

# Artificial Intelligence In Education: Attitudes, Knowledge And Perspectives

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## Abstract:

**Background:** Artificial Intelligence (AI) has started to significantly impact the education sector, raising both excitement and concerns among teachers. The ability of generative AI to generate new data, interact with natural speech and understand context, as in the example of ChatGPT, opens up new horizons in teaching practice. However, the introduction of AI in education raises a number of questions and challenges, From the need for continuous training to the change of teaching methodologies. In this context, it is important to examine teachers' knowledge, attitudes and perceptions, as well as the prerequisites for the effective integration of AI into the educational process.

**Materials and methods:** The study falls under exploratory research and aims to capture the current state of awareness of Primary and Secondary Education teachers about Artificial Intelligence (AI). The data collection was carried out using an anonymous self-reported questionnaire that was distributed via email to all schools nationwide through the Directorates of Primary and Secondary Education in December of 2023. The responses were collected through the Google Forms platform and statistical analysis was performed using IBM SPSS v29. The research sample was formed through the voluntary participation of N =1,736 teachers. A unique aspect of the study was a specific instruction that followed the demographic part of the questionnaire: participants were asked not to proceed if they answered "Not at all" to question AI, which assessed their familiarity with artificial intelligence. The preliminary findings revealed that 51% of respondents reported no knowledge of artificial intelligence, while 49% reported different levels of familiarity, ranging from little to extensive knowledge. After filtering the incomplete questionnaires, the final sample consisted of N = 862 teachers, and the data analysis was based on this subset.

**Results:** This study aimed to investigate the knowledge, attitudes and needs of teachers of Primary Education (PE) and Secondary Education (DE) regarding AI in the educational process. According to the results of the survey, participants have a good basic knowledge about the possibilities of AI, especially for its functional applications. However, there are areas that require further training, mainly in matters of decision making, influence on thinking and understanding of interaction. They express a positive attitude to its potential and concerns related to adaptation and its impact on education. At the same time, they stress the need for support, both at the level of education and infrastructure, as well as at the level of developing technologies that will be practical and effective. Our findings are fundamentally aligned with this framework, indicating that teachers recognize AI as a powerful tool capable of enriching the educational experience, in particular through personalization of teaching and facilitation of administrative processes. At the same time, significant concerns arise about its ethical and social impact on education.

**Conclusions:** The findings of this research study demonstrate that the teachers in the sample have a good basic knowledge about the potential of AI, especially for its functional applications. However, there are areas that require further training, mainly in decision-making, influencing thinking and understanding interaction in the educational process.

**Key Word:** Artificial Intelligence, Education, Teachers, Training.

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## I. Introduction

AI is one of the most innovative branches of computer science. The term describes systems and machines that can mimic human intelligence and perform tasks such as learning, reasoning, and problem-solving, without the need for direct human intervention. According to<sup>20</sup>. It is developed through machine learning algorithms that allow systems to perform complex cognitive functions, either autonomously or semi-autonomously. This

technology is distinguished at different levels depending on the autonomy and capabilities it offers, from simple reactive applications to fully automated systems. The idea of machine intelligence goes back to the early 20th century, when scientists began to examine the possibility of simulating human thought by machines. The term "Artificial Intelligence" was officially established in 1956 at the Dartmouth conference, where the foundations were laid for the development of intelligent algorithms and applications. Since then, AI has experienced fluctuations in its progress, with periods of excitement and frustration due to technological limitations. However, with the advancement of computing power and machine learning, AI has now emerged as one of the most powerful technological actors, affecting broad aspects of human life<sup>29</sup>.

AI is usually categorized into three main categories: "Weak AI", "Generic AI" and "Super-AI". AI Patient focuses on specific functions, such as voice or image recognition. On the other hand, General AI aspires to develop systems capable of approaching human intelligence in various fields, while Super-AI, although still debated, describes the ability of machines to surpass the cognitive capacity of the human mind<sup>26</sup>. AI is a fundamental technology that powers industry, health, education and many other sectors. Applications such as facial recognition systems, digital assistants and content recommendations on social media platforms are indicative of its diffusion in everyday life. In addition, in the health sector, it is used to analyze medical data, diagnose diseases and design personalized treatment plans<sup>11</sup>. Despite its undeniable potential, it raises important ethical and social questions. Concerns include transparency of algorithms, privacy, and the possible replacement of humans in critical professional fields. It is necessary to develop regulations to ensure that its use remains ethical and fair for the whole of society<sup>12, 16</sup>.

