



THE RISE OF ARTIFICIAL INTELLIGENCE IN THE HIGHER EDUCATION- A RESEARCH STUDY PREVIEW

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ABSTRACT

The main aim of this research is to show how artificial intelligence impacts our educational system and the future of AI in education. Artificial intelligence will play a huge role. Indeed, in the coming decades, AI will transform education to be globally easy to assess. Artificial intelligence is a field of study and the resulting innovations and developments that have culminated in computers, machines, and other artifacts having human-like intelligence characterized by cognitive abilities, learning, adaptability, and decision-making capabilities. However, an intelligence device might be engaging in a type of thinking just like Humans as in the vision. This Paper summarizes the implications of AI in education. In this paper, the main concern about the use of AI in education is that this technique can potentially conquer humans. Machines are capable of doing more work and helping humans to solve the challenges of doing tiresome work.

Keywords—*Artificial Intelligence, Innovations, Education, Learning, ICT, Smart Tutoring System, Intelligent, Tutoring Systems*

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I. INTRODUCTION

Artificial Intelligence is the ability to design smart machines or to develop self-learning software applications that imitate the traits of the human mind like reasoning, problem-solving, planning, optimal decision making, sensory perceptions etc. AI and machine learning has been around us for years. Don't believe me? Why is it that every time you go to Facebook or YouTube you mainly see videos and posts that are of interest to you? It's no coincidence. It's a mixture of clever coding, algorithms, and big data. Coding and algorithms around these platforms have learned what you like to digest and they're delighted to feed you. After all, this keeps you on their sites. Artificial Intelligence in education works in a similar way. AI will allow for tailored education. Because of AI, machines can also learn some of what we like and dislike. It collects data from us in-app or online movement and can figure out what method of learning is best for us. It knows how quickly or slowly we digest information. This also understands which form of content that we are most likely to engage with. AI will ensure a personalized learning journey. As per the report of Research and Markets.com, the World Artificial Intelligence in Education Market is forecast to reach \$3,683.5 Million by 2023.

The "Teaching artificial intelligence at school" project currently focuses on the latter two connections. The goal is to contribute to mainstreaming both the human and technical aspects of AI into training Programmes for school students. It begins with piloting capacity development of curriculum developers and master trainers from selected national institutions to empower young people.

The following three lines of action are planned for the project:

- a) Development of an AI skills framework for schools;
- b) Development and management of an online repository to host curated AI-related training resources, AI national curricula and other key digital skill training courses;
- c) Workshops to support the integration of AI training into national or institutional school curriculum in a selected number of countries.

II. NEED OF AI IN EDUCATION

Why do we need AI in education? the reasons why we need AI in education are;
Online Tutor; an artificial intelligence based system can easily teach a person step by step method of solving a certain project/assignment, by the use of algorithms methods that can be comprehended by the user.



Quick Response; AI really brings a huge development in the education sector, one can easily ask a question and it responds immediately. Chabot is the best example to describe this point, nowadays many educational websites/web applications use AI Chabot so that it can easily respond to a user automatically. (AI Chabot is an AI based system that usually gets in communication with Learners as a teaching assistant all semester without students knowing they were not talking to a human)

Act As An Assistant; sometimes instructors make mistakes in student exams by marking the correct answer as wrong or vice versa, but with AI it is 99.9% accurate hence it is really an assistant to instructors.

II. ROLES OF AI IN EDUCATION

- a. **Support learning;** AI plays a huge role in student learning by guiding, gaining and achieving the new experience, creating unique behavior models for better understanding of the students.
- b. **Self-Correction;** With AI a student can easily correct his work; its algorithm is already being programmed with the step by step solution.
- c. **Contribute to Task Automation;** AI based systems can program to do a certain task automatically. Like grading, assessing, and replying to students. Example of this point is AI chatbot. Tay is a Microsoft Chabot that replies to a user message automatically without human intervention. (AI Chabot is an AI based system that responds to a user automatically without the intervention of humans).

III. TYPES OF AI IN EDUCATION

Smart Content; The concept of smart content is a hot topic now as robots can create digital content with the same degree of grammatical prowess as their human counterparts.

