

## Benefits of Artificial Intelligence in Education

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### ABSTRACT

Around the world, Artificial Intelligence (AI) is currently a top priority in both politics and science. Every time a new technology is developed, there is a lot of excitement and skepticism about its potential effects on society and the economy. Despite acknowledging despite the fact that the foundations for AI have existed for a number of decades, recent technology advancements are quickening what AI may do. This study examines what this might imply for education, learning, and teaching. It seeks to offer a critical analysis and forward-looking perspective on pertinent AI advancements as a starting point for educated policy-focused conversations about the future of these sectors.

**Keywords:** Artificial intelligence; Education; Innovation; Technology; Computational resources

## ABOUT THE STUDY

### Background information on the research topic

The increasing availability and use of Artificial Intelligence (AI) in various domains have led to the need to measure its benefits. Benefits of AI are important for several reasons, including optimizing its use, justifying investments in AI, and assessing its impact on outcomes. In education sector, the benefits of AI can be measured in terms of improved accuracy and efficiency, cost-effectiveness, insights and knowledge, decision-making and user satisfaction. However, benefits of AI in education requires careful consideration of various factors, including data quality, problem complexity, AI algorithm and model selection, human expertise and involvement, ethics and biases and computational resources and infrastructure.

### Research problem

AI has a number of flaws and issues that prevent widespread implementation. Safety, trust, computing power, etc. are some of the issues. May be we face processing sensitive or unpublished data raises privacy and security issues, thus will must make sure that the proper safeguards are in place to avoid unauthorized access or data misuse. With the development of AI, the least developed nations run the risk of experiencing new technological, economic, and societal gaps.

### Research questions and objectives

The main objective of this research to measure the effectiveness and benefits of Artificial Intelligence technologies application among learners for the purpose of interaction and collaboration as compared to traditional learning model.

### Research questions

What are the benefits of Artificial Intelligence (AI) technologies for developing interaction and participation among students when compared to the traditional education model?

### Significance of the study

The significance of the research will find out the benefits of AI in education field. Another motivation of this research to examine how AI can use data from educational institutions to improve the level of learning, the further investigation how AI technology might be used as a strategy to improve learning methods.

### Research hypotheses

H0=AI has had a significant and slowly escalating benefit on education.

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I want to find out whether the first hypothesis is correct through this thesis. If "H0" is accurate, it follows that education sector should think about whether using AI techniques could provide them a usage effectiveness for interaction in the field, and when the time is right, monitor AI advancements. If "H0" is false, the logical conclusion would be that traditional methods do not need to focus their attention on AI.

## LITERATURE REVIEW

### Overview of existing research of topic

According to, making machines intelligent is the goal of artificial intelligence, which has been defined as the ability for a system to function properly and have knowledge of its surroundings [1]. AI is the use of computing system to do actions that are similar to those done by humans, such as acquiring, modifying, producing, autonomous and utilizing information for challenging processes. Another definition would be; the theory and development of computer systems capable of performing task that often require human intelligence, like investigation, recognizing voices and other similar activities, decision making and languages translation [2].

An Interactive Learning Environment (ILE) is a system with software and occasionally specific hardware built in to enhance teaching and learning in education. The system's communication can take place between a learner and the system, a teacher and the system, or between teachers and students utilizing the system together. The education can be formal, informal, or applied to the workplace. An intelligent teaching system uses a platonic and instructional setting, whereas a virtual world uses a situational and passive environment. An ILE typically functions on mobile devices like smartphones as well as the internet.

Intelligent Tutoring Systems (ITSs) are consistently found to be the most prevalent used and helpful form of Artificial Intelligence in Education (AIED) at all levels of education (K-12, undergraduate and graduate), indicating stating results and outcomes, as well as improving student learning experiences [3,4]. Claims that Intelligent Teaching Systems (ITSs) are computer programs designed to incorporate methods from the field of AI in order to provide tutors who are aware about the content they are teaching, the students they are teaching, and the best ways to teach it [5].

According to research, various intelligent tutor systems with virtual agents may counsel, instruct, and aid people in making decisions, generate a solution, have explaining powers, anticipate the outcome, defend the conclusion and recommend a different option solutions for issues with education [6].

### Gaps in the literature and research questions addressed by the proposed study

Starting a new research project can be challenging particularly for beginners who are going to unknown field and, I am not familiar in the field of AI. The following steps would be to look more closely at the current field of study to identify any gaps

that could use additional research. It often takes a lot of time to read, search a lot of scholarly information in order to generate thoughts. May be I face processing private or sensitive data produces privacy and security concern, therefore we must ensure that the necessary security measures are taken to prevent unlawful entry or data misuse. The generated content might be subject to intellectual property rules, which could result in legal problems and a risk of copyright violation.

