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ARTIFICIAL INTELLIGENCE IN EDUCATION. THE PROMISE AND CHALLENGES OF THE SCHOOL OF THE FUTURE

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Abstract

Technology is evolving at an accelerating pace, and one of the most exciting and transformative areas is artificial intelligence (AI). In education, AI promises to redefine the way we learn and teach, but it also brings with it significant challenges. his transformation is made possible by using technology to analyze each student's behavior, preferences, and pace of learning, providing personalized educational pathways. Unlike traditional teaching methods, where all students are treated similarly, artificial intelligence-based technologies can pinpoint gaps in a student's understanding and provide tailored resources to fill those gaps. One of the biggest advantages of personalization is that students can learn at their own pace, which is important for an effective educational process.

Keywords: ***AI, education, modern education, learning environment, the democratization of education.***

Introduction

In a traditional classroom, some students may feel pressured to keep up with their faster peers, while others may lose motivation due to they are not sufficiently challenged by standard materials. Artificial intelligence creates a balance, giving students a learning experience tailored to their level of proficiency, whether that level is below or above the group average.

For example, modern educational platforms using artificial intelligence can automatically suggest additional exercises for a student who is struggling with math or recommend more advanced materials for a student who excels in a particular subject. In addition, these systems

provide constant and detailed feedback, which is invaluable for both student and teacher. The pupil can see where they need to focus more and the teacher can have a clear picture of each child's progress and difficulties. Another important perspective of personalization is the increased motivation generated. When students feel that they are understood and that their educational path is tailored to their needs and interests, they become more engaged and eager to learn. As an example, a student with a passion for art may be given examples or projects related to the arts during history or science lessons, making the subject more engaging for them. This kind of integration of personal passions into the educational process is a tremendous opportunity that AI can provide. Moreover, AI can help reduce the anxiety which is associated with assessments and tests. Instead of being judged by comparison to their peers, students receive personalized feedback which is focusing on their individual progress. Assessments are no longer just a time to test knowledge, but become a continuous learning process. This removes the traditional pressure associated with standardized testing and encourages students to see mistakes as an opportunity for their growth and not failure.

Personalizing learning

A benefit of personalizing learning is that it promotes a more inclusive learning environment. Students with disabilities or special needs benefit enormously from AI technologies that can adapt learning materials to their specific needs. For example, students with reading difficulties can use apps that turn text into speech, while those with mobility problems can access interactive lessons through voice commands or gestures. In addition to the direct benefits for students, personalizing learning also has a positive impact on teachers. Instead of being overwhelmed with the task of simultaneously responding to the varying needs of a large class, teachers can use technology to monitor each student's progress and intervene where needed. In this way, teachers' time is used more efficiently and their interactions with students become more relevant and focused on their real needs. Of course, implementing such personalized learning could not be without its challenges. One of the biggest difficulties is *unequal access to technology*. Not all schools or families have the resources to implement advanced AI-powered solutions, which can lead to widening educational disparities. It is crucial that international organizations and governments invest in bridging this digital divide by ensuring that all students have access to the opportunities provided by AI. There are as well various concerns about ethics and data privacy.

In order for artificial intelligence to personalize learning, it is necessary to collect more data about learners, including information about their academic performance, online behavior and personal interests. This massive data collection can raise questions about who has access to this information and how it is used. It is imperative that there are clear policies and rigorous security measures in place to protect student data and to ensure transparency in it`s use. Despite these challenges, the potential of artificial intelligence to transform education through personalization is immense. As technology continues to advance, solutions could be expected to become increasingly accessible and sophisticated, opening up new horizons for the education of the future. The key to success, however, lies in the intelligent and balanced use of these tools to maintain a balance between technology and human interaction. Personalized education should not replace teachers or remove human relationships from the learning process, but become a tool to enhance these essential elements.

In essence, personalizing learning through artificial intelligence has the potential to revolutionize the way we learn and teach. However, the success of this transformation depends on our ability to overcome the challenges of access, ethics and privacy. Ultimately, the mission of education remains the same: to produce well-trained people capable of contributing to a better society, and artificial intelligence can become a valuable ally in achieving this goal.

