ISSN: P-2455-0515
E- 2394-8450

Educreator Research Journal

A Peer Reviewed Referred Journal

Volume–IX, Special Issues–II
May – June 2022

Original Research Article

ARTIFICIAL INTELLIGENCE INNOVATION IN EDUCATION

**Prof. Pradnya Jitendra Nehete & ** Prof. Saugat Das*

**Assistant Professors', University of Mumbai, Mumbai, Maharashtra.*

Abstract:

The focus of this research would be to see how Artificial Intelligence (AI) has changed education.

Education today is essential to an individual's and society's progress. The purpose of the study was to uncover and develop the usage of Artificial Intelligence (AI) in the educational sphere, as well as to come up with previously unknown applications. Artificial Intelligence investigates the fresh talent for educational technology innovation. Artificial intelligence has evolved into a critical element of today's education sector and a critical technique for gaining market competitive advantages. The uses of artificial intelligence in education are discussed in this paper, as well as existing tools and applications, market and research trends, opportunities, risks, and present limitations of AI in education.

Based on multiple intelligence framework analysis and machine learning, this paper integrates multiple intelligence theory and artificial intelligence technology, notices the teaching situation through smart voice and image interaction, and provides smart teaching auxiliary services for teachers and students. This study provides a smart and innovative education paradigm and, based on that model, creates a smart teaching assistant system. We concentrate on artificial intelligence-assisted innovation education with multidisciplinary integration as the objective, so that teachers and students may interact more effectively than before. The study's findings efficiently achieve tailored instruction, enjoyable learning, and the growth of unique talents with varied abilities. We examined several works in relevant fields and sub-domains such as big data in education, educational data mining (EDM), and learning analytics for our in-depth review study. Educational applications are examined from several angles in this paper. On one side, a detailed description of the platforms and tools produced as a result of the study is provided. On the other hand, it recognizes the limitations, prospective obstacles, and areas for future improvement, and this serves as a foundation for future e-learning research.

Keywords: *Research Trends, EDM, Multiple Intelligence Framework, Smart Teaching Assistant System, E-Learning.*

Traditional Teaching approach:

Our traditional teaching approach, which has been employed since the concept of teaching first originated, is the age-old teaching methodology of the Indian Education System. It is a conventional teaching approach in which the teacher addresses the class and is given a piece of the curriculum to finish that has already been decided according to an academic calendar. Students are held responsible for completing assignments and homework on their own, and they are introduced to a grading system.

Before learning about Artificial Intelligence, it is essential to understand what AI is and why it is important to learn.

The following are some of the most compelling reasons to learn about AI:

Introduction of Artificial Intelligence:

Artificial Intelligence is made up of the terms Artificial and Intelligence, with artificial relating to "man-made" and Intelligence relating to "thinking power," so Preassembled to "a man-made thinking power."

In conclusion, we can define AI as "an area of computer science that makes it possible to create intelligent machines that can behave, think, and make decisions like humans."

Artificial intelligence exists when a machine can learn, reason, and handle problems in the same way that people do.

Why we will use AI?

With AI, you may design software or technologies that can address real-world problems quickly and accurately, such as health difficulties, marketing, traffic congestion, and so on.

You can develop your virtual assistant using AI, such as Cortana, Google Assistant, Siri, and so on.

With the use of AI, you can create robots that can work in environments where humans' lives are in jeopardy.

Other new technologies, devices, and opportunities emerge as a result of AI.

And the major point of this paper is that there are three factors to the interaction between AI and education: learning with AI (for example, utilizing AI-powered tools in classrooms), learning about AI (its technologies and techniques), and preparation for AI.

This study aims to determine how the usage of AI in education, in various forms, has impacted or affected various elements of education. The study will focus on how artificial intelligence has impacted teaching, learning, and educational administration and management. The study's findings are expected to demonstrate that AI has improved the efficacy and efficiency of administrative duties in education, as well as improved instructional and learning effectiveness in general.

The Role of AI in Education:

Timms raises an important point: AI is extremely strong and can pervade and significantly alter several aspects of society, with the education sector being one of the most likely to be significantly influenced by AI. Indeed, it is apparent from the several publications studied that AI has been accepted and deployed in the education sector, where it has facilitated advancements in a variety of domains.

Learning, which is an important component of education, is another facet of education that is covered in this research. Different ways in which AI has been accepted, applied or leveraged in supporting students' learning have been found based on a review and analysis of the many publications included in the study. Additionally, particular programs or applications that use AI to help students learn have been discovered. Customization and personalization of curriculum and information by the learners' needs, talents, and capacities is an important method in which AI has been used to improve student learning.