Intelligent Tutoring Systems; AI technologies to provide personalized tutoring and real-time feedback for post-secondary education students. IT is a computer based system that teaches and provides automatic feedback to students without human intervention.

Virtual Facilitators and Learning Environments; Virtual Facilitators and Learning Environments is an AI based system that aims to integrate live classroom methods with AI virtual technologies, including virtual recognition, augmented reality, intelligent tutoring system, and others. AI will likely not replace but will serve as an invaluable extension of the

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human expert, helping teachers to more effectively meet the diverse needs of many students simultaneously. A survey in schools in eastern china has revealed a new facial recognition system allocated in real-time to analyse the engagement of students in a classroom.

IV. IMPLICATIONS OF AI IN EDUCATION

Technology has played an essential role in the evolution of education in recent decades. While much of the education system still relies on a central curriculum and at times limited teacher resources, technology is allowing a degree of flexibility and customization that was never before possible. And nowhere is that differentiation clearer than in the use of online Education using Artificial Intelligence. One of the greatest challenges in education is that every student has different capacity and capability to understand something, some will have to practice several time but some comprehend at a time, with AI this part of problem will be solve, AI system will provide each student with the algorithm and tactics to understand a given problem and Ai will really help in education in upcoming decades.

Voice Assistants: Voice assistants are an AI system that uses voice recognition, natural language processing and speech synthesis to process a user request. Voice assistants really bring a huge development in the education sector. A Student can easily have access to educational material without the intervention of teachers through voice assistants such as Apple Siri, Microsoft Cortana, Google Home and Amazon Alexa.

Assisting educators with organizational tasks: Apart from education-oriented work, teachers have to manage the classroom environment and handle various tasks. Educators are often required to handle many non-teaching responsibilities like responding to parents, assisting with conversation and second-language related issues, dealing with sick or otherwise absent students, and otherwise facilitating the learning environment. Educators often spend up to 50% of their time on non-teaching tasks. AI systems can really be helpful in tasks like grading activities and provide personalized responses to students. It can also handle routine and repetitive paperwork and other personnel issues.

V. THE UPCOMING FUTURE OF AI

The future of AI in education will change the education sector. AI will surely make the sector of education accessible and affordable to anyone, anytime and anywhere. AI will increasingly assist instructors in performing tasks that are mostly mechanical, for example, grading with helpful feedback, or identifying students that are about to struggle on a test, providing solutions for a certain problem, methods to solve complex maths problems and other educational tasks. Not only in education AI will play a huge role but in the entire world

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industry, even now Ai is present in some educational and non-educational sectors. For the educational sector we have AI like intelligent tutoring system, Chabot, voice recognition, if now we have all this AI system what will you expect the future of AI to be. Coming back to non-educational AI system apart from automation of task AI have played a huge role in our today's lives let me sight examples with companies like Google, Microsoft, YouTube, Facebook, Instagram. When watching a video, after it ends you will be recommended with other videos that you like to watch. This is because of the presence of AI in the system. It already tracks your moves on the internet, what you like and dislike, your browsing history. And the future of AI will go to be utopia or dystopia.

Literature Review

In order to have vast and fruitful research results it is important to have a review of existing literature that will surely help in the upcoming research life cycle

This Table includes the literature review about the various domains, authors who have describes their works and studies that mostly contains vital concepts, techniques, terminologies terms and Conclusions.

Conclusive Literature Review Table:



Sr • No •	Author's	Title of the Paper	Study	Conclusions
1	Holmes, Wayne, Bialik, and Charles Fadel	"Artificial intelligence in education." Boston: center for curriculum	There are two problems in education: how it is taught and what is taught	Education is among the most important needs of all citizens. It plays a critical role in the development of every country. Nevertheless, the quality of education continues to be a matter of concern. All children's have a different set of skills, varying strengths, and weaknesses suppose children are grouped into the same classroom, whether a private or public school, their strengths and weaknesses are not address, students who are dragging behind often stagnates and left confused, whereas students who go ahead end up feeling unchallenged and bored. Individualized attempts in a private, small preschool classroom address the strengths and weaknesses of each child uniquely. Teachers experience challenges in assisting every student individually in a class of many students. It is either due to lack of adequate time or simply because students cannot understand what has been taught. Therefore, AI is important because it's easily adapted to every learning