The introduction of AI in education has brought revolutionary changes in the educational process. Students can have personalized learning experiences, while teachers can manage content and assessment more effectively. It has initially been introduced through online education systems and applications such as "intelligent educational platforms" that tailor content based on students' needs, enhancing knowledge absorption<sup>4</sup>. One of their main applications in education is the creation of personalized learning paths. Machine learning algorithms can analyze student data and tailor their teaching to individual needs and preferences. The use of "intelligent educational systems" improves their learning efficiency, as students have access to content that corresponds to their own level and pace<sup>10</sup>. In addition, it has enhanced the educational process through tools such as "smart learning environments" and "intelligent teaching systems". These technologies allow data to be used to track student progress and evaluate educational goals. Data analysis using it helps improve the educational experience, creating a more structured and efficient learning process<sup>21</sup>.

Despite its technological potential, there are ethical and social issues that need to be addressed. Concerns include ensuring student privacy, the ethical use of data, and its impact on traditional teaching methods. The balance between AI use and human values is a major challenge for the educational community<sup>8</sup>. AI is expected to play a key role in reshaping the educational process, enhancing both learning and teaching. Its educational applications include course attendance, intelligent teaching systems and emotion analysis, while highlighting its potential to improve personalized learning and dropout prevention<sup>33</sup>. Teachers' understanding of it is a critical element in integrating technology into classrooms. Teachers recognize its potential to support teaching, but often face limitations due to lack of knowledge and familiarity with modern technologies<sup>13</sup>.

Teachers are likely to take on the role of facilitators and mentors, rather than being replaced by AI. While it can automate repetitive processes, human guidance remains essential for understanding and developing social skills<sup>19, 31</sup>. Teachers' knowledge of AI is often linked to their level of digital literacy. Research by<sup>6</sup> showed that many teachers have basic skills in information technologies, but limited knowledge about AI and its practical applications in education. Despite these obstacles, teachers are open to using its tools, recognizing their value for personalized learning. The adoption of tools such as intelligent teaching systems and learning analytics systems has positively affected teachers' performance and confidence in teaching. AI-based data analytics facilitate the development of educational strategies tailored to students' needs<sup>21</sup>.

AI provides tools that enhance the personalisation of learning. Teachers who have access to AI-based software can enhance their teaching methods and support students' individual progress, while reducing their workload<sup>18</sup>. The need for educational programs that focus on its use is intense. Highlight the need for more educational opportunities and tools to enhance teachers' confidence in its use in classrooms<sup>25</sup>. Also, its ethical use is one of the biggest challenges for the future of education. Ensuring transparency, avoiding bias in algorithms, and protecting privacy are critical issues that need to be addressed for its sustainable integration<sup>15</sup>. Teachers' attitudes towards AI are a critical factor for the successful integration of this technology into the educational process. Teachers and professors often recognize its potential to improve personalized teaching and increase efficiency in managing educational processes. Found that more than half of teachers see it as an important aid to their professional development, particularly in areas such as facilitating teaching and reducing workloads<sup>32</sup>.

Despite the positive attitude towards its use, several teachers are concerned about the possible alienation from traditional teaching methods and data dependence. Many educators are concerned about its impact on the learning experience, particularly when its use is not accompanied by adequate human-centered guidance<sup>18</sup>. The

lack of knowledge and skills to use it in the classroom highlights the need for extensive training. Teachers often express the need for tools and learning materials to help them use AI in their classrooms. Although many have basic digital literacy skills, they recognize that specialized knowledge is required to use it effectively in educational practice<sup>25</sup>. Teacher training should include activities that promote understanding of its key elements and their application to teaching practices<sup>14</sup>. The addition of AI tools, such as intelligent assistants and data analytics platforms, can enhance educational practice.

Teachers need support that includes both technical guidance and opportunities to understand the dynamic use of AI tools in the classroom<sup>5, 23, 24</sup>. Personalising learning through AI requires developing skills related to data analysis and tailoring content to students' needs. AI-based education systems enable teachers to provide targeted teaching and feedback in real-time<sup>28</sup>. Training strategies should enhance teachers' professional development and provide practical support. Study proposes the creation of databases and educational environments that support its integration into teaching, while emphasizing the importance of expert guidance<sup>2</sup>.

