The Emergence of Artificial Intelligence in Education: at Present and in Future

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Abstract: In current technology savvy world. The human learning is supported by Artificial intelligence (AI) and Educational technology. They are natural partners in the development of environments which support human learning. These techniques are available now in practical systems. Adding AI can make an exceptional methodology for learning and reasoning in human experiences. This paper presents the role of AI in the various sectors particularly in Education. It gives a brief look at the task that how AI plays a role in teaching Learning process and research instigation as well as areas for future development. The AI models and tools in education and its comparison with the traditional learning are tried to be described in this paper. The study leads to the conclusion that these technologies supplement the learning connections of all the learners worldwide and also enhances the possibilities for teaching and design of instructive experience.

Keywords: Artificial Intelligence, Educational Technology, AI models, learning connections.

1. INTRODUCTION

Machine intelligence is synonym of Artificial Intelligence. It is an intelligence expression by machines, in comparison to the usual intelligence being exhibited by humans. Several significant AI textbooks describe the field as the study of "intelligent agents": "any device that perceives its environment and takes actions that maximize its chance of successfully achieving its goals". It was founded in 1956 as an academic discipline. Later on it has experience numerous waves of hopefulness, followed by dissatisfaction and the loss of funding (known as an "AI winter"), followed by more innovative approaches, accomplishment and improved funding. In the 21st century, AI techniques have experience a rebirth following synchronized advances in computer power, huge amount of data, and theoretical understanding; and AI techniques have turn out to be an indispensable part of the technology of industry that helps to resolve many difficult problems in software engineering, computer science, and operations research

The initiative behind using AI in e-learning is to support eminence in instruction and training. A computer based system is significant for parents & teachers who work optimistically on the factor which help the students for their improved performance. AI may improve e-learning systems and might widely promote providing conveniences with more personalized & better (DSS) decision support system. Education system could play much better for student centric operation towards positive improvement of their performance by offering such approach. In last two decades, internet is being in use for distribution of resources, promote active learning, and release of education in distance learning means. Planning appropriate online delivery structure, allotment of goals of learning, and activities for their courses by the teachers, all these are due to internet .

Following are the examples of various AI models & tools used for educational purpose.

2. EXAMPLES OF AI MODELS AND TOOLS IN EDUCATION:

1. *Smart Content* – These technologies are also referred to as dynamic content. This also attempts to compress text books into useful tool from exam point of view. When used strategically these smart contents have the prospective to facilitate performance and augment production and also helps in Continuous and automated feedback.

2. *Intelligent Tutoring Systems* – This is a computer system that usually without the need of intrusion from a human teacher, aims to provide instant and customized instruction or feedback to learners.

3. *Virtual Facilitators and Learning Environments* – These are Virtual human guides and facilitators for use in a range of educational and curative environments.

For ongoing researching in education using AI, Woolf, et al., (2013) has proposed five key areas which are as follows:

1. Mentor for every learner

2. To Learn 21st century skills

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3. Interaction data for learning

4. Worldwide access to global classrooms

5. Life-wide and Life-long learning

3. *Potential role of AI in various other sectors:*

There are diverse role of AI in other sectors also. Its extent in every sector made it a most demanding area of this decade. Following are some well known sectors.

i) **Construction**: The construction sector is one of the benefitted sectors of AI. This application will help the engineers to be extra creative and skilled to deliver proficient work in the set time framework Moreover, the technology will be valuable to analyze the work and the procedure of the production industry.

ii) **Agriculture**: One of the core sectors where changes are being done in the cultivation process to get more yield is agriculture. Although there are far-fetched opportunities for AI or machine learning in agriculture but, the execution of the technology is the most difficult in this sector. These technologies like AI & Internet of things will be very valuable in understanding the importance Farmers need to become accustomed to the latest innovative technologies to put into operation and get the utmost productivity from their fields.

iii) **Entertainment:** Thanks to the emerging technologies like AI or machine learning that has brought a big alteration in the entertainment industry also. AI is all over and it is making a big distinction in our lives. The entertainment industry is really changed by AI and it will make it livelier in the days to come. When it comes to entertainment, the algorithms being used by varied applications make our life much simpler.

iv) **Education:** Collaborative virtual networks and AI are used to make an ultimate learning environment for both the students as well as teachers, these technologies are also making our education system smarter and a perfect learning environment for all. Such rising technologies like AI have been used to create a proper fusion of the learning ecosystem.

v) **Healthcare**: The execution of these advanced technologies in the healthcare sector is a pleasure for humanity as it will help relieve all the challenges. These technologies are certainly going to endow with improved services in the healthcare sector. These applications are useful in accepting and perceiving the medical data and attainment of the correct conclusion without direct human input.

vi) **Banking**: Even this sector and financial institutions are showing curiosity in the execution of AI or machine learning.

vii) **E-Commerce:** Majority of the e-commerce companies have been using these advanced technologies.

viii) **Marketing:** Sales & Marketing professional are always ready with their leads and prospects using such technologies.