### Theoretical framework and conceptual model

This study will examine the theories put out by other researchers in this part of the theoretical literature review regarding the benefits of AIED. The theory on the subject is strongly beneficial to the study since it open the way and establishes the basis and pillars for the investigation. The first section of this study examines how AI has changed in the field of education. The benefits of AI for the education sector and the impact of word of moth will also be examined in this study.

### Research design

The research will use to achieve its goal, this research will use both primary and secondary data sources. For the researcher to construct the project effectively and for the respondent to complete fully understand the survey results. The secondary data will be helpful to the creation of background knowledge. Via internet I will find primary information such as articles, reports, journals, and more. In order to collect reliable and valuable material relevant to the study. Cases and case studies that have used AI will also be used as a research references.

Least but not, this study will used a cross sectional research design that will used the survey approach and create quantitative data. The kind of qualitative research can be quicker to complete can save time and can be used to examine the data I will get from the sample size population.

### Participants and sampling procedures

Advisor, lecturers and students from Artificial Intelligence-based institutions and research centers in Near East University (NEU)-Cyprus.

### Data collection methods and instruments

In order to collection of data a google form with a link would be used. In this study I will design two types of questionnaires. The first questionnaires will be used to survey for teachers and second will used for students in the field of AIED. It will create with simple element structure and clear basic instructions to avoid any issues. The suitable respondent will regularly subjected to many phone calls, text messages and emails as reminder to complete the survey. The online survey would be distributed between June 29<sup>th</sup> and July 12<sup>th</sup> via email, whatsapp and social media groups related to AI. Participant has over a month to complete the survey because its deadline was 27<sup>th</sup> July. It would be probably taken at least ten minutes.

## Data analysis techniques

In order to produce reliable results for the study, quantitative data analysis techniques will be applied. Finding insights in data like measurements, evidence and statistics require the use of data analysis methodologies and techniques. For this purpose I will use Statistical Package for Social Sciences (SPSS) 25.0 and thematic analysis [7].

## DISCUSSION

This study will start with a discussion on research works that were published in the field of 21<sup>st</sup>-century learning during a time when AI was making a comeback as a result of parallel advances in computing power, huge quantities of data and theoretical knowledge. The history of the technical and educational systems is then identified and we talk about the possible changes that AI might bring about in the social and scientific sciences.

We conclude by reviewing the present situation of AI in education based on biological trend and discussing how this may improve both the imaginative and creative responsibilities of instructors and the academic performance of pupils.

The paper would be discusses many aspect of AI in education while focusing on the main applications of AI in education. Additionally, the most popular AI methods utilized in various educational applications. It will also discusses the tools and platforms created for the market as a result of research on a variety of AI-based educational applications, such as (i) student grading and assessments, (ii) student retention and failure forecasting, (iii) customize instructions, (iv) students analysis performance and forecasting, (v) emotion evaluation, (vi) education recommendation systems, (vii) classroom tracking and graphical evaluation and (viii) intelligent coaching will be presenting a thorough bibliometric analysis of the field, we would examine research trends in AI applications in education. The report will also offers advice on the current drawbacks, problems and future directions of Artificial Intelligence (AI) for education, as well as how these might close existing gaps and open up new commercial prospects.

## CONCLUSION

The previous study shows that a cross disciplinary framework should be recommended to be developed in order to create socially favourable advantageous environment that will advance AI and the education both. Studying Science, Technology, Engineering and Mathematics (STEM) and education

independently from one another or from any other related subject is not necessary. Social and computer scientist can work together to advance science by examining current complicated issues in society from a useful solution focused approach. The advantages of observing education organization through the lens of AI include extending beyond the limits of existing knowledge overcoming the confusion problem, getting a better understanding of human behaviour and assisting in the finding solutions of challenging social challenges.

There are still a number of problems and concerns that need to be answered, even while AI has the potential to completely change the way we approach to education. Further research into the potential applications of AI in education is required, and researcher and programmers must work to address any concerns and problems that may be develop as this technology advances and is incorporated into the current education system.

## ETHICAL CONSIDERATIONS

Participant of this survey would be free to respond to the poll questions. The purpose of the survey will outlined at the beginning. No questions about the respondent's names or email addresses would make in order to respect the privacy of the answers. Now other organizations or entities will receive the primary information collected. At the conclusion of the survey, participants will also be requested to sign an overall data privacy rule allowing the researcher to use their responses only for study.

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