Its application in education requires clear and defined institutional frameworks to ensure the ethical, fair and safe use of these technologies. AI-related policies must promote transparency and inclusion, and it is crucial to include criteria that avoid the injustices and bias that may be reinforced through algorithms<sup>22, 27</sup>. UNESCO, through its AI ethics initiative, promotes policies that ensure that AI technologies work for the benefit of education and society. Its proposal includes the development of tools and guidelines for its proper use in education systems<sup>30</sup>. It brings with it challenges such as ensuring privacy, avoiding inequalities and strengthening social justice. Highlights the need for a governance framework based on social values and taking into account its risks and benefits in education<sup>9</sup>. The implementation of an effective institutional framework can be achieved through cooperation between state bodies and possibly private organizations. It is necessary to develop uniform international regulations to regulate it, combining social responsibility and technological innovation<sup>1</sup>.

Based on this theoretical framework, a key question examined in this study concerns teachers' knowledge, perceptions and attitudes regarding the use of Artificial Intelligence in education and the possibilities it provides in the learning process (Module A). It also explores attitudes about its introduction and use in education and readiness to accept it (module B). In addition, the results will include findings on training needs and changes in curricula and the necessary infrastructure and equipment needed to use AI at school (B1). Therefore, the research objectives are formulated as follows:

- How do teachers' knowledge and perceptions of generative AI, such as ChatGPT, affect its acceptance and integration into the educational process?
- What factors influence teachers' attitudes and readiness towards the integration of AI in the educational process?
- How do teachers' support needs affect the acceptance and effective integration of AI in the educational process?
- Is there a difference in knowledge, attitudes and needs for AI in education between teachers of ICT and DE?

## **II. Material And Methods**

This study adopts an exploratory approach, aiming to capture the current state of knowledge, perceptions and attitudes regarding Artificial Intelligence in the learning process of primary and secondary school teachers. The data collection was carried out using an anonymous questionnaire distributed via email to all schools in the country through the Directorates of Primary and Secondary Education in December 2023. The answers were collected using the Google Forms platform and the statistical analysis was performed with IBM SPSS v29.

**Sample:** research sample initially consisted of N=1,736 teachers who participated voluntarily. A distinctive feature of this study was a filtering mechanism: after collecting demographic data, participants were instructed not to proceed with the questionnaire if they answered "Not at all" to question A1, which asked: "How familiar are you with AI?". Consequently, the initial findings revealed that 51% of teachers reported no knowledge of AI, while 49% reported varying degrees of familiarity, ranging from "little" to "extensive". After excluding incomplete questionnaires, the final sample was improved to N=862 and this subset formed the basis for data analysis.

**The questionnaire:** The questionnaire was created through a literature review and the needs of the present research and is part of a broader research<sup>17, 34, 35, 36</sup>. It includes three modules (A: Knowledge about Artificial Intelligence (ChatGPT), B: Teachers' attitudes to Artificial Intelligence in Education, C: Support needs for the use of AI in the educational process).

**Statistical analysis:** Data analysis was performed using descriptive and inferential statistics with IBM SPSS v.29 software. The percentages and frequencies were calculated and the results were presented in tables. The regularity of the variables related to sections B and D was tested using the Kolmogorov-Smirnov test, as well as indicators of asymmetry and kurtosis. The results showed that the variables followed a normal distribution (p-value >0.05). To investigate the correlation between the use of AI in education and the ethical issues arising from its

introduction, the parametric correlation test Pearson was applied. For open-ended question D8, a qualitative approach was used and a thematic analysis was carried out.

### III. Results

Table 1 *Percentage Distribution of AI Knowledge*. Regarding teachers' knowledge of the potential of AI and ChatGPT, participating teachers seem to have a significant awareness about its fundamental functions. Specifically, 85.4% recognize that AI can create new data. This reflects a general understanding of the capabilities of machine learning algorithms to create content. An overwhelming percentage (91.9%) are aware that AI can interact with natural language, highlighting the pervasive use of tools such as ChatGPT. They also express high levels of understanding about the basic properties of ChatGPT. 92.6% know that ChatGPT is a large language model, which shows sufficient familiarity with its role in language processing. 80.3% recognize the ability to understand content, emphasizing its functional use. However, areas where knowledge is limited or incorrect are recorded. 47.1% believe that ChatGPT can make decisions, which highlights confusion about its functionality. AI does not make autonomous decisions, but proposes data-driven solutions. Only 31.3% recognize ChatGPT's ability to influence thinking, indicating limited awareness of the indirect effects of interacting with AI. There is controversy regarding the standardization of ChatGPT responses. 54.1% believe they use standardized answers, which highlights the different perception of the level of personalization offered by the model's answers.