Examples of AI in Education:

- Plagiarism Detection
- Exam Automation
- Chatbots for Enrolment and Retention
- Learning Management Systems
- Transcription of Faculty Lectures
- Enhanced Online Discussion Boards
- Academic Research
- Connected Campuses

Plagiarism Detection:

Plagiarism is an unethical use of information, but it still occurs.

All information sources, whether academic or professional, require a citation. Missing citations result in plagiarism, or the uncredited use of another person's content (words or otherwise).

While some people may be skilled at detecting plagiarism detection text with the naked eye, AI-powered platforms can provide a variety of tools for making content readable, impactful, and grammatically correct. Software as a service (SaaS) is a platform that enables to verify their paperwork for plagiarism.

Exam Automation:

The AI-based exams, also known as AI-proctored tests, remove the need for onsite invigilators and provide a cheating-free environment. The AI proctoring software monitors the live feed from the candidate's webcam and flags or reports any strange movement during the exam. AI-powered exams make it simple to keep a record of a large number of candidates.

Chatbots for Enrolment and Retention:

Chatbot technology is now being regarded by higher education administrators as a tool for developing student retention strategies and initiatives.

Chatbots are becoming more common in higher education. Admissions, career services, and mental health care are all accessible. According to a new study from Georgia State University, college students are more likely to complete tasks to stay enrolled when they receive targeted, personalized text messages from an Artificial Intelligence-powered chatbot.

The particular way in which a student has integrated not only academically but also socially into the campus community will have a major effect on how well that student will remain engaged and succeed.

Receiving timely, personalized support from an empathetic, pleasant chatbot directly into a college student's smartphone could make a difference when a student is attempting to accomplish a project or needs guidance moving quickly around campus.

Learning Management Systems:

Using AI in actual educational resources is not the only way to use AI to improve your LMS. AI, particularly Machine Learning algorithms, can help you create better and smarter LMSs by assisting you in delivering-

- **Content that is optimized:**
  An AI-enabled LMS processes data and optimizes material using Artificial Neural Networks and Deep Learning algorithms. With the proliferation of digital platforms, learners desire content to be offered in a variety of formats (audio, video, text, graphics, infographics, etc.) across many platforms. AI aids in the production of eLearning by classifying content features. An AI-powered LMS application can filter through vast amounts of content and quickly discover good content. The automation of this technique will improve content consistency across platforms while also saving development time.
- **Communication and assistance that is intelligent:**
  The LMS can process and interpret human languages thanks to Natural Language Processing (NLP), a subfield of AI. By integrating eLearning systems with chatbots and virtual assistants, learners will be able to communicate in the language of their choice. These devices are capable of hearing and absorbing language. This will not only increase learning synergy, but will also give an immersive, engaging, and efficient learning experience.
- **Personalization:**
  The standard practice in corporate training is to give the same type of media to all employees. learner. This strategy can be improved with AI because AI can track a learner's past performance and adapt the information to create a more personalized learning experience. By tracking learners' progress, AI-powered LMS software packages can determine their degree of expertise and, as a result, supply them with the appropriate content.

- **Gamification:**
  When it comes to eLearning, gamification is an engaging tool. AI plays a significant part in the intelligent creation and development of gaming elements. It ensures that the game features work seamlessly and push the learning activity, generating a sense of involvement and entertainment. Good gaming content will assist in increasing engagement and retention

Transcription of Faculty Lectures:

Many students learn more efficiently when they can interact with the content more closely. Transcriptions assist them in doing so. A transcription of your lecture can be used by students to assist them to take notes studying for exams. They may highlight or underline key points in the lecture, as well as write supplementary material if appropriate.

The most effective learners and innovators understand what they don't know. This is something that students should be aware of as well. When students use your transcriptions for notes, they will be able to identify areas where they have questions or are having difficulties following the presentation. This can assist them in filling knowledge gaps, whether they come to you during office hours or pursue extra research on their own

Enhanced Online Discussion Boards:

Incorporating online discussion boards into course design is a critical component for developing online communities through topic-based student participation.

Using AI-assisted discussion boards in your online classroom, such as Ment.io, has numerous advantages. Why Assist students in connecting with course material while developing meaningful relationships with other learners, resulting in a social presence and sense of closeness in virtual classrooms.

- Encourage discourse among participants from all backgrounds through threaded discussions, providing them with the time and space to engage with one another and establish a sense of belonging and inclusion.
- Use current analytics technologies to track and record all student activity on the board in real-time, allowing you to monitor and assist individual student engagement.
- Motivate students to participate in asynchronous learning strategies such as polls, interactive activities, and quizzes.
- Embedded file sharing enables in-depth and multimedia-rich discussion of a range of course material.
- Use online chat tools to provide tailored support to inactive or under-engaged learners, assisting instructors in ensuring all students have a great learning experience.

For all these reasons, online discussion boards are excellent tools for online learning since they provide your students with asynchronous communication channels as well as the space and opportunity to establish a feeling of community and interdependence.