Artificial intelligence has the potential to become a key catalyst for the democratization of education, providing expanded access and more equitable opportunities for learners around the world. In an ever-changing world where education is the key to a better life, AI is proving its usefulness by reducing geographical and socio-economic barriers that limit access to learning. Traditionally, quality education has often been a privilege, available mainly to those living in developed areas or who can afford the high costs associated with prestigious institutions. This inequity leaves behind millions of students in isolated, disadvantaged or marginalized areas, depriving them of the chance to develop their potential. Artificial intelligence is transforming this reality through the accessibility offered by online educational platforms. These platforms, powered by AI, provide users with quality learning materials, hands-on exercises and resources regardless of physical barriers. A child in a remote village can now have access to the same courses and information as a student in a developed city, as long as they have an internet connection. Such progress is fundamental to building a fairer world where education becomes a universal right, not a selective privilege. Through technology, knowledge becomes widely available, narrowing the gap between those who have had always the access to resources and those who have not.

One more important aspect of broad accessibility is that *AI can tailor educational content to the needs and characteristics of each student.* This flexibility is essential for learners with special difficulties or from disadvantaged backgrounds. For example, a hearing-impaired student can have access to lessons that include subtitles or automatic translations, while a student with learning difficulties can receive more detailed explanations and additional examples to help them better understand the concepts being taught. This level of personalization not only facilitates the learning process, but as well encourages students to continue their studies, eliminating feelings of exclusion. AI also plays an important role in widening access to education for adults or those who have had to take a break in their studies. Online platforms allow people of all ages to learn at their own pace, according to the time available and their needs. As an example, an adult in a rural community can take online courses to learn a new trade, increasing their employability and contributing to the economic development of their community. That is a concrete form of democratization of education, where technology opens doors to opportunities which otherwise would might been unreachable.

Another important advantage of AI-based educational platforms is that *they can operate in a multilingual and intercultural way.* In the past, language was often a barrier for students who did not have access to educational resources in their mother tongue. AI eliminates this problem through machine translation and cultural adaptation, allowing students around the world to learn at their own pace and in their native language. Such feature is crucial for safeguarding cultural and linguistic diversity while ensuring an inclusive and relevant educational process. However, we cannot talk about broad accessibility without mentioning the importance of bridging the digital divide. While AI offers remarkable solutions for expanding access to education, there are still millions of learners who are unable to benefit from these innovations due to lack of access to the internet or technological devices. Rural areas or disadvantaged communities remain most vulnerable to this problem. Against this backdrop, governments, international organizations and technology companies have a shared responsibility to invest in infrastructure and provide affordable solutions for all. As an example could be, projects which provides internet-enabled tablets for disadvantaged schoolchildren or developing free wireless networks can have a significant impact on bridging the digital divide.

Another important obstacle to be addressed is the *quality of the connection between users and educational platforms.* Even in regions where the technology is available, the lack of adequate training of teachers or parents can prevent the effective use of these resources. It is crucial that

the implementation of AI in education is accompanied by training programs that support all participants in the educational process, making sure a smooth transition to new learning and teaching methods. For students from disadvantaged backgrounds, AI can help create more efficient learning strategies based on their specific needs. For example, AI can analyse the performance of a group of students in a disadvantaged area and identify the main obstacles to their progress. This data can then be used to develop tailored educational programs that give students extra support in areas where they are struggling. Like this, education becomes not only way more accessible, but as well more relevant to each pupil's social and economic context.

Adaptive education

Another area where AI is having a significant impact is *education for children with disabilities*. Modern technologies can completely transform the way these children learn by giving them tools to actively participate in the educational process. For example, a visually impaired child can use apps that turn text into sound, while a child with autism could possibly benefit from interactive platforms which allow him to learn in a more structured and predictable way. These solutions help integrate disabled children into the education system and create a more inclusive environment for all students. Artificial intelligence is thus a transformative force in expanding access to education and promoting more equitable education. By reducing geographical, linguistic and economic barriers, AI offers unprecedented opportunities for millions of learners worldwide. However, the success of this educational revolution depends on society's collective efforts to overcome associated challenges, such as the digital divide or lack of adequate training. Through the responsible and strategic use of AI, we can build a world where education becomes a universal right, accessible to all, regardless of their circumstances.

