

## USING ARTIFICIAL INTELLIGENCE (AI) IN EDUCATION

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**Abstract**

Artificial intelligence has integrated itself into our everyday lives. The use of AI in education is not a new topic. The research aimed to explore the attitudes, experiences and potential applications of professionals working with children in the use of artificial intelligence (AI) in education. A questionnaire method was used in the research. The survey included 122 participants (n=122). The results showed that the majority of respondents have a positive opinion of AI, even if they do not actively use it in their daily lives. Among the application areas of AI, data collection stands out in terms of popularity, while in other areas (e.g. preparing presentations, preparing for class, preparing assignments, searching for scientific literature), its uptake is more moderate but significant among respondents. Results show that AI is mostly used for tasks that facilitate information gathering and content creation. Most respondents think that AI can be used in certain areas, and there is a significant minority that is positive about its future use. There is great potential for future applications in education, although current experience and applications have not yet triggered a full-scale transformation.

**Keywords:** Artificial Intelligence, education, innovation, pedagogy

**Discipline:** pedagogy, IT

**Absztrakt**

A mesterséges intelligencia a mindennapi életünk elengedhetetlen részévé integrálta magát. Az MI alkalmazása az oktatásban sem újkeletű téma. A kutatás arra irányult, hogy feltárja a gyermekekkel foglalkozó szakemberek hozzáállását, tapasztalatait és alkalmazási lehetőségeit a mesterséges intelligencia (MI) oktatásban való felhasználásával kapcsolatban. A kutatásban kérdőíves módszert alkalmaztunk. A vizsgálatban 122 fő vett részt (N=122). Az eredmények azt mutatták, hogy a válaszadók többsége pozitív véleménnyel van az MI-ről, még ha nem is használják aktívan a mindennapokban. A mesterséges intelligencia alkalmazási területei közül az adatgyűjtés kiemelkedik a népszerűség tekintetében, míg más területeken (pl. prezentációkészítés, órára való felkészülés, beadandók készítése, szakirodalmak keresése) a válaszadók körében mérsékeltebb, de jelentős az elterjedtsége. Az eredmények azt mutatják, hogy az MI-t leginkább olyan feladatokhoz veszik igénybe, amelyek megkönnyítik az információgyűjtést és a tartalomkészítést. A legtöbb válaszadó szerint az MI hasznosítható bizonyos területeken, és vannak olyanok akik pozitívan tekintenek a jövőbeli felhasználásra. A jövőbeli alkalmazások szempontjából az oktatásban nagy potenciál rejlik, bár a jelenlegi tapasztalatok és alkalmazások még nem indítottak el teljes körű átalakulást.

**Kulcsszavak:** mesterséges intelligencia, oktatás, innováció, pedagógia

**Introduction**

In recent years, the issue of using AI-based services in education has been addressed in several academic research projects (Mező and Mező, 2019; Dietz, 2020; Horváth, 2023; Demeter and Mező, 2023; Karvalics, 2024). The emergence of this

research is not surprising, as the exploration of the potential of artificial intelligence could help to improve the effectiveness of education and its proper use by students in the coming decades. Younger generations are increasingly looking for more experiential and less energy-intensive online

learning, so the way they are taught in the future may change (Dietz, 2020; Ábrahám, 2021; Marr, 2022). The researchers are mainly concerned with the emergence of AI and, they are assessing the views of people in the field on their perspectives on AI and its use. The results show that the majority of the interviewed teachers and students are already confident in using AI features, but the potential future impact of AI raises several questions (Ady, Terpecz, 2018). Demeter and Mező (2023a, b) report positive attitudes towards the use of AI among primary school teachers (n=100), while this is not the case for prospective special educational teachers (n=157). Interest in the current use of AI in global and other areas is, unsurprisingly, growing by the day. This is also supported by other research (Szabóné, 2023), which similarly addresses the areas and possibilities of MI in the context of teaching, pointing out the potential risks, limitations and not least the role shift of the teacher. They emphasise the role of the MI in individualised learning, in helping children with special educational needs, but emphasise the teacher-student interaction, highlighting that learning can be supported by the MI, but it should be with the support and supervision of the teacher (Yufeia and Co., 2020; Szabóné, 2023).

