teaching methods to the needs of their students. However, the proper regulation and monitoring of the use of artificial intelligence in education must not be overlooked to ensure that it is used ethically and for the benefit of all participants in the educational process.

The effective use of artificial intelligence in learning requires an appropriate and sensible approach on the part of the users. It is necessary to be aware of the dangers that may arise from its irresponsible use. Various measures should be taken to prevent these risks. It is therefore important to strike a balance in activities combining the use of modern AI solutions and classical methods in the learning process.

At this point, reference can be made to media education, through which students, with the help of teachers, will gradually acquire knowledge of the possibilities and limitations offered by artificial intelligence. According to Magdalena Maziarz (2024), minimising the risks of AI in education can take various forms. One of them is media education, which teaches critical thinking, verification of information,

seeing different perspectives in the presentation of content and cultural diversity, as well as demonstrating the limitations of artificial intelligence and, at the same time, the unlimited possibilities for humans to use its creations sensibly and safely.

Assumptions of media education

Media education can be understood as a variety of activities organised by parents and teachers that aim to develop media competence in children and young people (Łuc, 2018). Media education, on the one hand, allows the youngest to use the media sensibly and, on the other hand, teaches them a critical and informed approach to evaluating the content provided. According to Anna Kaczmarek (2013), the primary goal of media education is to develop media competence already in the youngest children, but also among young people who actively use new technologies. Media education in both school and family environments should provide free access to information and communication technologies and teach how to analyse media messages as well as learn about the possibilities of communication in modern media. Media competence, on the other hand, includes the ability to critically evaluate content, recognise fake news, use different media in an informed and responsible manner, and create one's own media content.

Media education cannot just be a course explaining how to use information and communication technologies. Its task is to develop an informed and sensible user of new media (Juszczyk-Rygałło, 2015), a user who seeks the truth about the world, who can make appropriate and accurate choices and who is critical of the media, who will verify the correctness of their messages in various sources (Drzewiecki, 2010).

The primary aim of media education is to promote appropriate attitudes towards the media and to develop the ability to recognise the techniques used by them to make informed decisions about their use (Lepa, 2002). It is important to use information and communication technology in such a way that it is both a tool for understanding the world and for intellectual development and mutual communication. Practising media education among children and young people provides the basis for human upbringing, transmits knowledge and experience, but above all teaches how to function in an information and communication society (Bis, 2018).

Agnieszka Ogonowska and Grzegorz Ptaszek (2016) argue that having media skills that are constantly honed and developed allows for the necessary distance from the media. Media competence does not guarantee full freedom, awareness and a critical approach to the media, but it definitely increases the likelihood of achieving it. According to A. Ogonowska, the youngest children showing an interest in new media should be properly prepared for their proper use in play and learning.

The role of the media education teacher in the era of artificial intelligence

Current students expect their teachers to be open-minded towards the new possibilities offered by information technologies. Contemporary teachers, meanwhile, need to update and develop their knowledge and practical skills in using them freely (Przyborowska, 2003).

In the work of a contemporary teacher, media skills are becoming increasingly important, including conscious and balanced use of a variety of media in the pedagogical process, critical and active reception of content and knowledge of basic theories of media influence (Siemieniecki, 2007). The teacher's skills enable a proper analysis of media and their evaluation in terms of their usefulness in the educational process (Juszczyk, 2007). The task of the educator in media education is to know about media and multimedia, but above all to use them in an exemplary way in everyday life (Godzic, 2005).

According to Wacław Strykowski (2005), the proper preparation of a teacher in media education should include two basic objectives:

- to develop pupils' ability to analyse different types of media messages consciously, critically and correctly;
- to enable students to use media devices effectively as tools for intellectual work and media creativity, including the creation of media messages.

In the era of artificial intelligence, learners' competencies and skills will become more important than specific knowledge, as the canon of knowledge in any field will be constantly changing and the priority skill will become the willingness to learn throughout life and from many different sources (Luckin, 2018).