Artificial intelligence is becoming increasingly relevant in education not only to improve learning but as well to streamline administrative tasks in schools. *Teachers, principals and other educators are often burdened with a multitude of repetitive and time-consuming tasks that diminish their ability to focus on their core mission: educating students*. That's where AI comes in, with the promise of automating many of these tasks, freeing up valuable time and human resources for more meaningful activities. From automatically grading tests and organizing the curriculum to managing documents and analysing student performance data, AI is ushering in a new era in school management. A concrete example of the efficiency AI brings to the administrative sphere is the automation of the evaluation process. In a traditional school, teachers spend hours correcting tests, papers and essays, analysing details such as the

correctness of answers, the coherence of ideas or compliance with requirements. These activities, while essential, are tedious and time-consuming, and the resources allocated to marking could be better spent on lesson preparation or direct interaction with students. AI fundamentally changes this dynamic by deploying systems capable of automatically analyzing and evaluating written work using advanced natural language processing algorithms. Such systems not only provide fast results, but can also provide detailed feedback, highlighting students' strengths and weaknesses, which helps personalize the learning process.

Another major advantage of using AI in education is the *organization of the school curriculum*. Creating a timetable that accommodates the needs of students, teachers and available resources is often an extremely complex logistical task. Each class, teacher, and resource must be distributed in such a way that there is a balance between demands and availability. By using artificial intelligence, these challenges can be managed much more effectively. Advanced algorithms can analyze thousands of variables simultaneously, generating school schedules that optimize classroom utilization, teacher assignments, and avoid overlap. In this way, AI not only saves time, but also creates more efficient solutions that are better tailored to the real needs of the school. Document and data management is another administrative task that could possibly be greatly simplified by using AI. In an educational environment, huge volumes of information are processed on a daily basis, from student personnel records and academic reports to administrative forms and official communications. AI makes it possible to store, organize and access this data quickly, eliminating the need to keep bulky and unwieldy physical archives. What's more, the technology can identify patterns and trends in the data collected, providing administrators with actionable information for decision-making. For example, a school principal can use AI to analyze students' academic performance in relation to class attendance, thereby identifying systemic issues that need to be addressed.

A less obvious aspect of automation is *improving communication between parents, school administration and teachers.* AI can be used to manage notification and reporting systems, sending parents updates about their child's progress, school schedule, or important events. These automated notifications not only reduce teachers' workload but also ensure faster and more efficient communication. For example, instead of a teacher manually drafting individual reports for each parent, an AI-based system can automatically generate these reports, including personalized information about each student. In addition, AI can also support teacher recruitment and training processes. Selecting the right staff for an educational institution is a challenging task that requires careful assessment of the candidate's skills, experience and

compatibility with the school's organizational culture. AI algorithms can analyze resumes, cover letters and other documents to identify the most suitable candidates, saving time and resources for human resources departments. Once hired, AI can provide customized training programs tailored to each teacher's needs, helping them develop their skills and adapt more easily to modern educational requirements.

However, integrating artificial intelligence into the management of administrative tasks is not without its challenges. One of the major concerns is data privacy. Given the huge amount of personal information collected and processed by these systems, rigorous security measures are essential to protect the privacy of students, teachers and parents. Any security breach could have serious consequences, undermining trust in these technologies. There is also a risk that over-reliance on AI could lead to the loss of essential human skills, for example as critical thinking or intuitive decision-making, which are indispensable in dealing with unexpected situations. Despite these challenges, the benefits that AI brings in automating and streamlining administrative tasks are invaluable. Reducing repetitive workloads allows teachers and administrators to focus on the crucial aspects of education, such as developing curriculum, supporting students, and creating a more enjoyable and productive learning environment. In addition, AI helps to optimize resources and reduce costs, which is particularly important in a context where educational budgets are often limited.

As technology continues to advance, new opportunities are opening up for the integration of artificial intelligence in schools. In the future, we can expect even more sophisticated systems capable of fully integrating administrative and educational processes, creating a unified ecosystem that supports student learning and development. To realize this potential, it is crucial that the implementation of AI in schools is done responsibly, with a focus on equity, safety and sustainability.