Academic Research:

This infographic covers AI achievements as well as some of its applications in research and academic publishing. It should be noted that several of the technologies are still under development and that only beta versions have been released to date.

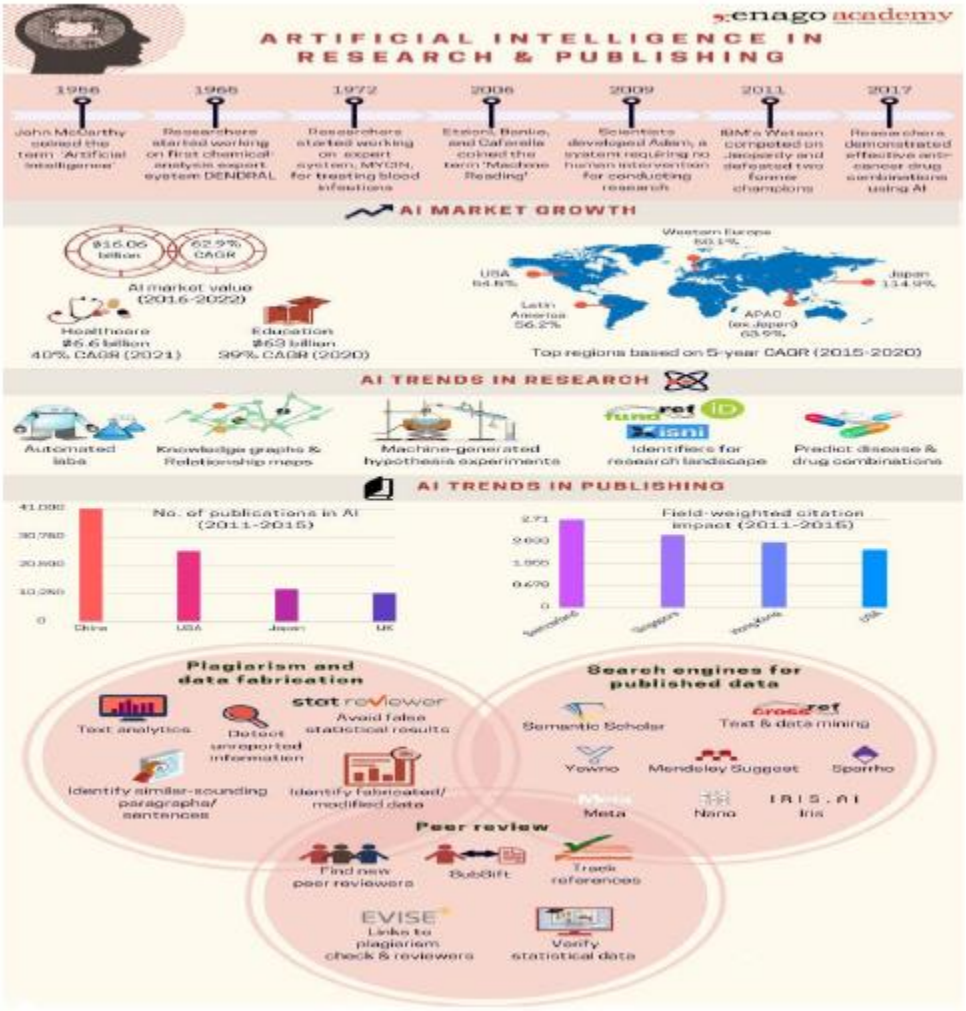

Fig . 1 Artificial Intelligence in Research and Publication

Connected Campuses:

AI has been around for a long time. People in higher education began to comprehend how it could improve and speed many operations — from answering basic campus-related concerns to giving students with academic support — after years of considering its concept and prospective uses.

AI platforms can now sift through massive volumes of data, revealing hidden patterns and generating a series of the best potential actions and solutions in the meantime, thanks to machine learning advancement. AI can have an impact on numerous sectors of higher education by using these data sets. This will eventually lead to the creation of the cognitive campus, where higher education institutions would provide tailored services.

The Future of AI in Education:

Though there is an ongoing debate about the pros and cons of deploying AI technology in the field of education, including the above-mentioned concerns about depersonalization and ethical considerations, there is an emerging consensus that the extraordinary range of current and future benefits will win out.

Conclusion:

Finally, artificial intelligence can assist us in shaping online learning to make it more engaging and successful. You may use technology to improve lesson planning, implement better teaching methods, make your classes more accessible, and even flip classrooms when necessary.

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Cite This Article:
****Prof. Pradnya Jitendra Nehete & ** Prof. Saugat Das,*** *(2022).* ***Artificial Intelligence Innovation in Education*** *, Educreator Research Journal IX (Special Issues - II), May –June, 15-20.*

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