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Teaching with AI – Assessment, Feedback and Personalisation

Briefing report No. 7

**by the European Digital Education Hub's squad on artificial
intelligence in education**

**EUROPEAN
DIGITAL
EDUCATION
HUB**

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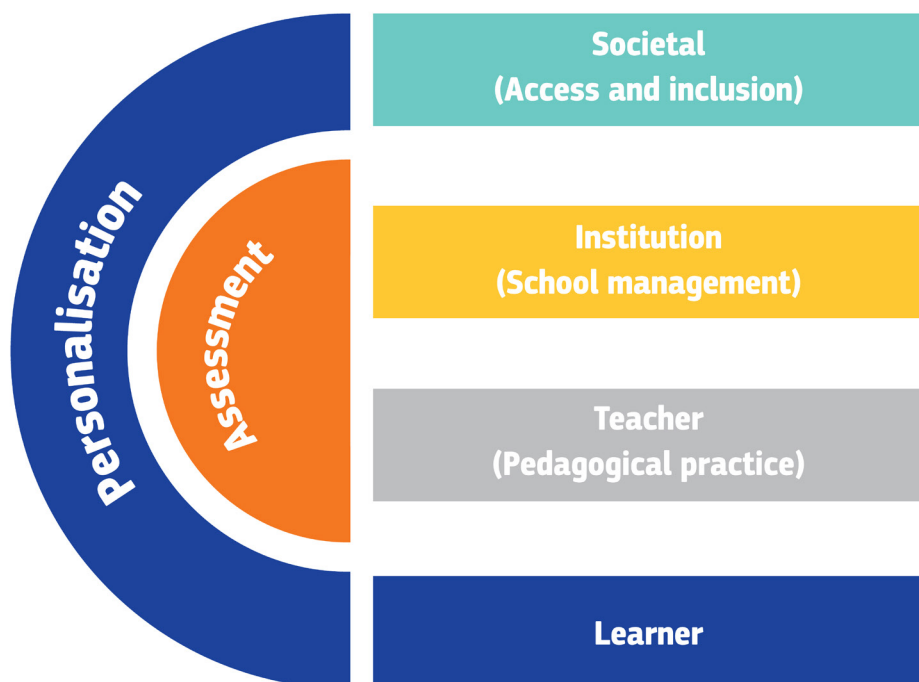




Introduction

The focus of this report is to explore the potential of a number of related areas in the domain of teaching *with* artificial intelligence (AI) – assessment, feedback and personalisation. It builds on the previous briefing reports, each of which have explored different facets of the use of AI in education. One of the most touted benefits of AI for education is the potential it offers for personalisation - the delivery of education interventions that are tailored to the specific needs of individual learners. This may be manifest in a variety of ways, including via adaptive learning and intelligent tutoring systems. At the core of this capacity is the ability to assess a learner’s mastery of a particular concept, identify gaps in knowledge or areas for improvement, and deliver feedback or resources to address that gap ([Phillips et al, 2020](#)). The ability to harness AI to create high quality assessments, feedback and tailored resources has the potential to deliver benefits for individual students, teachers, education institutions, and society as a whole.

In considering this potential, it is important to consider education in all its complexity and be mindful of the potential risks as well as the benefits. As detailed in briefing [report 5: *The Influence of AI on Governance in Education*](#), the draft EU Artificial Intelligence Act proposes a risk-based approach to AI focused on four risk levels: unacceptable, high, limited, and minimal. Throughout this report, we aim to draw attention to the potential for risk as we explore how AI’s capacity for personalisation might deliver benefits at many levels (learner, teacher, institution, using the same distinction as the [Wayne Holmes et al, 2022](#) report) of the education system and ultimately at the broader societal level.





Student Focus

The [Ethical guidelines on the use of AI and data in teaching and learning \(EC, 2022\)](#) distinguishes between AI tools that are focused on teaching students and those that are focused on supporting them. Briefing [report 3 Use scenarios & practical examples of AI use in education](#) provides examples and use cases of the former in relation to intelligent tutoring systems. Another very recent example of this is the [Khanmigo system](#), from Khan Academy. [Still in beta](#) at the time of writing, this platform leverages the power of AI to offer individualised coaching to students on the Khan Academy platform.