**Table 1: Percentage Distribution of Knowledge on Artificial Intelligence**

<b>Module A N=862</b>	<b>YES (%)</b>	<b>NO (%)</b>
A2 Does generative AI have the potential to create new data?	85,4	14,6
A3 Does Generative AI have the ability to interact with natural speech?	91,9	8,1
A4 Is ChatGPT a great AI-generative language model?	92,6	7,4
A5 Does ChatGPT understand contextual content?	80,3	19,7
A6 Can ChatGPT make decisions?	47,1	52,9
A7 Does communication with ChatGPT look human?	79,6	20,4
A8 Does ChatGPT use standardized answers?	54,1	45,9
A9 Can ChatGPT process our thinking and behavior?	31,3	68,7

Table 2 *Percentage Distribution of Teachers' Attitudes to Artificial Intelligence in Education*. Regarding participants' attitudes towards AI in education, the majority seem to recognise its positive dimension, with 59.9% considering its use beneficial for the education system. This optimism probably reflects the belief that AI can improve teaching and offer personalized solutions for learning. At the same time, However, there remains a significant percentage (40.1%) who are sceptical, which can be attributed to a lack of adequate information or resistance to change. The concern about its introduction is evident, with 63.8% of teachers stating that they are concerned about the consequences that its use may bring. This reveals deeper concerns about managing technological change, such as the possible loss of human contact in teaching or reliance on algorithms that may not be fully understood. Equally important is the lack of preparedness expressed by 58.2% of teachers, who say they do not feel prepared to integrate AI into their teaching work. This attitude highlights the need for targeted training and support in order to acquire the necessary knowledge and skills to realize its potential. A striking finding is that 85.2% of teachers would prefer to be admitted after retirement, which probably indicates a positive attitude to change and confidence in their abilities to adapt.

**Table 2: Percentage Distribution of Teacher Attitudes to Artificial Intelligence in Education**

<b>Module B N=862</b>	<b>Not at all-little (%)</b>	<b>Very-Very much (%)</b>
<b>Questions</b>		
B1. Based on your studies, experience and broader attitude to life, do you think that the entry of Artificial Intelligence in Education is positive?	40,1	59,9
B2 Are you concerned by the evolution of the introduction of Artificial Intelligence in Education?	63,8	36,2
B3 Do you feel ready to work with the use of Artificial Intelligence?	58,2	41,8
B4 Do you prefer the entry of Artificial Intelligence into Education after your own retirement?	85,2	14,8

Table 3 *Percentage Distribution of Teacher Support Needs for Artificial Intelligence in Education*. Regarding the support needs of respondents for the use of AI in the educational process, one of the urgent needs recorded concerns the attendance of training programs and certification in its use, with 92.3% of teachers expressing interest in such a possibility. This indicates the need for specialized training that will equip teachers with the skills and knowledge needed to properly use it in the teaching. Equally important is the need for

continuous support from a team of experts through distance learning, as stated by 82.1%, which demonstrates the value of continuous guidance and updating of skills. The simplicity and usability of AI applications emerge as critical parameters, with 93.3% of teachers wanting easy-to-use and understandable solutions for each lesson. This underlines the need for user-friendly technologies that enhance teaching without burdening the teacher with technical details. At the same time, 60.3% express the need to reduce the curriculum in order to create space for its effective introduction in the educational process. A particularly important finding concerns the logistical infrastructure, as 94.9% of teachers consider solving them to be a priority. This indicates the need for appropriate facilities, such as interactive whiteboards and reliable connectivity, in order to support the use of AI technologies in the classroom. Finally, 89.3% ask for curricula that include specific suggestions for its use in each subject, which shows the desire for guidelines that will ensure its targeted and consistent introduction and use in the learning process.