3. AREAS OF AI IN EDUCATION:

Education is a filed in which the change is always demanded. The role of this change is leading in terms of development of students, teachers, education policy, pedagogy and final result. In this digital era the domination of technology on education is always visible. Artificial Intelligence provides a powerful push to every technology we use in education. The AI goal is learning, natural language, Non monotonic reasoning, planning, and diagnosis, reasoning under uncertainty and temporal reasoning. According to the "Artificial Intelligence in Education (AI-ED)", the main areas of the AI in education are:

1. Intelligent tutoring system

2. Learning environment

3. Learning management system

4. Assessment of learning outcomes

5. Social and cultural aspect of learning

6. Reading and writing

7. Decision support system

8. Computer assisted language learning

All of the above mentioned educational tool are trending these days. Industries are in process of learning the response of students and teacher to develop more efficient tools for educational purpose. We can see their outcomes in our surrounding in classroom teaching learning as well as online teaching learning.

4. CONCLUSION

The interpretation of this whole discussion is to point out the role of artificial intelligence in education. There are a huge scope of innovation and ideas in the use of artificial intelligence. It is next leading responsibilities for us to use them with appropriate methodology to reduce the complexities. The working industries in this field are facing so many challenges therefore it is our responsibilities also to share those challenges. The popularity of alexa and its parallel

controversies is a very good example for us to learn and face the challenges of artificial intelligence in education. But the next age will be of technology and their better advancement therefore how fast we learn and grow with improved results should be our main goal.

REFERENCES

[1] "Role of artificial intelligence based technologies in E-learning" "Hemant Rana1", Rajiv2", " Prof Manohar Lal3" "(University College of Medical Sciences, Delhi, INDIA." "(hemant.mca08@yahoo.in)" date: IJLTEST – Volume I, Issue 5 (May-June 2014).

[2] "E-Learning Systems with Artificial Intelligence in Engineering" Wojciech Kacalak and Maciej Majewski"" Koszalin University of Technology, Faculty of Mechanical Engineering Raclawicka 15-17, 75-620 Koszalin, Poland" wojciech.kacalak@tu.koszalin.pl".

[3] "Some recent work in Artificial Intelligence", "R.J.Solomonoff, member, IEEE", "Prociding of the IEEE", "vol.54, No.12 December, 1966"

[4] "Applications of AI in Education", " by Joseph Beck, Mia Stern, and Erik Haugsjaa", " 5/3/2005".

[5] Fahimirad, Mehrnaz, Shakib Kotamjani, Sedigheh, 2018/12/15 A Review on Application of Artificial Intelligence in Teaching and Learning in Educational Contexts, 8, International Journal of Learning and Development DOI 10.5296/ijld.v8i4.14057

[6] Popenici, S.A.D., Kerr, S. Exploring the impact of artificial intelligence on teaching and learning in higher education. *RPTEL* 12, 22 (2017) doi:10.1186/s41039-017-0062-8

[7] Tamara Dinev and Paul Hart. 2006. An Extended Privacy Calculus Model for E-Commerce Transactions. Info. Sys. Research 17, 1 (March 2006), 61–80. https://doi.org/10.1287/isre.1060.0080

[8] The Impact of Artificial Intelligence on Learning, Teaching, and Education, Policies for the future Author: Tuomi, Ilkka Editors: Cabrera, Marcelino; Vuorikari, Riina; Punie, Yves, ISBN 978-92-79-97257-7

[9] Thomas, Douglas, and John Seely Brown. 2011. A New Culture of Learning: Cultivating the Imagination for a World of Constant Change. CreateSpace Independent Publishing Platform.

[10] Sleeman, D., and J.S. Brown. 1982. Intelligent Tutoring Systems. New York: Academic Press.