In terms of supporting students, one of the most significant affordances of AI is the [potential it offers for personalised learning](#) approaches. [Personalised learning](#) refers to the ability to tailor aspects of the learning process, such content or pace to individual abilities, interests and learning preferences. The ability to personalise the learning process offers the promise of greater autonomy for students and has the potential to increase engagement and motivation.

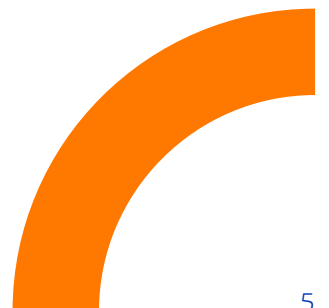
AI also offers potential benefits in terms of its ability to deliver feedback on performance. Feedback has been shown to be one of the most powerful influences of student attainment and the provision of quality, timely feedback as part of an [assessment for learning](#) strategy is recognised as highly valuable for the learning process as can be read in [Teachers' feedback practice and students' academic achievements](#). Given that the provision of useful feedback has been recognised as challenging at all levels of education ([A qualitative study of primary teachers' feedback rationales](#), [Value and effectiveness of feedback in higher education](#), and [Misconceptions about teachers' feedback](#)), the potential of AI to deliver enhancements certainly merits exploration.





For example, applications such as [learning analytics dashboards](#) could provide benefits in supporting student success and increasing learner [awareness and regulation of their learning processes](#), providing visual cues and features that enable students to monitor their progress, identify areas for improvement and make data-driven decisions. In addition, learning analytics tools promote personalised feedback, enabling students to [identify areas for improvement](#) and adjust their learning strategies accordingly. The dashboards also play a role in improving motivation by giving learners a sense of control over their learning process through progress tracking and goal setting. [Teachers could also benefit from these insights](#), enabling them to effectively support students who may need additional help.

Figure 1 shows some good practice aspects of feedback that AI can be harnessed to deliver.





Scenario:

Imagine that a student, named John, is working on a STEM project about plastic pollution for a formative assessment in his class. John's project involves elements from all four STEM disciplines: Science, Technology, Engineering, and Maths. John is using an AI-powered platform to develop his project, which provides feedback on his progress throughout the project.

As John works on his project, the AI platform uses machine learning algorithms to analyse his work and provide feedback. The AI system evaluates John's work across all four STEM disciplines, including his understanding of the scientific principles behind plastic pollution, his ability to design and build a prototype solution, and his mathematical analysis of the environmental impact of plastic pollution.

Based on this analysis, the AI system provides feedback to John on his project work. For example, the system may identify that John needs to work on improving his data analysis skills to provide a more accurate assessment of the environmental impact of plastic pollution. Additionally, the system may identify that John's prototype could be improved by using more advanced materials or technologies, and suggest specific resources or strategies to help him make these improvements.

The feedback provided by the AI system is personalised to John's specific project and STEM

skills, providing him with actionable guidance on how to improve his work. The feedback is also provided in a clear and concise manner, making it easy for John to understand and apply to his project.

The AI system provides John with valuable feedback on his STEM project work, helping him to identify areas for improvement and work towards achieving his academic goals. By providing personalised feedback across all four STEM disciplines, the AI platform supports John in developing a well-rounded and comprehensive understanding of the complex issue of plastic pollution.

Potential risks in this scenario

A key issue in the field of AI in education relates to the fairness, accountability, transparency, and ethics (FATE) of educational tools that are based on AI algorithms, such as the intelligent tutoring systems or automatic assessment systems discussed above. This is due to the "opaque" nature of the machine learning techniques used to create models of different aspects of the learner from data captured while he/she is interacting with the tool. For AI to be more trusted in education, there is a need for more research into [Explainable AI](#) (XAI), which promotes the use of methods that produce transparent explanations and reasons for the decisions AI systems make.