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				<p>nature of every student, and it contacts instructions based on the strength and witnesses. it, therefore, means less work for teachers and a more impactful learning experience for students. AI has great potential in developing personalized learning models, allowing each student to individually learn the material in a suitable manner suitable for them.</p>
2	Pedro, Francisc, Miguel, Subosa, Axel, Rivas and Paula Valverde	Artificial intelligence in education: challenges and opportunities for sustainable development.	The study gathers examples in which AI has been introduced in education globally, primarily in developing countries. It also reveals the seeds of discussions and debates based on the 2019 Mobile Learning Week and beyond, as a segment of the several methods of accomplishing the sustainable Development Goal, targeting education	AI is also useful in education through tutoring, which is already happening. AI tutors can determine each student's pre-existing knowledge and learning style for delivering customized instruction and support. AI tutors can teach in a self-paced learning teaching platform or in conjunction with women tutors and apply students' historical and real-time data in providing tailored, tutoring modified to their unique strengths and weaknesses. Tutors have always had a goal to provide a personalized learning experience. Tutoring Systems that embrace AI have proven to be effective in teaching. Currently, AI can relieve pressure by assisting in record-keeping and selecting and recommending



				resources for learners to use.
3	N Goksel, Nil, and Aras Bozkurt	“Artificial Intelligence in education: Current insights and future perspective”	The study identified three main themes in Artificial Intelligence: (1) learning styles, and active learning (2) intelligent tutoring systems and expert systems (3) AI as the future component of educational procedures.	The primary benefit of AI in education is grading. The most tiresome task for tutors is grading students. Due to grading tasks, teachers cannot devote more effort and time to more meaningful and purposeful work such as lesson planning and professional development. AI is beneficial to grading because it reduces the grading process by half due to its friendly interface and its ability to multiply teachers to grade papers in parallel. However, the new AI feature has three challenges: identifying the type of questions, recognizing handwriting, and distinguishing between different written marks. AI is useful in turning grading into an automated, highly repetitious exercise by assisting tutors to learn to group and identify answers, hence, handling them as batches. The application has the prospect of reducing the



				<p>grading system by as much as 90%. Traditionally, if a tutor has to give a test to 100 students and write the correct answer, the tutor would have to go through all the 100 tests and mark them. But with the AI assisted grading, all a tutor has to do is grade one answer, and it would apply to all 100 students. Hence, with AI, tutors can achieve much more than grading an examination using an answer sheet. In addition, tutors can organize data on the performance of students.</p>
4	Chen, Lijia , Pingping Chen, and Zhijian Lin	“Artificial Intelligence in education: a review.”	The study ascertained that AI has been adopted extensively and applied in educational institutions, in various platforms.	As much as AI has many advantages, there are still some concerns. With AI education systems, there is no emotion in education. In both the college and K12 level, content teaching is often viewed as routine, menial, more so when enlarged by, revealed how students and tutors relate with the Nao humanoid that they were ,more reluctant about robots not to have complete dominance but rather, take a regulated role in the classroom. Tutors also want total control over the robot, so there was a technology prejudice related to their sentiments. The tutors also explained that they mistrusted



				<p>the technical abilities of the robot, and they wanted the robot to operate as a learning companion for children, but not as a tutor. The reluctance may have occurred mainly because of uncertainty on how best to integrate robots in the classroom and a persistent worry that robots may ultimately replace teachers. These issues are clear in AI, but AI would mainly be used as an assistant to help teachers have an easier job, but not as a replacement.</p>
5	Sijing, Li, and Wang Lan.	“Artificial intelligence in education ethical problems and solutions.”	The research divided individuals into three categories based on the different aspects they are as students, teachers, and programmers. The paper then gives solutions and cautions based on the three categories.	There are many implications to the development of AI in education, whether they are benefits or risks. Socially the idea of deception and creating a convincing emotional attachment that may or not develop between classroom robots and students. There are certain risks associated with the convincing presentation of a paper classroom robot as a peer or companion.
6	Mitchell, R., Michalski, J., & Carbonell, T.	“An Artificial Intelligence approach. Berlin: Springer	Revealed that the AI is a Branch of Computer Science that is concerned with the performing special activities that call for intelligence such activities includes logic inferences and deductions, which	We conclude that the AI incorporates activities such as logic inferences and deductions, which enable individuals to make judgments per the lived experience or contradicting information and creativity