Media education may include the following teacher activities:

- researching, evaluating and developing a variety of media messages;
- identifying the origin of media content;
- understanding media messages and identifying the values present in the media;
- selecting the appropriate medium for their content;
- designing new media messages;
- maintaining the independent, objective and diverse nature of media content, including that published on social media;
- educating children and young people in the sensible, safe and considered use of media information;
- collaborative learning involving the use of new media and technologies (Górecka-O'Connor et al., 2019).

In the era of artificial intelligence, the role of the teacher will evolve and adapt to meet changing educational needs. The teacher will become more of a mentor and guide

to support students in developing critical thinking, problem-solving and teamwork skills. An extremely important task for the teacher will be to teach children and young people how to use artificial intelligence properly, and how to approach its use in education and entertainment in an informed, safe but also creative way. Teachers will be the organisers of when and how to use artificial intelligence tools. Together with their students, they will play a crucial role in the design and use of AI-based tools (Górecka-O'Connor et al., 2019). It will be important for the teacher to be able to use technology effectively and creatively to enhance student engagement and enable students to develop digital competencies. An important part of the new role of the teacher will be to motivate and inspire students to learn independently and develop the skills necessary to function in a changing world. Rose Luckin, Wayne Holmes, Mark Griffiths, and Laure B. Forcier (2016) argue that educators who take part in these processes will gain greater technological knowledge, new design skills and a better understanding of what artificial intelligence systems can offer in education. A teacher who is creative and ready for continuous development in a world of rapidly changing technology will be desirable. Moreover, flexible and open to new technologies, ready to continuously improve his/her skills to be able to use AI tools to enhance the learning process. He or she must be able to integrate information technologies in a way that is appropriate to the needs of the students and, in doing so, maintain a balance between traditional teaching methods and modern solutions. It is very important to be able to analyse data and interpret results using AI to adapt the curriculum to the individual needs of the students.

Conclusion

Artificial intelligence applied to education offers great opportunities, but there are also many doubts and limitations. Krzysztof Walczak and Wojciech Cellary (2023) believe that AI is still actively developing, for which reason it is necessary to develop rules and principles that address the responsible and informed use of AI-generated content in various fields of knowledge. Raising awareness of these tools, using them and having discussions with students about the advantages and risks will definitely have a better impact on sustainability than banning their use. Students learning about the disadvantages and limitations of artificial intelligence should go hand in hand with knowledge of good and creative examples of its use in science (Lim, Gunasekara, Pallant, Pallant, & Pechenkina, 2023).

A considered approach to introducing and monitoring the impact of artificial intelligence in the educational activities undertaken is necessary. This will help to avoid many risks and thus enable the use and implementation of many innovative

solutions based on artificial intelligence in education. Media education practised by teachers at school has an extremely important role to play. Children and young people require a value system that helps them distinguish between good and bad, useful things and harmful things. Young users of information and communication technologies need help and support to move freely and sensibly in a media society. Media education initiated in the child's immediate environment should be an introduction to core media education, which will be continued by the teacher in primary and then secondary school. Current media education should strongly emphasise the need for further work on understanding both the opportunities and risks of artificial intelligence applied to the teaching and learning process. Research is needed to help understand what the new educational reality will look like and what new skills will be needed to efficiently deliver the learning process in school (Giannakos et al., 2024).

The basic premise of media education is to support children and young people in an informed and critical understanding of media and multimedia, including artificial intelligence tools. At school, media education should be conducted by people who have theoretical knowledge, practical skills and relevant ICT competencies (Strykowski, Kąkolewicz, & Ubermanowicz, 2008). Thus, the teacher can help students understand the complex mechanisms of media functioning but also encourage critical thinking and conscious use of various tools based on new technology. Practising the assumptions of media education in the family and school environment is crucial in the current times when artificial intelligence is playing an increasingly important role in social and cultural life.

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