Another issue relates to the purposes for which the AI platform data are used. If the feedback provided by the AI system is used to grade John's work, it could indirectly influence his academic record, which could affect his access to educational or vocational opportunities. So, if the AI's evaluation and feedback are used to grade John, that AI system falls into the high-risk category. Also, the AI system could potentially influence John's level of education and training, particularly if it is used to tailor his education to his specific skills and interests. For example, if the AI system identifies that John excels in maths and science, but needs more support in technology and engineering, this could influence the classes he is placed in or the support he receives. This can be positive, but it also holds a risk if the AI system makes incorrect assessments due to biases or inaccuracies in its algorithms. If AI is used in exam proctoring, its monitoring of John's behaviour could raise privacy concerns (Coghlan et al. 2020). Moreover, algorithmic bias could result in John being inaccurately flagged for cheating. If as a result, John was suspended from school, the school might be in breach of the [GDPR](#) if it had relied on the AI judgement and had not conducted a human investigation of the cheating allegation.

While the use of AI for formative assessment can be considered minimal or limited risk, its use for high-stakes assessment could be more problematic if it extends beyond well-established objective formats such as multiple-choice questions into grading more

open-ended type assessments, such as essays and reports. Moreover, the advent of widely available generative AI [poses risks for many long-standing assessment formats](#) and requires educators to reconsider their validity in the age of AI. Whilst plagiarism detection services are working to develop reliable generative AI detection capabilities (Khalil & Er, 2023), at present this remains aspirational and a study by Sadasivan et al (2023) suggests that it is unlikely to be possible. Issues regarding academic integrity are discussed further in briefing [report 6 AI in education - Ethics, human rights, law and educational data](#).

In all high-risk areas, it is essential to ensure that AI systems are developed and used responsibly, with particular attention paid to the accuracy and fairness of their decisions, as well as respect for privacy rights. This risk could be mitigated by taking steps to ensure that the AI system is transparent and unbiased and its decisions are interpretable and can be overridden by human judgment.

THINGS TO CONSIDER

- Explainability
- Algorithmic bias
- Generative AI and academic integrity





Teacher Focus

According to the [Ethical guidelines on the use of AI and data in teaching and learning](#), AI offers educators a variety of tools to support their teaching strategies, including administrative tasks and personalised feedback. By automating tasks like grading and attendance tracking, AI could potentially free up teachers' time to focus on more crucial activities. It could also facilitate the implementation of innovative pedagogies that would otherwise be challenging to execute, e.g. collaborative inquiry using game-based learning ([Lee et al, 2021](#)). AI's potential applications in education are vast, ranging from using it to generate lessons plans to supporting simulation-based learning ([Dai & Ke, 2022](#)) to providing real-time feedback based on expert pedagogy. It can generate post-lesson reports, help teachers stay updated with advancements in their field, and boost learner confidence by offering constructive feedback and creating a safe environment for skill development. AI can improve educational processes by evaluating written work, providing feedback on spoken responses, and adapting learning materials through adaptive systems. It can increase engagement through gamification and support collaborative learning. As mentioned above, it can also be used to automate grading, detect plagiarism and academic misconduct, and evaluate assessments to identify learning gaps and measure effectiveness. (See Table 1 for a list of other AI applications that could be useful for teachers).

Table 1

| |
|---|
| Analysing written work |
| AI can evaluate written assignments, such as essays, by checking for grammar, spelling, punctuation, and even assessing coherence and structure. This helps students improve their writing skills and saves time for educators who would otherwise need to review each assignment manually. |
| Natural language processing |
| AI can interpret natural language, the way humans use language to express thoughts, ideas, and emotions. This ability can be harnessed to provide feedback on spoken responses, presentations, or other verbal communications. This can be particularly helpful for language learning or public speaking practice. |





Adaptive learning systems

AI can track students' performance over time, adjusting feedback and learning materials to continually challenge and support their growth. This enables a more dynamic and responsive learning experience that evolves with the student. It thus enables teachers to support the progress of many learners operating at different levels and could be part of a **universal design for learning strategy**.

Gamification

AI can be integrated into educational games, providing instant feedback and encouragement, promoting engagement, and **making learning more enjoyable**.

Peer review support

AI can facilitate peer review processes by helping students **provide constructive feedback to their peers**, guiding them through the evaluation process, and offering suggestions for improvement.