**Table 3:** Percentage distribution of teacher support needs for Artificial Intelligence in Education

Module B-1 N=862		
However, if you are called upon to work with the support of Artificial Intelligence, what would you most need to feel safe and effective?		
Statements	YES (%)	NO (%)
B1-1 -attendance of a training program and certification in the use of Artificial Intelligence in Education.	92,3	7,7
B1-2 – continuous training and support by a team of experts through Distance Education for the use of Artificial Intelligence in teaching methodology.	82,1	17,9
B1-3 – simple, understandable and easy-to-use applications of Artificial Intelligence in every lesson.	93,3	6,7
B1-4 – reduction of the curriculum in all subjects for effective use of Artificial Intelligence in teaching.	60,3	39,7
B1-5 – Curricula with suggestions for specific applications of Artificial Intelligence in each course and teaching unit.	89,3	10,7
B1-6 – Primary solution of logistical and building infrastructure (interactive whiteboards, fibre optic internet, etc.)	94,9	5,1

**Correlation with attitudes, needs and knowledge about AI**

Table 4 *Descriptive correlation measures*. In terms of descriptive correlation measures, WP participants show a higher mean value than in CI attitudes about AI in education (mean=1.41) and knowledge about AI (mean=1.72). For the needs in the use of AI there is equality of mean values (mean=1.85).

**Table 4:** Descriptive correlation measures

	Level of Education	N	Mean	Std. Deviation	Std. Error Mean
Teacher attitudes about AI in education	IP Educator	346	1,41	,186	,010
	Educational Assistant	516	1,36	,202	,009
Teachers' needs for AI use	IP Educator	346	1,85	,209	,011
	Educational Assistant	516	1,85	,175	,008
AI teacher knowledge (ChatGPT)	IP Educator	346	1,72	,178	,010
	Educational Assistant	516	1,69	,160	,007

Table 5 *Independent Samples Test*. The correlation test of attitudes, needs and knowledge with the Level of Occupational Education, according to Levene's Test, showed that there is a statistically significant difference in mean values for teachers of P.E. and Ph.D. in terms of their attitudes [F(860)=7.197, p<0.05] and knowledge about AI [F(860)=2.695, p<0.05]. For AI needs there is no statistically significant difference [F(860)=3,814, p>0,05]. Therefore, PE teachers show a greater degree of positive attitudes about AI in education and more knowledge about AI (ChatGPT) in applications in the educational process than teachers of the Thesis.

**Table 5:** Independent Samples Test

	Levene's Test for Equality of Variances				Significance		
		F	Mr.	t	df	One-Sided p	Two-Sided p
Teacher attitudes about AI in education	Equal variances assumed	7,197	,007	3,529	860	<,001	<,001
	Equal variances not assumed			3,585	778,691	<,001	<,001
Teachers' needs for AI use	Equal variances assumed	3,814	,051	-,156	860	,438	,876

	Equal variances not assumed			-,150	648,108	,440	,880
AI teacher knowledge (ChatGPT)	Equal variances assumed	2,695	,101	1,914	860	,028	,046
	Equal variances not assumed			1,875	686,457	,031	,049

#### IV. Discussion

Regarding respondents' knowledge of the capabilities of AI and ChatGPT, the findings show that teachers are largely familiar with its fundamental functions, with 85.4% acknowledging that AI has the potential to create new data, while 91.9% understand that it can interact with natural language. This understanding is likely linked to the pervasive presence of tools such as ChatGPT, which have emerged as key means of communication and content production<sup>4</sup>. The deep knowledge of the basic functions of ChatGPT is confirmed by 92.6% of teachers, who recognize that it is a great language model, as well as by 80.3%, who understand its ability to interpret context. These findings highlight teachers' growing familiarity with its potential to improve teaching through tools based on machine learning and natural language processing<sup>5</sup>. However, there are also ambiguities. 47.1% of teachers mistakenly believe that ChatGPT can make decisions, suggesting confusion about its nature, which relies on data and algorithms to provide solutions without thought autonomy<sup>1</sup>. In addition, only 31.3% acknowledge that ChatGPT can influence thinking and behavior, indicating limited perception of its potential impact on cognitive process and human communication<sup>9</sup>. Finally, teachers' perception of standardizing ChatGPT responses varies, with 54.1% considering answers to be standardized. This suggests different perceptions of the degree of personalisation offered by language models, highlighting the need for greater enlightenment around the function and limits of AI technologies<sup>31</sup>.

