

## Artificial Intelligence and Future of Education

Prof. B.C. Mahapatra  
Director & Professor in Education  
MCU Bhoj University, Bhopal  
Adjointed Professor,MCU  
Research Division, Bhopal

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In the digital era, education and learning standards have modernized. There were primitive times when students would sit in libraries to study, taking notes and making photocopies. Modern technology has revolutionized everything. Technology has transformed the educational sector, making it easier for students to have access to research and learning quickly and efficiently. Today, young children between 8 to 15 use smart phones and other apps to work on their educational projects. Digital books, audio books, and videos are available on various websites that enable students to gain knowledge of complex ideas and concepts. To gain in-depth knowledge about their project, university students read the blog post, e-mail questions to their teachers, and even have live chat with them via a videoconference. While working in collaboration on a project, students can share their presentations with other group members by applying technology-based tools such as wikis and Google docs, audio-visual aid, and AI tools.

### Personalized Approach to Education

AI has the potential to develop education by providing personalized learning experiences to every student based on their learning styles, interests, and abilities. AI systems adjust educational programs to make them more engaging for students. Consequently, interactive content will bring more effective learning outcomes for students of all ages. AI-powered virtual tutors improve the learning needs of children and provide an interactive learning experience. Consequently, AI-enhanced assessment tools provide real-time feedback, tracking the progress of students and identifying areas of strength and weakness.

## AI Helps to Improve Language Learning

Students can accomplish their time-consuming and hard tasks, assignments, and multiple-choice tests through AI automation. Using chatbots, students can have live talks with teachers and group leaders. AI-powered language learning chatbots allow students to learn foreign languages. For instance, learners will have direct communication with bots. The students will ask questions and customized answers from the bots will simplify the foreign language learning process.

AI emotion recognition technology engages and keeps students enthusiastic about developing their learning trends. The tools boost knowledge and skills through fun and exciting activities. With play and amusement, students improve their social and intellectual skills.

The Duolingo app AI is the biggest language-learning platform. It has made language learning a pleasurable experience for learners. Anyone can use the app to learn a foreign language. Having practical exercises including audio and visual conversations has made language learning easy and convenient for learners. Duolingo ABC for kids and Duolingo English Test have proven methodologies that help teachers to create real-world conversation lessons of any language on the app. The new Duolingo AI system, Birdbrain embedded with learning lessons allow users to know their common language learning errors. BirdBrain's algorithms ensure a better-personalized experience and enhance the language learning skills of learners.

### Smart Content Creation Through AI Tools

AI helps students and educators create high-quality, adaptive, and engaging content that fulfills individual learners' outcomes. For instance, the tools boost the interactive teaching skills of educators. They use AI tools to assess students' knowledge levels and initiate practical exercises, and assignments that meet each learner's requirement. The best AI tool that students can employ is Brainly. It is an excellent homework helper. It has significant features to make learning

quick, easy, and amusing for students.

AI assists teachers in making effective presentations. Employing machine learning tools and NLP technology allow teachers to create outstanding original content and make engaging headlines, and subheadings. If instructors have to write on a topic, they can employ AI tools. Within a few seconds, the AI-powered software searches various websites and gathers relevant information that matches the topic. Hence, they create a well-researched and informative article.

The theFacts101 content technology involving AI algorithms allows teachers to create digital textbooks, guides, and coursework. They can change textbook into smart study guide that explains core concepts clearly. The tools create multiple-choice questions that further improve the academic knowledge of young learners.

Gradescope helps teachers to administer online or in-class assessments of all grades. Employing this AI tool benefits instructors to create lengthy project assignments focusing on problem sets and project goals. Moreover, tutors can generate template assignments that comprise worksheets, quizzes, bubble sheets, and exam sheets.

The tool allows teachers to digitally scan students' work, give online detailed feedback, and send consistent and quick grades to them. The tool comes up as a uniform grader as it assists a tutor to assess the quality of the questions regarding a particular topic. Whether the questions are helpful for students or difficult to comprehend. Consequently, the tutors come to know how students are doing in the class and help monitor their performance.

Hence, using AI tools help educators to focus their time, teaching skills, and energy on learning emerging teaching methodologies and improving student engagement.

### **AI Help Students to Improve Their Visualization**

Employing artificial intelligence tools, VR and AR technologies create engaging lessons for learners of

every age. The tools create a better understanding of complex data and conceptual subjects. Help students improve their emotional intelligence and awareness. In addition, VR and AR tools increase communication and collaboration skills in young learners.

Genius 3D Learning tools allow students to adopt a more active approach to an interactive visualization-based learning experience. For instance, students can use 3D models to learn complex concepts with ease. Genius 3D Learning process comprises topic overviews of experts, 3D videos, exciting quizzes, theory lessons, imagery, and analytics. Students can practically test these exercises, and use analytics to track their progress. Moreover, it helps students to identify the essential skills they need to learn to boost their visualization skills and enhance their academic goals.