Sentiment analysis

AI could analyse **student emotions and engagement** through factors such as facial expressions, tone of voice, or written communication. This could provide feedback on communication skills, in areas where such skills are critical, such as healthcare. It might also be used to help teachers identify students who may be struggling emotionally or are disengaged from the learning process, and provide appropriate support. However, it seems likely that AI based on [emotion recognition systems](#) will not be permitted in EU education systems.

Data analysis and insights

AI can process large data sets quickly, identifying patterns and trends that can inform feedback strategies. **This could help educators understand which approaches are most effective and identify areas where additional support may be needed.**





Consistency

AI systems should be able to provide consistent feedback based on pre-defined criteria, eliminating the potential for human bias or variability in evaluation to ensure that all students receive **fair and unbiased feedback**.

Assessment

AI is making an [impact on educational assessment](#) with applications such as automated grading, plagiarism detection, predictive analytics, assessment analytics, and item analysis. Automated grading saves teachers' time and ensures consistent and objective assessment. Plagiarism detection holds students accountable for their work by identifying instances of plagiarism. Predictive analytics uses AI to forecast student performance based on their past assessments and coursework. Assessment analytics analyses data from summative assessments to evaluate students' learning progress and identify knowledge gaps. Item analysis examines the effectiveness of individual assessment questions. These AI-driven approaches aim to enhance the reliability, fairness, and informativeness of assessments, transforming the way student learning and performance are evaluated.

As always there is gap between what could be done and what should be done. Ethical concerns have been expressed around uses such as the prediction of student performance and the use of sentiment analysis to assess emotions, which may become prohibited in the EU. While AI has the potential to improve education by personalising and enhancing efficiency, [there are risks to address](#). AI-generated texts may lack diversity and authenticity, and AI models often prioritise quick answers over pedagogical soundness (e.g., predictable and controllable learning pathways that rely on standardised questions which, in turn, encourage standardised answers). Furthermore, the rapid progress of AI can create motivation issues and uncertainty among students regarding the value of their skills. So far, the adoption of AI-based adaptive learning platforms in schools has been slow, and many AI tools used in schools may lack thorough research regarding their usefulness. [Factors influencing adoption](#) include the impact on teacher workload, teacher ownership and trust, support mechanisms, and ethical considerations.





Scenario:

Robert, a computer science professor, is preparing his group of 40 international students for a major project as part of their course. The project involves the development of a piece of software for which the students have to submit a preliminary proposal. Robert is using an AI-powered platform to help his students draft their project proposals and receive feedback before submitting the final proposal. The AI system first analyses the draft proposals using sophisticated data analysis techniques to determine the key concepts and overall logical structure. It then applies a pre-defined coding language model to assess the quality of the proposed software solution, including design, code structure and potential logical errors. Based on this assessment, the AI system generates feedback for each student. The system could highlight if a student is struggling with the design of the software and suggest that they work on making their proposal more robust and practical. It could also identify specific logical or structural flaws and offer suggestions for improvement. The feedback generated by the AI platform is tailored to each student's specific software development skills and needs, giving them practical advice on how to improve their programming skills. The feedback is clear, concise and immediately applicable, helping students to refine their suggestions. Without the AI system, Robert might struggle to provide each student with detailed, personalised feedback on their project proposals.

Potential risks in this scenario

While this case of AI application appears to be a relatively low-risk scenario, certain challenges

could arise if this AI system is used to grade the final project submissions. The marks awarded by the AI could have a direct impact on the students' overall marks for the computing course, potentially affecting their overall academic standing. This could also influence decisions about their options for further study or career choices in computing. While the system, when used formatively, provides valuable feedback that can help students improve their software development skills, when used for summative purposes, it could influence their course outcomes or the resources they receive. In line with the GDPR directive that individuals should not be subjected to automated decision making, a human element needs to be introduced to monitor and validate the AI's assessment and recommendations. In addition, the increasing use of AI in higher education for personalised learning can potentially raise data privacy and security issues. The AI system will have access to significant amounts of personal and academic data, and mishandling or a breach could result in the exposure of sensitive information. Universities should therefore ensure that robust data protection measures are in place when deploying such AI systems.