Data security and algorithm in modern education

Artificial intelligence has revolutionized the way we process, analyse and use data, especially in the field of education, where the collection and analysis of information about students could have a remarkable impact on the whole learning process. Although, this technological transformation brings with it major ethical and data privacy challenges. For AI to work effectively, a large amount of personal information about learners is needed: their learning behavior, academic performance, interests, and even social interactions. This need to collect

and analyze data raises essential questions about how this information is used, who has access to it, and how well it is protected against possible misuse.

One of the clearer challenges is data security. In an environment where security breaches are increasingly common, educational institutions implementing AI-based systems become potential targets for cyber-attacks. Student data, including information about their educational history, learning preferences or even sensitive personal data, could be accessed by unauthorized individuals or organizations. The consequences of such breaches are serious, affecting not only student privacy but also trust in education systems. Parents and teachers become reluctant to use these technologies when they perceive a risk to the security of children's personal information. In addition, the use of data collected by AI systems opens the door to problems of unethical use of information. Some companies that provide AI-based technology may be tempted to use the data collected for purposes other than those stated, such as personalized marketing or other product development, without the explicit consent of the parties involved. This practice not only violates the rights of students and their families, but also undermines the educational purpose of these systems. It is imperative that the use of data is regulated by strict, transparent and legally compliant policies to avoid such situations.

Another major ethical issue is the potential for algorithmic discrimination. Although artificial intelligence is often perceived as neutral, the reality is that algorithms can reflect biases or inequalities present in the data they process. In an educational context, this can lead to certain groups of students being favored over others, perpetuating existing inequities. For example, an algorithm that analyzes student performance could disproportionately favor students from better-supported backgrounds, thereby ignoring the needs of those from disadvantaged communities. It is essential that AI systems are carefully developed and tested, ensuring that they do not perpetuate or exacerbate existing inequalities. The confidentiality of student data also raises questions about informed consent. In many cases, parents or pupils themselves are not fully informed about the types of data being collected, the exact purposes of the collection or how this information will be used. In an educational environment, where the use of technology is becoming increasingly common, it is crucial that everyone involved fully understands the implications of this data collection. Transparency is becoming a central pillar of the ethical implementation of artificial intelligence, and a lack of transparency can lead to a loss of trust in these technologies and the institutions that use them. The problem of massive data collection is amplified by the fact that many pupils are minors, and their rights need to be carefully protected. Existing legislation, for example as the European Union's General Data

Protection Regulation (GDPR), provides an important framework for protecting users' rights, but the application of these regulations in the educational context is often complex. For example, schools and technology companies must ensure not only that data is protected, but also that parents or legal guardians have adequate control over how their children's information is handled. In addition, national and international regulations must constantly evolve to keep pace with the rapid pace of technological innovation.

Another important aspect of the ethical debate is the use of data to predict students' future performance. While these predictions can be useful for early identification of students who need additional support, they can also lead to stigmatization or limited opportunities. For example, an algorithm that identifies a pupil as less likely to succeed could influence teachers' or administrators' decisions negatively, underestimating a child's potential and thus affecting their educational pathway. It is essential that such predictions be used with caution, accompanied by positive interventions and personalized support, avoiding any labeling that could have negative long-term consequences. To address these challenges, rigorous policies governing the use of AI in education need to be implemented. These policies should include clear measures to protect data privacy, strict rules for the use of data, and effective audit and control mechanisms. It is also crucial that all stakeholders, from teachers and parents to technology developers and legislators, are educated about the ethical implications and the importance of responsible implementation of artificial intelligence. Without close collaboration between these groups, the risks associated with using AI in education could outweigh the benefits.

In the end, the solution is not to abandon technology, but to use it in a way that respects the fundamental rights of each individual and promotes equitable and inclusive education. Artificial intelligence has the potential to transform education, but its success depends on how we choose to manage the ethical challenges and data privacy risks. By adopting an accountable and transparent approach, we can harness the benefits of AI while ensuring that we protect the interests and rights of students, teachers and their families. This balance between innovation and ethics is the key to a modern and sustainable education.

The introduction of artificial intelligence in education marks a fundamental change in the way learning is designed and implemented. This transition, while promising, comes with significant challenges, especially for teachers. They must adapt their teaching methods, learn to integrate new technologies into the educational process and redefine their role in the classroom. In this context, teacher training becomes essential for the successful implementation of AI, ensuring

that it complements and enhances traditional methods without diminishing the importance of human interaction.