			enables individuals to make judgments as per the lived experience or contradicting information and creativity.	
7	Sharma,U., Tomar , P.,Bhardwaj, H., & Sakalle, A.	Artificial Intelligence and its Implications in Education. In Impact of AI Technologies on Teaching, Learning, and Research in Higher Education	There is an increase in AI techniques ,and efforts are being made to incorporate Machine Learning(ML)and Data Analysis(DA)into the sensors of digital and the embedded systems.	In the near future AI will be evidenced in almost every work done especially in the learning environment which will also yield a number of related challenges.
8	Alzubi, J., Nayyar, A.,& Kumar, A.	Machine Learning from theory to algorithms: a journal of Physics	AskAboutAI argues that the machines can exhibit intelligence similar to that of a Human Being.The AI base is a computerized code that depicts intelligence in learning and problem-solving in what is commonly called as super intelligence	The Machine in the form of Robots are able to replace human being in work environment like in the case of Machine Learning which will result in to reduction of workload as well as the efficiency in the several area.
9	Bringsjord, S., & Ferrucci,D	Artificial Intelligence and the literary Creativity: Inside the mind of Brutus, a storytelling machine.	Robots create computerized content with profound grammatical expertise just like human beings, technology which has reached the classrooms lately. Books have been digitalized and	The AI is greatly transforming the educational sector through the mode of Digitalization.

			customizable interfaces for learning, ensuring smooth interaction between the students and the instructors.	
10	Dwivedi, Y. K., Hughes, L., Ismagilova, E., Aarts, G., Coombs, C., Crick, T., & Williams, M.D.	Artificial Intelligence(AI):Multidisciplinary perspectives on emerging challenges, opportunities, and agenda for research, practice and policy.	Through Robotic automation, the AI technology will continue to take route in learning systems with the anticipations of new and more refined digital technologies.	This will further make the learning process effective, AI will advance Robotic Automation which will help in addressing challenges manifested in its use leading to the development of More Intelligent Systems.

VII. CONCLUSION

Artificial Intelligence is engineering and science of making intelligent machines into computer programs that mimic human thinking. Advancements in AI will drastically change the educational sector and make education simpler. The prospect of what computers are able to do is infinite. Artificial intelligence in education allows people to put machines in areas where humans cannot go. However, the machines are not constructed as a replacement for teachers but to assist them.

VIII. FUTURE WORK

The concern about the role of AI in education is inevitable. To solve these concerns, the government should set regulations on AI in Education to ensure an equitable and effective public system. Among the regulations is, AI should strictly be an assistant but not replacement for teachers. As much as AI has many advantages in education, it still has some risks. As explained above, AI systems are neither responsive nor emotional. Therefore, they cannot identify the students that are disturbing or misbehaving in the classroom. Excellent tutoring requires an in depth understanding of the intentions behind the actions of a child. For Example, a quite child could either be studying or blatantly refusing to participate in the classroom activities. On the other hand, an enthusiastic child may actively participate in classroom discussions or interfere with the class.



Improvements in AI in the long term and short term basis provide opportunities for developing digitization in education. Digital Education improves the use of Artificial Intelligence and makes education easier and more interesting. AI is a technique that recognizes machines as friendly technologies that makes the learning simpler. The importance of AI and its advantages and disadvantages in education for the future scope makes it necessary to conduct a further risk analysis of AI in the educational sector. The risk analysis associated with the AI technique includes additional improvements in robotics, potential job less from AI, and accountability, which are all examples of risk associated with the use of AI in future. Scientists hope to make computers that will be able to portray traits such as communicating, reasoning, knowledge and learning.

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