THINGS TO CONSIDER

- The ethical dimensions of using AI tools
- Data protection
- Alignment of AI use with educational best practice





Institution Focus

The various applications of AI in education include institutional use for tasks such as marketing, curriculum planning and resource allocation. For assessment at the institutional level, AI can support student record systems, scheduling, test preparation, reminders, and learning analytics. For personalisation, AI could contribute to lesson planning, learning management and adaptive learning systems, and provide tutoring and support outside the classroom. It could also help create personalised learning content through recommendation systems. AI could also support students by scheduling courses, suggesting majors and career paths, and providing timely financial aid information. It is helping to prevent students from dropping out through predictive analytics and improving teaching and training through AI-based software systems. However, it is important to consider [student autonomy and privacy](#) in these applications.

To support the process of inclusion, AI has the potential to facilitate communication between parents and teachers, to reduce the impact of administrative burden through automated processes and chatbots, or the use of virtual assistants and assistive technologies. AI's potential also extends to overall school and facilities management, including staff scheduling and substitution management, professional development, transportation, maintenance, finance and cybersecurity. It could therefore play an integral role in ensuring the safety and security of the educational environment.

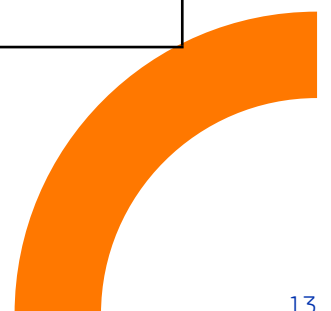
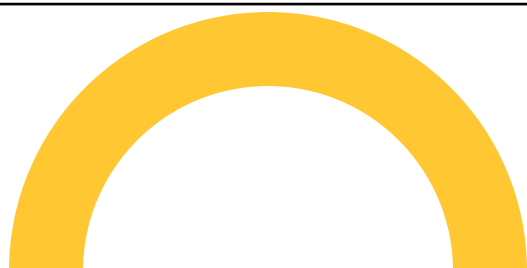
Student records systems, and scheduling: When implemented in student record systems, AI can improve the efficiency and accuracy of data management, streamlining administrative tasks such as enrolment, grading and tracking student progress. It can also optimise scheduling by generating optimal schedules for classes, exams and other academic events, taking into account factors such as resources, time constraints and student needs. A list of these uses can be seen in Table 2.





Table 2

| Assessment |
|--|
| <ul style="list-style-type: none">• Test Prep: AI assists to tailor study plans and materials based on a student's individual learning preferences and progress, leading to more effective study sessions.• Scheduling: AI optimises timetables for exams, balancing the need to spread out assessments while considering student course loads and institutional resources.• Reminders: AI sends automated reminders about upcoming tests or study sessions, reducing the chances of students or faculty forgetting important dates.• Data and learning analytics: analysing large sets of data, AI can provide valuable insights into learning trends and areas needing improvement, making the learning analytics process more precise and actionable. |
| Learning management |
| <ul style="list-style-type: none">• Lesson planning: Assistance in lesson planning by analysing student performance data and identifying individual learning preferences, allowing educators to tailor instructions to meet diverse learning needs.• Adaptive learning systems: Systems powered by AI can adapt the learning pathway to each student's pace and level of understanding.• Tutoring and support outside the classroom: Providing tailored tutoring and support, identifying areas where students struggle and offering targeted resources or exercises.• Recommendation system for learning content creation: By analysing student data and engagement levels, AI can suggest what type of content is most effective and engaging for different groups of learners, aiding educators in creating more impactful learning materials.• Enhance motivation: AI can increase student engagement and motivation in their learning process by personalising the learning experience and providing immediate, constructive feedback. For example, AI algorithms can adjust the difficulty of tasks based on the student's performance, ensuring that they are continually challenged but not overwhelmed.• Immersive learning simulations: By integrating AI with technologies such as virtual and augmented reality, educational institutions can develop realistic simulations of complex concepts or scenarios. These immersive experiences can make learning more interactive and engaging, increasing student motivation, understanding and retention. This advanced, experiential learning method not only motivates students to explore subjects more deeply, but also allows them to apply theoretical knowledge to practical situations in a risk-free environment. |





Inclusion

- Parent-teacher communication: AI has the potential to facilitate parent-teacher communication by providing automated updates on student progress and behaviour, making interactions more frequent and meaningful.
- Chatbots / virtual assistants / assistive technology: additional support, for example reading text aloud, or guiding the user automatically through administrative tasks making them more accessible.