### **Purpose and Method of the Research**

The research aimed to explore the attitudes, experiences and potential applications of professionals working with children in the use of artificial intelligence (AI) in education. Our aim was to investigate both their perceptions of AI and the areas in which it is used. The research sought to answer several questions. First, what are the opinions of teachers, special education teachers, and kindergarten teachers about the use of AI. We are also curious to know in which fields they are

applied and how well informed they feel about AI and its use. We also looked at how much potential the respondents see for the use of AI in education and in which areas.

A questionnaire was used to answer the research questions. The questionnaire was voluntary and anonymous. It included both open and closed questions, as well as Likert-scale questions, asking respondents to rate their level of agreement with the statements on an attitude scale of 1 to 10. The questionnaires were sent out in a targeted way. Access sampling was used. SPSS-27 was used to evaluate the results.

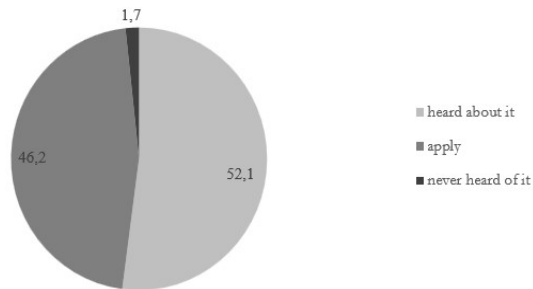
122 people took part in the study. The sample (N=122) consisted of 57.8% pre-school teachers, 26.7% special education teachers, 8.6% primary school teachers, 3.4% secondary school teachers, and 3.4% lecturers. Six respondents did not indicate which field of education they worked in. 97.5% of respondents were female and 1.6% were male. The vast majority of respondents are female, accounting for 97.5% of the total sample (119 respondents). Men represent only 1.6% (2 persons). One person was missing, bringing the total number of valid respondents to 121. This result reflects the gender distribution in the field of education, which traditionally shows a female dominance.

### **Results**

#### **Knowledge and use of artificial intelligence**

95.9% of respondents said they had heard of or used AI. Of these, 52.1% (62 respondents) had only heard of it, while 46.2% (55 respondents) had first-hand experience of using it. This indicates that AI is already present in the minds of teachers, although the actual use rate is still slightly below the level of knowledge (Figure 1).

Figure 1. Results of survey participants on the extent to which they have encountered artificial intelligence (AI). Source: by Authors.



#### Encountering types of artificial intelligence

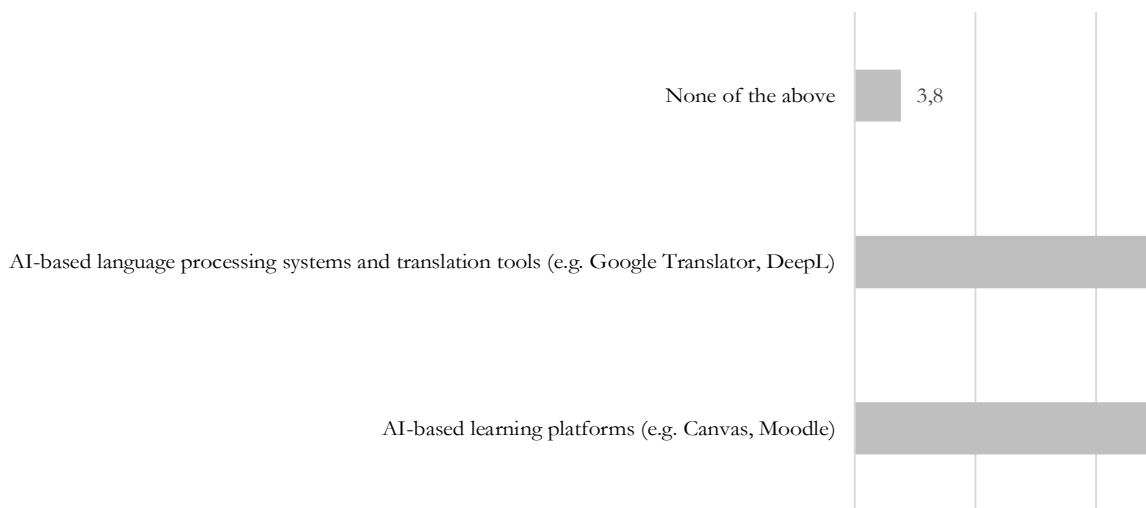
82.5% of respondents have encountered AI-based chatbots such as ChatGPT or Google Gemini. This is the most common AI tool among