### **What Are The Challenges of Educationalists Face While Adopting AI in Education?**

As the significance of using Artificial Intelligence (AI) algorithms and systems in education has eventually increased, educators have consistently adopted AI tools in teaching and learning. Teachers utilize AI algorithms to analyze data on individual students' learning progress and know about their strengths, weaknesses, and learning style. With AI tools, educators can design their lesson plans and use appropriate resources to create an effective curriculum that fulfills modern teaching standards. Consequently, AI algorithms help teachers to focus on interacting with their students. It helps boost student and teacher relationships. However, corporate training institutions face different challenges in adopting AI for education.

### **Create An Effective Public Policy on AI For Educational Foundations**

As more technological advancements are taking place, public institutions should provide financial aid to educational foundations aided to help learners develop AI skills. Moreover, public policies should set a policy, allowing local and international organizations to work in partnership.

It will help improve AI functions in many educational institutions. As more educational institutes emphasize using AI education tools to transform their teaching and students' learning, state policies should provide sufficient monetary assistance to academies. They should be provided with funds and resources that provide innovative opportunities for AI in the field of education.

Governments should also invest in building academic centers of excellence to conduct AI research, gain AI scholarships and prepare AI experts.

### **Need for Basic Technological Infrastructure in Developing Countries**

The developed countries are unable to employ AI facilities in their educational institutes as they lack basic technological infrastructure such as unavailability of modern electrical equipment, ICT hardware availability, Consistent internet facility, data costs, and deficiency of ICT skills. Therefore, the state should take necessary measures to initiate new strategies that improve AI learning facilities in educational institutes.

### **Teachers Should be Empowered with AI Training**

It implies educators learn AI digital skills and employ them in their instructive methodologies. Teachers work and engage in extensive research and data analytical skills to improve their AI-education systems. The institutes should acquire inventive management skills to manage human and AI resources. Hence, AI tools allow learners to accomplish new skills and competencies.

### **Government Policies Should Improve Data Collection and Systematization**

The state should develop educational system management by providing a quality and comprehensive data system. An inclusive data analytics system will help educational institutions to gain AI- predictive and machine-learning possibilities to transform data collection systems.

### **Manage Ethics and Transparency in Data Collection**

It implies the institutes maintain ethical concerns while implementing AI in the education system. A transparent data collection system should ensure the protection of individual data and maintain privacy and ownership of users' data.

### **How to Use Artificial Intelligence In Mobile Apps to boost teaching and learning**

#### **Personalized Learning**

AI-powered mobile apps can analyze a student's learning style, strengths, and weaknesses to create a personalized learning plan. Using a machine learning app, the educators gather data on a student's response time, accuracy, and preferred learning mode to create a personalized study plan. The app identifies areas where the student is struggling and a comprehensive plan. Students learn at their pace and focus on the areas where they need improvement.

#### **Speech Recognition Technology**

It ranges among common Artificial Intelligence technologies for mobile applications. It refers to a voice control system having speech recognition. For instance, they change natural human language and convert it into readable text using artificial intelligence (AI), machine learning (ML), and natural language (NLP) techniques. Today, many mobile app development companies have integrated AI functions into their applications help students to improve their pronunciation and grammar. The app provides feedback to help students improve their speaking skills.

#### **Chatbots**

Chatbots integrated into mobile apps provide users with conversational interfaces for various tasks. For instance, Chatbots are used to enhance the user experience of mobile apps by providing instant customer support, answering common questions, and interacting with customers effectively. To create a chatbot for their mobile app, professional

mobile app development services can use chatbot platforms, comprising Dialogflow, IBM Watson, Microsoft Bot Framework, and Amazon Lex.

### **Adaptive Learning**

With the help of machine learning algorithms, AI-powered mobile apps can analyze students' performance, and data and provide personalized learning experiences. The AI-powered mobile app tracks a student's progress and identifies areas where the student is struggling. The app adapts help educators adjust their teaching approach, allowing students to improve their learning experience.

### **Data Analytics**

Mobile apps can analyze student data by integrating AI algorithms to identify trends and patterns in their learning. Analyzing data such as student test scores, homework completion rates, and attendance records. Consequently, AI-powered mobile apps identify areas where students may be struggling and help teachers adjust their teaching methods. Educators can create interactive curricula that effectively meet the needs of each student.

### **Natural Language Processing (NLP)**

uses artificial intelligence and machine learning, along with computational linguistics, to process text and voice data, and form a response. Moreover, NLP used in mobile applications facilitates natural language interactions between users and apps. It helps to initiate speech-to-text and chatbots. Employing NLP technology in Android, and iOS, mobile companies use NLP for healthcare apps. NLP assists in GPS navigation applications, voice recognition technology, and assist in google translation.

### **Machine Learning (ML)**

Another significant ML is a type of AI that allows machines to learn and improve on their own without being explicitly programmed. In mobile applications, ML can be used to personalize content and provide recommendations based on

user behavior and preferences.

### **Biometrics Mobile App**

A biometrics mobile app for students helps in biometric authentication that includes facial recognition and fingerprint scanning. : The app tracks using facial recognition or fingerprint scanning to verify students' presence in the class. Moreover, the app using biometrics allows students to verify their identity before beginning the exam. Hence, it helps maintain exam security.