Additional Areas

- School management, facilities management: staff scheduling and substitute management, professional development, transportation, maintenance, finance, cybersecurity, safety and security.
- Reducing the administrative burden through automated processing: by supporting processes like attendance tracking, streamlining enrolment and admissions or assisting in budgeting, invoicing, and other financial tasks, AI provides a way for educational administrators to save time, increase accuracy, and focus their efforts on strategic decision-making and student interactions.





Scenario:

A school decides to include AI driven technologies to personalise learning, streamline operations and promote inclusivity within the school community. The school began by implementing an AI-powered student records system. This system automated the storage, sorting and retrieval of extensive student data. From managing grades and attendance to tracking behavioural patterns and extracurricular activities, the AI-powered system ensured fast, accurate and seamless management of student records. To streamline administrative processes, the school used AI for scheduling tasks. The AI algorithm optimised class schedules, teacher schedules and room assignments, taking into account elements such as optimal class sizes, teacher availability, and room capacity, significantly reducing administrative work and increasing overall efficiency.

To support and personalise education, the school decided to implement AI-powered automated grading systems. These systems could assess a variety of assignments, from multiple-choice quizzes to written essays and oral presentations. The AI grading system not only reduced teacher workload, but also provided students with timely and consistent feedback, as it also identified patterns in student performance, highlighting areas where additional support might be needed. The AI system also played a key role in personalising learning for each student. It tracked students' progress, identified their


strengths and weaknesses, and tailored learning materials accordingly. For example, the AI-enabled learning management system would recommend additional resources for a student struggling with maths or suggest advanced content for a student excelling in science. It could also provide tailored tutoring support outside the classroom.

To promote inclusivity, the school used AI-based assistive technologies. These technologies, such as speech-to-text and text-to-speech converters, supported students with disabilities and ensured their full participation in the learning process. AI-powered chatbots were made available 24/7 to answer students' questions. In addition, AI virtual assistants helped with administrative tasks such as class registration and resource location, making the school more accessible to all students.

Potential risks in this scenario

This scenario entails a broad adoption of AI-driven technologies within an educational setting to enhance and streamline various operational and academic aspects. For example, the AI-powered grading system could have a significant impact on a student's academic record, which can in turn influence their educational trajectory and future opportunities. If misapplied, this could lead to unfair decisions that could affect a student's access to further education or training. Moreover, grading and





feedback should be transparent and reliable, and students should have avenues to appeal their grades if they feel they have been unfairly evaluated. The ability of AI to personalise learning could have a significant influence on a student's educational trajectory. This could be advantageous, but it could also limit a students' educational journey if the system classifies them into certain categories. For example, whereas a human teacher may be aware of extenuating family circumstances that are impacting a students' performance and make allowances for that, an AI system's 'objective' assessment may not account for such factors and may unfairly prejudice the student.

A concern across all these areas is data privacy. Managing student records involves handling sensitive information. It is essential that AI systems have stringent data protection measures and comply with relevant data privacy laws and regulations.

Ensuring transparency, fairness, and accuracy in all AI operations to mitigate these risks is a key factor and human oversight should be integrated into these processes to ensure checks and balances.

THINGS TO CONSIDER

- Technological infrastructure
- Data collection, management and protection
- Ethical dimensions of AI for summative assessment
- Staff training
- Parents and stakeholders





Societal Focus

[Inclusion and equity](#), two interconnected concepts, advocating for access to the same educational opportunities for all students, regardless of social categories such as race, gender, class and more. [Educational equity](#) is evident when teaching styles are adapted to meet students at their individual learning levels and provide the necessary support. It is also evident when students can identify with their race and community in their educational environment. Inclusive education is essential as it empowers underprivileged and underserved students to overcome challenges and achieve success. Policies to promote these concepts are essential. A good example is the [UNESCO guidelines](#), which serve as a blueprint for ensuring inclusion and equity in education. While equity focuses on access to opportunities, fairness, and justice, inclusion values diversity of identities. Incorporating an equity lens into SEL helps students develop necessary academic and social skills while promoting an [equitable and inclusive classroom environment](#). AI has potential to enhance equity and inclusivity in educational scenarios. Recent trends show an increased focus on diversity, equity and inclusion (DEI) within AI for Education (AIEd). AI's ability to tailor learning experiences, provide individualised support and reduce achievement gaps can greatly enhance equity in education. [UNESCO's mandate](#), which calls for a student-centred approach to AI in education, is consistent with these principles of inclusivity and equity. In addition, AI can be used to help identify and correct bias in educational materials and assessments, fostering an inclusive environment by contributing to the development of fair and unbiased learning opportunities for all students.