respondents. 78.1% of respondents have encountered virtual assistants such as Siri, Alexa or Google Assistant. Half of the respondents (50.9%, 58 respondents) had encountered AI-based learning platforms such as Canvas or Moodle. Language processing systems, such as Google Translator or DeepL, were used by 93.2% of respondents, the most common AI tool among respondents. Only 3.8% (3 respondents) stated that they had not encountered any AI tools, indicating that AI is widespread among education students (Figure 2).

#### About the purposes of using AI

Based on the responses, there are several areas where AI is used. These results suggest that AI can be widely used for a variety of educational and training purposes, but that the popularity of each activity varies considerably. 38.2% of respondents (39) indicated that they used AI for essay writing.

Figure 2. Percentage of different AI help encountered in the teacher and student sample. Source: by Authors.



This relatively low proportion suggests that students do not rely primarily on the automation of writing tasks, probably in the context that creative and personalised writing is more difficult to generate effectively.

Only 21.0% (21 respondents) said that they had used artificial intelligence to write their essays. This low rate may indicate that students are more confident in their own professional competence when writing papers, or that they prefer to use AI as an additional tool. 39.3% of respondents (48) used AI to prepare presentations. This proportion suggests that nearly half of the students use AI to create visual materials, but more still prefer to create presentations manually. 67.2% of respondents (82) indicated that they used AI for data collection. This extremely high percentage shows that information retrieval is one of the main areas of application of AI, as it provides quick and efficient access to different sources. 49.2% (60) of respondents used AI to prepare for class. This proportion suggests that AI is a significant aid to students in preparing for lessons, although its use is not yet unanimous.

46.7% of respondents (57) used AI to prepare assignments. This moderately high proportion suggests that students use AI frequently in this area, but do not always rely solely on technology. 49.2% of respondents (60) used AI to search for literature. This indicator is similar to that for preparing for class, indicating that the use of AI is common here, but not universal (Figure 3).

### Views on artificial intelligence

The majority of respondents have a positive opinion about AI, even if it is not actively used in everyday life (40.8%). Fears about AI are also significant (25.8%), especially regarding lack of regulation and negative use. Only 17.5% consider AI to be innovative and willing to use it, indicating that full adoption and integration of the technology is not yet widespread. There are few people who are completely uninformed and do not use AI (15.8%), suggesting that the topic of AI is already widely available (Figure 4). The results reflect the mixed views in society and the different levels of uptake of AI.

Figure 3. Percentage values of AI usage targets in the sample. Source: by Authors.