Regarding the factors influencing the attitudes and readiness of participating teachers towards the adoption of AI in the educational process, the majority consider it positive, with 59.9% recognizing its potential to improve teaching and provide personalized learning solutions. However, a significant percentage (40.1%) remain skeptical, possibly due to a lack of sufficient information or fears about the impact of technology on the traditional educational process<sup>4</sup>. Despite the positive mood, 63.8% of teachers express concern about its development, highlighting fears about the loss of human contact and dependence on algorithms that are not fully understood. At the same time, the sense of readiness for its use is limited, as 58.2% state that they do not have the necessary skills, indicating the need for targeted professional development programs<sup>5</sup>. In addition, 85.2% of teachers do not prefer admission to their education to be delayed until their retirement, which reveals a positive attitude to change and security to adapt to technological developments. This attitude highlights the need for effective support and information so that teachers can use it in a way that serves the learning process<sup>9</sup>.

Regarding respondents' support needs for the use of AI in the learning process, critical aspects are identified for the effective integration of technology in classrooms. The need for specialized training emerges as one of the most urgent requirements, with 92.3% of teachers expressing interest in attending training programs and obtaining certification in its use. This priority illustrates the lack of adequate skills and the importance of specialized education to prepare teachers to use these tools effectively<sup>4</sup>. In addition, 82.1% of teachers recognize the importance of continuous support from teams of experts through distance learning, which indicates the need for continuous guidance and updating skills, especially in a field that is evolving rapidly. Equally important is the emphasis on the simplicity and usability of its applications, with 93.3% of participants preferring easy-to-use solutions that adapt to the requirements of each course. This preference highlights the need for technologies that are user-friendly and reduce technical burden for teachers<sup>5</sup>. The lack of adequate infrastructure is another major issue, with 94.9% of teachers citing the need to solve logistical issues such as interactive whiteboards and a reliable internet connection. This finding highlights the importance of investing in infrastructure to facilitate its introduction into the educational environment. At the same time, 89.3% call for curricula that include clear instructions and examples for its use in teaching, indicating the need for a systematic and guided implementation framework<sup>9</sup>.

Regarding the correlation of AI attitudes, support needs and knowledge in the educational process based on respondents' level of work education, the findings showed that the average values of PE and DE teachers show statistically significant variation in both attitudes [ $F(860)=7.197, p<0.05$ ] and their knowledge of AI [ $F(860)=2.695, p<0,05$ ]. In contrast, no statistically significant differences were identified in the support needs of the two groups for its use. P.E. teachers maintain more positive attitudes towards AI and show higher levels of knowledge about its use, especially regarding applications such as ChatGPT, compared to their colleagues in P.E. This differentiation can be attributed to its greater familiarity or acceptance in educational practices of ICT, where the needs for adaptation and personalization of teaching may be more intense. On the other hand, the absence of differences in support needs suggests that both groups of teachers face common challenges in its implementation, highlighting the need for targeted training programmes that respond equally to the requirements of all levels of education. These findings are consistent with previous studies showing that teachers' level of education at work

can influence their attitudes and knowledge towards AI, while highlighting the need for cross-cutting training policies that address common challenges regardless of their level of education<sup>5</sup>.

## V. Conclusion

The findings of this research study demonstrate that the teachers in the sample have a good basic knowledge about the potential of AI, especially for its functional applications. However, there are areas that require further training, mainly in decision-making, influence on thinking and understanding of interaction in the educational process. They also reveal a combination of positive recognition of its potential and concerns related to adaptation and its impact. The need for adequate information, training and support is obvious, as AI is gradually being integrated into the educational process. At the same time, there is a need for multilevel support, both at the level of training and infrastructure, as well as at the level of developing technologies that will be practical and effective. These needs are key prerequisites for creating an environment where AI enhances teaching and learning, bringing value to both teachers and students. The introduction of AI in education seems to be an inevitable development, which can bring positive changes, but also raise concerns. Continuous teacher training, the development of simple and easy-to-use applications, as well as the improvement of infrastructure are key factors for the successful integration of AI. In addition, reducing the curriculum and creating curricula that incorporate specific AI applications can help make effective use of this technology. Finally, the human dimension of education remains central, with AI acting as a support tool rather than a replacement for students' and teachers' creative and critical thinking.

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