In considering all of this, we should be mindful of phenomena such as the Matthew Effect - a process by which early advantages are compounded over time giving further benefits to those who are already privileged. In education, a [digital Matthew Effect](#) may see unequal access and different uses of technology between socio-economically advantaged and disadvantaged students reinforce existing inequalities and amplify early advantages.





Nevertheless, *AI has the potential to* enhance equity and inclusivity in education in several ways:

Personalised learning: By providing personalised instruction, support and resources, AI can ensure that students are able to learn at their own pace, according to their unique learning preferences.

Identify and mitigate bias: Analysing educational materials and assessments to identify potential biases. This could include biases in the way questions are asked, or biases in the materials themselves. Once identified, these biases can be addressed to ensure that all students have access to fair and unbiased learning opportunities.

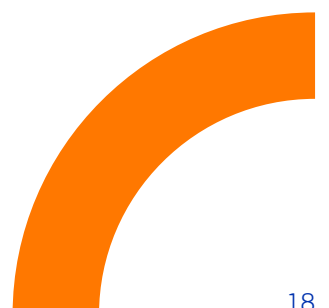
Supporting underserved or disadvantaged students: Providing additional support and resources for students who might otherwise be underserved or disadvantaged. This could include students with disabilities, students from lower socio-economic backgrounds, or students learning in a second language.

Data-driven insights: Provide insights into student performance, learning trends, and potential gaps in education to help educators and administrators make more informed decisions about how best to support all students and promote educational equity.

Accessibility: AI supported technologies such as speech-to-text and text-to-speech converters or translation services can help make learning more accessible to all students, regardless of their physical abilities or language skills to ensure that all students can fully participate in the learning process, promoting greater inclusivity.

In order to maximise the potential use of AI to enhance equity and inclusivity in education, it is important to:

- ensure that these systems are designed with equity and inclusivity in mind from the outset;
- consider potential challenges, such as data privacy;
- be aware of the risk of algorithmic bias;
- ensure that AI is used in a way that respects students' rights and upholds the principles of equity and inclusivity.





Scenario:

A public school in a low-income neighbourhood faces a few challenges: a high student-teacher ratio, diverse student backgrounds with varying levels of English proficiency, and a significant number of students who struggle academically. To address these challenges, the school administration decides to integrate AI technology into its operations. The goal is to close the education gap and give all students an equal opportunity to succeed, regardless of their socio-economic status. An AI solution is implemented in the student record system to identify student needs based on collected, such as attendance, past performance and behaviour. This system helps to identify students who may be at risk academically or personally, so that interventions can be initiated promptly.

The AI driven system could also optimise scheduling, ensuring that students who need extra help can get it without disrupting their regular academic schedule. It creates personalised learning plans for students based on their specific needs and pace of learning, helping them to catch up with their peers in a supportive environment. AI is also being used to improve assessment. Automated grading and feedback provide an unbiased assessment of students' work, freeing up teachers' time for more one-to-one attention with struggling students.

AI is also used to perform predictive analytics to track student performance, identifying potential learning gaps before they become problematic. In terms of inclusivity, AI-powered adaptive learning platforms and assistive technologies will be made available to all students, regardless of their socio-economic status. These platforms are designed to adapt to each student's unique learning requirements and pace. In addition, for students who do not have access to digital devices at home, the school allocates time during the day to use school computers and tablets to ensure that all students can benefit from these resources.

To engage parents and guardians who may not be fluent in English or have regular internet access, the school uses AI-powered translation services for communication and AI-enabled chatbots that can provide school updates and answer questions with a simple phone call. By integrating AI driven technologies in this way, the educational playing field could be levelled to provide every student with the personalised support and resources they need to succeed in their educational journey.