Digital competences, support and challenges

Teachers are, by nature of their role, the fundamental pillars of any education system. In introducing AI, they not only need to understand the functionalities of these technologies, but they need to become mediators between the technology and the students. In-service training is thus indispensable as it helps teachers develop their digital competences, understand how AI can be used to personalize learning, and at the same time maintain their ability to support students' emotional and social development. Artificial intelligence, while impressive in its ability to analyze data and provide quick solutions, cannot replace a teacher's empathy, understanding and interpersonal skills. Thus, teachers need to learn to use AI as a tool that enhances the educational process, without replacing it. An important aspect of teacher training is familiarizing teachers with the different applications of AI. From platforms that allow personalization of lessons, to systems that can automate assessments and analyze student progress, the technology offers a wide range of useful tools. But for these solutions to be implemented effectively, teachers need to understand not only how they work, but also how to integrate them into their daily work. This requires a significant shift in mindset, as many teachers are used to traditional methods and may be reluctant to embrace new technologies. Training programs need to address these fears and give teachers the confidence and skills to work with AI. Another important aspect of AI integration is collaboration between teachers and technologists. Developers of AI-based systems need to work closely with teachers to understand the real needs of students and the specific challenges in the classroom. Teachers need to be involved in the design and implementation process of these technologies so that the solutions are tailored to the educational context and meet their requirements. Such collaboration not only ensures better implementation of AI, but also makes teachers feel part of the change process, reducing resistance and reluctance to new technologies.

In addition to technical skills, teacher training must also include an ethical component. The use of AI in education entails a number of challenges related to data privacy, fairness and impact on interpersonal relationships. Teachers need to be aware of these issues and learn to use AI in a responsible way. As an example could be, when using systems to analyse student performance, it is important to make sure that the data is protected and that all decisions based on the specific data is not discriminating against certain groups of students. What is more,

teachers need to balance the use of technology with human interaction, recognizing that students' emotional and social development is as important as academic progress. AI integration also requires institutional support. Schools and education authorities must provide all the necessary resources for teachers to be trained as well as access to appropriate technology. It is crucial that teachers have their space and the time to experiment and learn with new tools without feeling the pressure to adapt immediately. Support networks and learning communities must as well be created between teachers so that they could be able to share experiences, learn from each other and collaborate.

Another challenge in preparing teachers for AI integration is the diversity of students and their specific needs. Teachers must learn how to use AI in order to create personalized learning experiences that would meet the needs of each of their student. This is specifically important in heterogeneous classrooms where students have different levels of readiness, learning styles and interests. Artificial intelligence provides powerful tools for personalization, but teachers are still the ones who must interpret the data and make the final decisions about how to tailor teaching. Another key aspect of teacher preparation is changing management. The introduction of AI in education is a major change, and teachers must feel supported not only in developing new technical skills but as well in adapting to a new educational paradigm. Change could possibly create stress and uncertainty, specifically for teachers who have been used to traditional teaching methods. It is therefore important to create a supportive environment where teachers feel encouraged and appreciated for their efforts to adapt. In the long term, the integration of AI in education has huge potential to completely transform the role of the teacher. Instead of being just a provider of information, the teacher becomes a guide and mentor, supporting students in their learning, using technology to provide richer and more relevant experiences. However, this transition requires a profound shift in perspective, both on the part of teachers and society.

One of the major risks which is usually associated with the widespread integration of AI in education is the reduction of direct contact between students and teachers. In a traditional educational model, the relationship between teacher and student is central. Teachers are not only sources of information, but also mentors who support their students in difficult moments, encourage them to overcome their limits and help them build self-confidence. These relationships based on empathy and understanding cannot be replicated by a machine, no matter how sophisticated. AI can analyze data and offer personalized solutions, but it can't understand the complexities of human emotions or the nuances of an interpersonal situation. Students,

especially those in kindergarten or primary school, develop much of their social skills through direct interactions with their teachers and peers. Communication, active listening, empathy and teamwork are skills that are formed through real-life experiences, not through interactions with an algorithm. For example, a child who learns to collaborate with others during a group project not only improves his or her academic understanding but also develops the ability to work in a team, an essential skill in personal and professional life. In an overly technologized educational environment where human interactions are limited, these social learning opportunities can be significantly reduced.