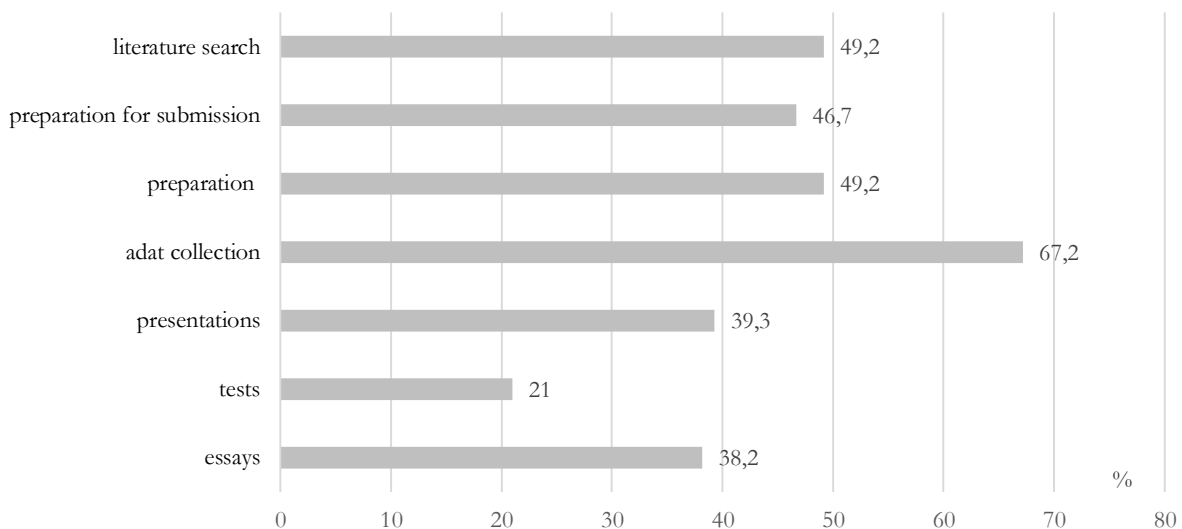
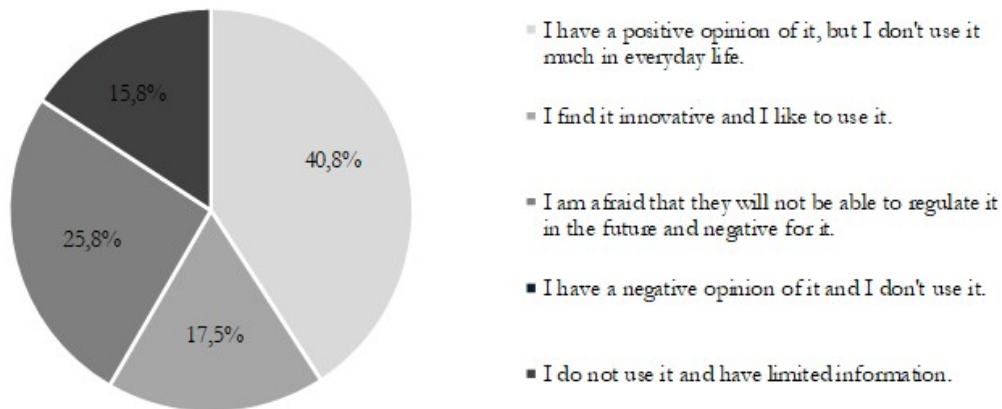


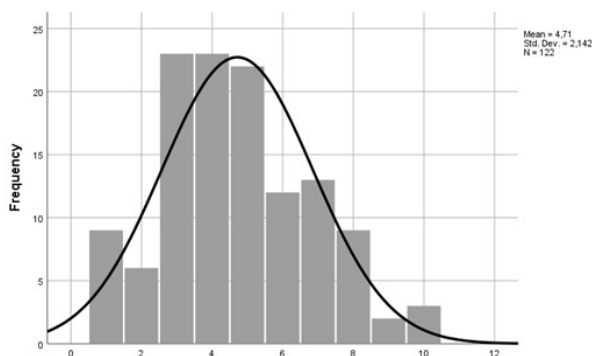
Figure 4. Attitudes about artificial intelligence. Source: by Authors.



#### How knowledgeable you feel about artificial intelligence and its use

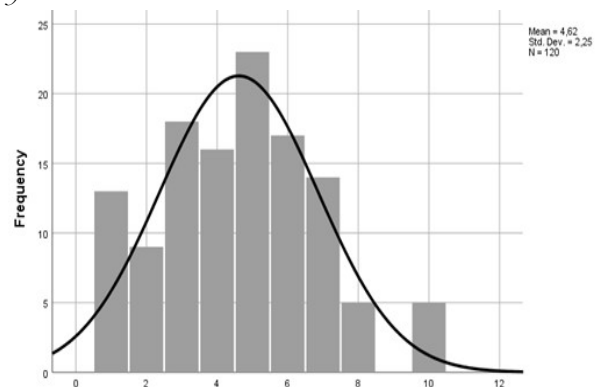
The histograms analysed (Figures 5, 6) show two aspects of awareness of AI: how well informed respondents feel about the subject in general (Figure 5) and how well informed they feel about the use of AI (Figure 6). In both cases, the distributions are slightly skewed to the right, indicating that the majority of respondents report a medium level of awareness, while extreme values (very uninformed or extremely informed) are less common.