Potential risks in this scenario

This scenario presents a comprehensive use of AI in a school setting and addresses several challenges. Even if the AI does not directly influence decisions on admission or assignment to institutions in this scenario, the personalised learning plans, optimised schedules, and AI assessments could indirectly influence students' progress and future educational pathways. Also, the automatic grading by AI of students' work and provision of feedback, if misapplied, might lead to unfair evaluations. The creation of personalised learning plans based on students' specific needs directly influences the level and type of education students receive; this raises the risk of putting students into learning paths that may potentially limit their growth in some areas.

In this scenario, data privacy and security are critical concerns as extensive student data is being collected and analysed. Addressing socio-economic disparities in education should be done responsibly, ensuring fairness and respect for privacy. For this, human oversight is essential to correct potential

THINGS TO CONSIDER

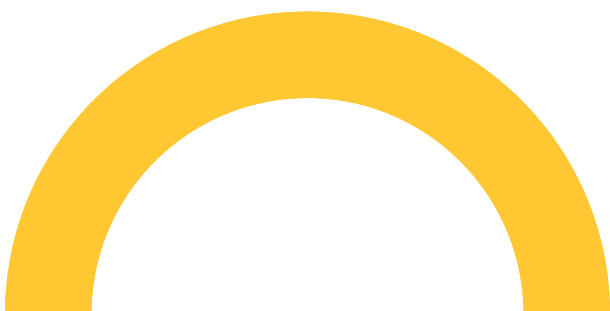
- Potential to magnify existing inequality
- Dangers of autonomous decision making
- Potential disempowerment
- Data protection measures





Conclusion

We have seen in the previous discussion and scenarios that AI has the potential to deliver great benefits for education. However, we have also seen that there are also risks associated with its use. In many cases, we may determine that these are minimal risk. Examples we've discussed include the provision of formative feedback, help for teachers in creating lesson plans, and assistance in some of the administrative functions of schools. As we move away from the use of AI as a support system, so the risk increases. As we have seen, using AI for learning analytics may help teachers adjust their teaching strategies to cater to individual needs. However, using learning analytics without adequate teacher oversight may disadvantage students dealing with adverse life circumstances that are impacting their performance, thus increasing the risk level. When it comes to relying on AI for decisions that may impact a learner's future opportunities, we are moving into the 'high' and perhaps 'unacceptable' risk territories. Therefore, we can see that the level of risk resides not so much within the tool as within the contexts in which they are used. While human oversight may help to mitigate some of the risks, we should be aware of the danger of [dependence lock-in](#), in which humans become increasingly dependent to AI to make decisions. All this underscores the importance of the development of Explainable AI, as discussed above. In order to ensure its responsible use in educational settings, it is important to remain ever aware of the balance that needs to be struck between leveraging AI's benefits and evaluating and mitigating potential risks and ensuring that human oversight is included and human values are served.





Recommendations by the Squad

AI holds great promise for enhancing education, but it should be implemented responsibly to ensure the protection of students' rights and interests. Proper checks and balances, transparency, and human oversight are key to mitigating the potential risks associated with AI in education. AI should be used to complement and enhance existing pedagogical practices rather than replace them. AI algorithms, especially in education, should be designed to produce understandable and interpretable outcomes. Explainable AI aims to make AI decision-making processes transparent to understand how the system arrived at its conclusions, which is particularly crucial in areas like assessment. Despite the use of AI for automating various processes, human oversight should still be a significant part of the system. Educators should have the final say in grading or making decisions that significantly affect students' academic standing. AI systems must respect and protect the privacy of the students. Data handling procedures should comply with privacy laws and regulations, ensuring the confidentiality and security of sensitive student information. Biases can influence the fairness of the system and have serious implications for all stakeholders in education, so efforts should be made to identify and mitigate biases in AI algorithms. Also, if the system fails or produces erroneous results, there should be mechanisms in place to identify the cause of the issue and rectify it. To ensure the accuracy of the performance of AI systems, they should be regularly monitored and evaluated to identify and address any emerging issues promptly and to help to ensure fairness and effectiveness.