Another important aspect is the development of emotional skills. Students are not only learning math, science or literature, but as well how to manage their emotions, understand others' perspectives and respond constructively to challenges. In an AI-dominated environment where human relationships are minimized, students may have difficulty developing these skills. As an example, a human teacher can recognize signs of anxiety or stress in a student and intervene to support them. An AI-based system, while capable of analysing student behaviour, cannot provide the same empathy and emotional support. Peer interactions as well play a crucial role in shaping students' social identity. Working in a team, participating in discussions or resolving conflicts are experiences that enable students to develop skills for example as tolerance, the ability to collaborate and mutual respect. In an environment where face-to-face interactions are replaced by interactions with technology, students may miss out on these essential learning opportunities. What is more, the friendships and emotional support that students develop with their peers are fundamental to their psychological well-being. Another risk is related to over-reliance on technology, which could negatively impact students' mental and emotional health. Studies show that prolonged exposure to screens can lead to decreased levels of social interaction, concentration problems and increased risk of isolation. In an education system where AI becomes the primary medium of learning, these risks can be magnified. Students may become less inclined to communicate directly with their teachers or peers, which could possibly lead to a sense of disconnection and difficulties in building social relationships.

Despite these risks, there are ways to integrate AI into education in a way that supports rather than replaces human interactions. Teachers need to be prepared to use AI as a complementary tool, allowing them to focus more on the emotional and social aspects of education. As an example, AI can take over repetitive and time-consuming tasks, such as correcting tests or organizing the syllabus, leaving teachers more time to work directly with students. In this way, technology becomes a support, not a hindrance, in creating an educational environment that

emphasizes interpersonal relationships. In addition, schools need to promote a balance between the use of technology and activities that encourage direct interaction. Traditional lessons, group projects, debates and extra-curricular activities are essential for students' emotional and social development. Such activities not only help students to develop important skills, but as well create a sense of belonging and community that is fundamental to their well-being.

We as well need to recognize that AI could be possibly used to support emotional development if implemented correctly. For example, educational platforms can provide personalized feedback that encourages students and improves their self-confidence. AI-based apps could be possibly used to simulate social scenarios, in this way helping students to learn how to respond in different situations. However, these tools should be used only as a supplement, not a substitute for real interactions. Thus, the impact of AI on students' social interaction and emotional development depends on how it is integrated in to whole educational process. Meanwhile technology can offer many benefits, it is crucial to keep human relationships and the full development of the individual at the center of education. Teachers, parents, and school administrators have a responsibility to create an environment in which AI supports, but is not replacing, the interactions that could possibly help students to become not only better prepared academically, but also more empathetic, tolerant, and confident in their social relationships. It is only through such a balance that we could make sure that technology contributes to a holistic education that meets students' intellectual as well as their social and emotional needs.

In order to illustrate concretely how artificial intelligence is transforming education, but also to argue about the challenges and implications discussed above, we can look at real examples and relevant case studies. These provide not only a practical perspective on the impact of AI, but also a solid basis for understanding both the promises and limitations of this technology in education.

A noteworthy example of the use of AI in education process is the *DreamBox Learning platform* used in many schools in the United States. It uses artificial intelligence to provide *personalized math lessons for elementary and middle school students*. Its algorithms analyze each student's performance in real time, adjusting the difficulty of exercises based on individual progress. If a student is struggling, the platform provides more explanations and practical examples, and if they learn quickly, the material becomes more complex. This adaptability not only supports personalized learning but also allows the teacher to intervene where it is really needed, based on detailed reports generated by the system.