Figure 5. How informed do you feel about AI (Likert scale scores, 1= not at all, 10= completely) Source: by Authors.



In Figure 5, the average level of awareness of respondents is 4.71 and the standard deviation is 2.142, indicating moderate variation between individual assessments. Most respondents scored in the 4-6 category, reflecting a medium level of awareness. Low (1-2) and high (9-10) scores are relatively rare.

Figure 6. How informed do you feel about the use of AI (Likert scale scores, 1= not at all, 10= completely). Source: by Authors.



In Figure 6, the average value for awareness of the use of AI is 4.62, with a slightly higher standard deviation of 2.25, indicating that respondents' self-assessment in this area varies more than for overall

awareness. Again, medium scores predominate (4-6 points), but the proportion of less informed respondents (1-3 points) is slightly higher.

Overall, respondents feel moderately well informed on both topics, but with greater individual differences in the use of AI. Slightly right-skewed distributions suggest that there is still room for further knowledge and practical experience among respondents.

### The potential of AI in education

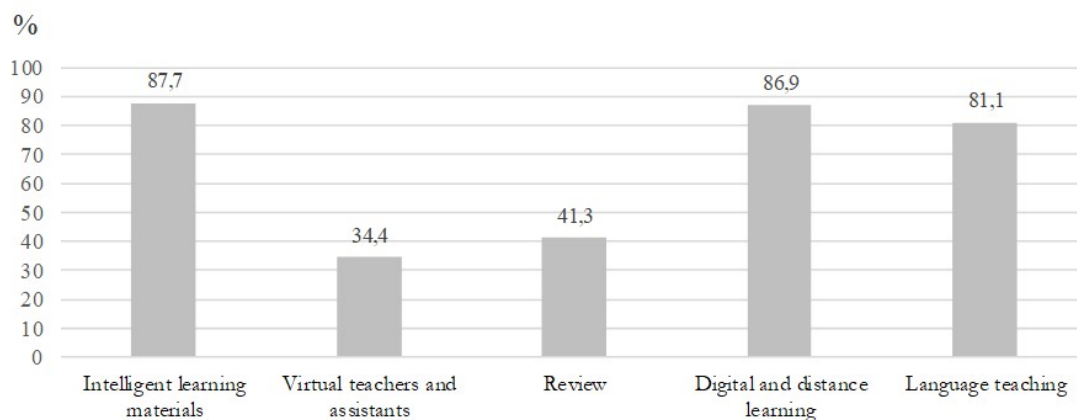
Based on the tables provided, the following conclusions can be drawn about the potential and acceptance of the use of artificial intelligence (AI) in education: The vast majority of respondents, 87.7%, identified this area as a potential application of AI in education. This shows that AI is widely valued and seen as a potential area for improvement in education. A minority of respondents, only 34.4%, see opportunities in the use of virtual teachers and assistants, while the majority, 65.6%, did not indicate this area. This suggests that the acceptance of virtual teaching assistants is lower, possibly due to technological trust or the

importance of face-to-face interaction. The use of AI in evaluation processes is supported by 58.7% of respondents, while 41.3% do not see this as an option. This is a divided area where further information or technology development on the use of AI may be warranted. A large majority of respondents, 86.9%, support the use of AI, indicating a widespread recognition of the benefits of digital and distance learning. This result is consistent with the rise of modern teaching methods (Figure 7).

81.1% of respondents see the potential of AI in language learning, indicating the popularity of automated language learning tools and applications. This area is particularly promising for the development of educational technologies.

Overall, 78.7% of respondents see potential for the use of AI in education. This high rate reflects a general openness and widespread acceptance of the technology in education. 83.6% of respondents want AI-based technologies to support learning, while only 16.4% reject the idea. This result shows a generally positive attitude towards AI educational technologies.

Figure 7: Perception of the applicability of AI in education. Source: by Authors.