### **TO RECAPITULATE**

Artificial Intelligence (AI) has the potential to transform education in many ways, including personalizing learning experiences, automating administrative tasks, improving accessibility, and providing real-time feedback to both students and teachers. AI helps improve students' performance by providing real-time feedback to students. Helping teachers adjust their teaching strategies to improve students' learning outcomes. However, many educational institutions face challenges in effectively integrating AI into their teaching practices. The challenges comprise ethical concerns and the high cost of AI tools that prevents many schools and educational institutions to adopt AI-powered technology in their education system. To further develop the education system, mobile app services have integrated AI technology into their mobile apps. Various apps analyze students' learning styles, strengths, and weaknesses, provide real-time feedback and create a personalized learning plan. AI-powered mobile apps use speech recognition technology to help students improve their language skills. Hence, AI in mobile apps offers personalized, efficient, and engaging learning experiences to learners.

- To what educational task do you seek to apply AI? Will the AI tool assist instructors with a job that takes time away from strengthening their relationship with their students? Will AI be used for a task that focuses on the teacher-student relationship? As we expanded on in this post, although it still needs research, AI could help



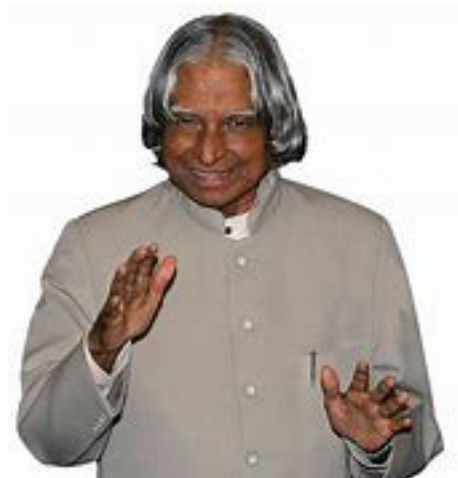
with repetitive tasks that do not involve students. The teacher-student relationship is the domain of humans, not algorithms.

- What is the goal of using AI? Is it to save money? Will teachers see their working conditions improve, stay the same, or worsen? Who will pay, and who will be charged for the work the AI system will do? It is crucial to assess that the impact on the working conditions of educational roles is positive or at least neutral, but it should never be harmful.
- Does using AI improve the teaching-learning process? Was it measured with good experimental design (e.g., randomized, masked) and with the consent of all participants? Did other actors, free of conflict of interest, reproduce the AI tool improvements? These educational tools are usually presented commercially as products that are difficult to resist. However, the evidence supporting them tends to be weak. It is common to discover sometime later that their use was harmful and the promises of improvement unfulfilled.
- What is the performance of the proposed AI system? How is that performance measured? Which students was it designed for? AI systems often make systematic errors against people not considered during the AI tool design time and tend to discriminate against them.
- What precautions have the people who produce these AI tools taken to avoid automating and amplifying harmful biases in our societies? There is no silver bullet to this problem. Thoroughly documenting the limitations and issues of these tools is a helpful minimum and a common practice in other disciplines with high social impact (e.g., Pharmaceuticals and Transportation). This is still under discussion and far from agreed upon in AI.
- Where in the world and under what working conditions are these tools created? Big tech companies headquartered in high-income countries develop tools such as ChatGPT with significant profit margins. Often these companies outsource tasks such as data cleaning and labeling to companies in low-to-middle-income countries.

The latter employ people in precarious, often unhealthy, conditions and with wages well below international standards for the AI field. The situation for these workers is highly problematic because, without their work, there would be no AI hype in the first place.

- What data was used to train the AI tool? There are lawsuits underway due to alleged violations of copyright laws during the training process of some currently available AI tools.
- What are the AI tool's environmental costs (e.g., power usage)? The environmental impact of training tools like ChatGPT is very high. Experts warn that, amidst the climate change we currently face, we must restrict AI's energy usage.
- Is it necessary to change everything in Education? What methods work well without modification? Should changes in Education follow the same pace as the current development of AI? What happens if we wait until these tools achieve minimum quality standards (e.g., minimize discrimination, avoid copyright infringement) and are regulated before implementing them in Education? Ideally we should not allow interests outside our communities and regions to hastily introduce tech, while portraying the process as inevitable, only to worsen the prevailing inequality in our geographies.
- What consequences could the immediate adoption of AI tools have simply because they exist and were made available by a few companies whose knowledge is limited to the AI field? Keep in mind that these are technologies with severe performance issues. For example, everything ChatGPT prints on the screen is an invention, and it is often difficult to detect that its outputs lack factual support.
- What are the consequences of the massive use of these technologies in Education in the medium and long term? How do people of different ages relate to AI tools that mimic human language? We do not have specific answers to these questions because there has not been enough time to study them in depth.

- If the new generations learn with AI, who are they learning from? Who designed the AI tool? With what values? Who will benefit from its implementation? For free tools, are they giving us something for free to extract something much more valuable, such as our data or intelligence?



“A leader gives the credit for success to those who worked for it and absorbs the failures”

-APJ Abdul Kalam