In Finland, a country known for its innovative education system, the *Mightifier platform uses AI to support the development of students' social and emotional skills.* It allows students to assess their own emotions and provide feedback to their peers, thus fostering empathy and mutual respect. Teachers can monitor the emotional state of the class and take proactive measures to support students experiencing emotional difficulties. This example demonstrates how AI could possibly be used to improve the emotional and social aspects of education without replacement of the teacher's the role. Also, in the area of personalization, *Coursera, one of the largest online learning platforms, uses AI to recommend courses, supplementary materials, and personalized learning paths for each user*. This model has been successfully adopted by universities and educational institutions around the world, allowing students to learn at their own pace. For example, during the COVID-19 pandemic, Coursera became an essential tool for millions of students who were physically unable to attend classes. Its recommendation algorithms helped students navigate through the myriads of options available, identifying the courses most relevant to their needs and goals.

Even though, successful examples should not make us ignore the challenges associated with using AI in education. As an example, *the use of technology in the automated assessment of papers has been criticized on several occasions because algorithms cannot understand linguistic nuances or creativity.* In 2019, the automated grading system used in some standardized exams in Australia was challenged by teachers and parents, who argued that the algorithm did not recognize an essay's original ideas or narrative structure, focusing instead on technical elements such as sentence length or vocabulary. This example highlights the current limitations of AI and the need for human involvement in assessing critical thinking and creativity. One more revealing case is that of the *Proctorio platform, used to automatically supervise online exams.* Although the system uses AI to monitor students through webcams and detect suspicious behaviour, it has been criticized for generating false alarms and deepening student anxiety. Data privacy has also been raised as Proctorio collects and stores video footage and other personal information about their users. Such example underscores the need for transparent and clear policies on the use of AI, specifically when the technology enters students' privacy.

In terms of democratizing education, *international projects for example as the Khan Academy and UNESCO's AI for Good initiative have demonstrated how AI can expand access to education for disadvantaged communities*. Particularly in developing countries, such platforms provide free access to quality educational resources, in this way reducing socio-economic

barriers. The example could be, in India, Khan Academy has partnered with public schools to offer personalized math and science lessons, using AI to identify specific needs of student. The results showed remarkable improvements in academic performance, which demonstrates the huge potential of such technologies. In Africa, the Ubongo project is using AI to develop interactive educational content accessible through television and mobile devices. This project was designed to help children who do not have access to well-equipped schools by providing engaging lessons in their mother tongue. While it does not replace a teacher, AI facilitates the wide distribution of educational materials and supports learning in a way that would not otherwise be possible. These examples demonstrate *both the promise and complexity of using AI in education.* On the one hand, the technology can increase access, efficiency, and personalization, but on the other hand, it brings with it challenges of privacy, equity, and impact on human relationships. For these technologies to be integrated responsibly, it is essential that education remains people-centred. Teachers need to be supported in using AI as a complementary tool, and implementation decisions need to be made carefully, taking into account ethical and social implications.

Eventually, *the success of AI in education depends not only on technological innovations, but also on how the educational community adapts and embraces change*. This process requires collaboration between developers, teachers, students, parents, and policymakers to ensure that AI not only improves education but makes it more equitable and humane. As the examples above show, AI has huge potential, but its implementation requires a careful and balanced approach, centred on the needs and well-being of learners.

Conclusions

The conclusion of this topic leads me to a deeply personal point of reflection about the essence of education. Technology, through artificial intelligence, undoubtedly represents a tremendous opportunity to transform education. However, in our rush to integrate these innovations into school systems, we need to ask ourselves: what kind of people do we want to educate? Education is not just about the accumulation of knowledge or the efficiency of its delivery, but about the formation of well-rounded individuals who are able to collaborate, empathize, communicate and build meaningful relationships.

Looking to the future, I am convinced that artificial intelligence must not become a substitute for human-to-human relationships, but a support to enhance them. Teachers will remain the pillars of education and their relationships with students will continue to be essential. Emotions,

human connection and the values we instill in future generations cannot be digitized or replaced by algorithms. In that sense, I think the real challenge is to find the right balance: how can we use AI to free teachers from administrative tasks and give them better tools, but without diminishing the real interactions between students and teachers? As we move forward, I hope that discussions about the integration of AI in education process will be accompanied by a deep reflection on the core values which we would like to preserve in schools. I firmly believe that technology is only a means, and the goal must remain to develop people who are not only smart, but kind, empathetic and able to build a place in the world through authentic relationships and a well-developed sense of community. Ultimately, education remains about humanity, and our role is to ensure that AI is used to amplify that humanity, not replace it.

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