### Assessing the applicability of AI in education

The overwhelming majority of respondents (71.3%) think that there are areas in education where AI can be applied. This indicates that interest and openness to its potential application in education is relatively high. 19.7% of respondents have a very positive view of future use, which means that they are optimistic about the future role of AI. Only 9% of respondents do not currently see the potential of using AI in education. This is a relatively low proportion, indicating that the majority of education professionals or people working in education do not exclude themselves from using AI.

The data show that trainers tend to think in terms of future possibilities and gradual adoption rather than outright rejection. Together, the proportions of positive and field-applicable solutions reflect the direction of progress in education.

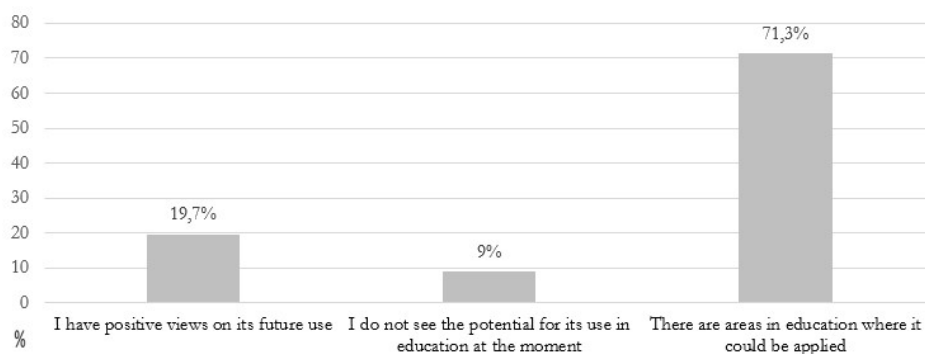
### Conclusion

The results of the research show that AI has a significant impact on the lives of students studying in the field of education, especially through everyday tools such as language processing systems and chatbots. The high participation of kindergarten teachers and special education teachers suggests that these fields may be particularly receptive to AI-based solutions. However,

the actual usage rates show that there is still room for the integration and practical application of AI tools in the pedagogical field.

The research also shows that the availability and familiarity of AI tools is high, but that further training and practical support for students is needed to ensure their informed and widespread use. This may be particularly important in areas such as special needs education, where AI tools can play a role in meeting special educational needs (cf. Demeter & Mező, 2023b). The results show that the most popular area of AI use is data collection, mentioned by more than two thirds of respondents. Writing essays and papers, and preparing submissions and presentations are less common, although a significant number of students still use AI for these tasks. Preparing for class and searching for literature are also popular applications, but a proportion of students still prefer traditional methods. The overall picture shows that AI in education has become predominantly used for research and information gathering purposes, while it plays a minor role in written tasks. Among the application areas of AI, data collection stands out in terms of popularity, while in other areas (e.g. preparing presentations, pre-paring for class, preparing assignments, searching for literature), its uptake is more moderate but significant among respondents.

Figure 8. Perception of the applicability of AI in education. Source: by Authors.





Results show that AI is mostly used for tasks that facilitate information gathering and content creation.

The majority of respondents have a positive opinion of AI, even if it is not actively used in everyday life (40.8%). Fears of AI are also significant (25.8%), especially regarding lack of regulation, and negative use. Only 17.5% consider AI to be innovative and willing to use it, indicating that full adoption and integration of the technology is not yet widespread. The results show that respondents see the greatest potential for the use of AI in the areas of smart learning materials, digital and distance learning, and language teaching. Although the acceptance of virtual teachers and assistants is lower, there is considerable openness in other areas. Overall, the demand for AI-based technologies is high among respondents, confirming that further development and adoption of their use in education could be relevant. Adoption of AI in education is not fully widespread, but the rate of negative responses is low. Most respondents believe that AI can be used in certain areas, and there is a significant minority who are positive about its future use. There is great potential for future applications in education, although current experience and applications have not yet triggered a full-scale transformation. Artificial intelligence and digital content, such as cloud-based education, are important because they offer personalized learning opportunities, promote equality among learners, and provide flexible access to knowledge anytime and anywhere (Katona et al. 2024)

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