International Journal of Trend in Scientific Research and Development (IJTSRD)
Volume 8 Issue 5, Sep-Oct 2024 Available Online: www.ijtsrd.com e-ISSN: 2456 – 6470

# Impact of Artificial Intelligence and Curiosity among Students to Learn New Things

**Dr. Charu Sharma**

Associate Professor, A&M Institute of Management & Technology, Pathankot, Punjab, India

## ABSTRACT

The purpose of this research was to determine how generative artificial intelligence (AI) affects students' capacity for creative thought. The research also aimed to give educators guidance on how to use AI to foster creativity in the classroom. Students must be extremely motivated to actively participate in the acquisition and development of abilities in order to attain specialist formation. This article analyzes how Artificial Intelligence (AI) can help boost student dedication during their training for a specialized sector. It is suggested that artificial intelligence (AI)-enabled technology, such virtual assistants, intelligent tutoring programs, and algorithms, can offer tailored curriculums that cater to the unique requirements and preferences of each learner as well as flexible assessments and personalized feedback. We will talk about in this essay. The influence of artificial intelligence and students' curiosity in acquiring new knowledge.

***KEYWORDS:*** *Artificial Intelligence, Curiosity, Students, New Things, Thinking Skills, Creative Growth, Classroom Instruction, Chat-GPT, Machines, Human Intelligence, Technology*

***How to cite this paper:*** Dr. Charu Sharma "Impact of Artificial Intelligence and Curiosity among Students to Learn New Things" Published in International Journal of Trend in Scientific Research and Development (ijtsrd), ISSN: 2456-6470, Volume-8 | Issue-5, October 2024, pp.1082-1089, URL: www.ijtsrd.com/papers/ijtsrd70509.pdf

IJTSRD70509



## INTRODUCTION

Artificial intelligence, or AI, describes computer systems that function similarly to the human brain. Artificial Intelligence mimics the organic neural networks that the human brain uses to process information. AI was created to carry out tasks that are difficult for certain algorithms to specify, such text generation, voice and picture recognition, and more. It's basically any assignment where you have to identify patterns with multiple parameters.

Artificial intelligence has a revolutionary impact on students' educational journeys through its various effects on education. AI algorithms provide personalized learning, which adapts instructional materials to each student's needs and improves comprehension and engagement. AI-powered virtual instructors provide instant assistance while encouraging self-directed learning and critical thinking. The production of AI-driven material, such as virtual labs and simulations, enhances the immersion and enjoyment of learning. Exposure to cutting-edge technologies helps students get ready for a workforce that will rely heavily on technology in the future. But issues like potential over-reliance on technology and data privacy concerns must be carefully considered. [1]

Education is one of the main fields in which artificial intelligence is being applied. It has generated interest and questions across a wide range of disciplines. Artificial intelligence (AI) is defined as the process of creating intelligent agents that operate in a way that influences their surroundings and are recognized by their senses. This area of computer science replicates or simulates human intellect through the use of algorithms and machine learning techniques.

For learning outcomes to be successful and for students to have a deep engagement with the material, student motivation is crucial in the educational field. High levels of excitement from students are necessary for the process of becoming an expert in one's subject; accordingly, educators have investigated many ways to promote motivation in learning environments. Artificial Intelligence (AI) technology integration is one innovative and promising approach.

Educators may create dynamic learning environments that are tailored to each student's needs and

development by utilizing AI techniques like data analysis, adaptive feedback, and personalized learning experiences. This increases student motivation during the specialist formation process. [2]

Though it is affecting every part of life, artificial intelligence might have the biggest effect on education. Unfortunately, the educational system of today is rigid and expensive. Furthermore, it does not provide a tailored experience according to the learning and aptitude of the student.

Artificial intelligence (AI) can intervene in this situation and significantly impact the curriculum. For those students who would not otherwise be able to afford a decent education, artificial intelligence (AI) holds the promise of cutting prices and speeding up learning.

**Here are a few instances of how AI may impact the field of education:**

- **Students' preferences can be learned via AI-**

AI will provide personalized education for each student. AI may look at movement data from in-app or online activities to find out which learning method works best for students and how quickly or slowly they take in the information.

Additionally, AI algorithms are able to determine the kind of content that students are most likely to interact with. In this sense, AI may provide a customized learning experience.

- **Virtual and augmented reality -**

AI can enable related technologies like virtual and augmented reality to better understand the learner. With the virtual reality model, the instructor can more accurately explain the chemical makeup of H2O. Students who are able to listen and try new things find that learning is more fun and effective.

- **Improving grading system -**

Usually, teachers put in a lot of time evaluating assignments, marking tests, and providing comments to their pupils. [3]

- **Benefits of AI in education**

The education sector stands to gain a great deal from artificial intelligence (AI), which could change how teachers and students educate and learn. Here are a few of the main advantages of AI in education:

Increased involvement of students: Numerous approaches exist in which AI enhances the learning process. In the first place, it encourages students to feel more connected to their assignments, which piques their interest and enthusiasm for the material.

Instant feedback and support: Chatbots and virtual assistants driven by AI provide students with immediate feedback and help, encouraging self-directed learning. These resources are accessible 24/7, enabling students to ask for assistance and developing their independence and problem-solving skills.

Data-driven insights: Artificial intelligence provides insightful information about specific learning patterns and areas for development by analyzing vast amounts of student data. Educators thoroughly view each student's academic path by monitoring test scores, homework completion rates, and engagement measures.

Predictive analytics: Artificial intelligence (AI) algorithms are highly skilled at identifying early indicators of academic difficulties, allowing schools to take immediate action and offer kids individualized support. Through the analysis of multiple data sources, including attendance records, test scores, and assignment completion rates, these algorithms are able to identify troubled children before problems become more serious.

**The Importance of AI Education for Children**

Children should be exposed to artificial intelligence early on because it will most likely be important to them in the future. By exposing students to AI concepts, we help them understand the technology that surrounds them and how it can impact their lives. AI education also encourages curiosity and gives students access to a variety of job opportunities in fields like computer science, engineering, and data analytics. The introduction of ChatGPT, Google Bard, Midjourney, and the amazing features of Canva has led to the rapid integration of artificial intelligence (AI) into our daily lives, revolutionising various industries and changing the ways in which we work, learn, and interact. This quick development of technology emphasises how crucial it is to include AI education in the curriculum to make sure all students are prepared for both workforce development and their academic careers.

- **AI Support for Teaching**

AI has the power to completely transform the education industry by improving student experiences, assisting educators, and providing more individualised learning opportunities. We need to provide educators with the skills and information necessary to use this new technology to enhance and simplify daily tasks as well as classroom implementation.

Personalised learning, ideation, adaptive learning, special needs education, bilingual education, gamification, and immersive learning are a few areas in which artificial intelligence (AI) can revolutionise the classroom.

Using AI-powered algorithms, personalised learning involves developing lesson plans that are specifically suited to each student's needs and making recommendations for resources based on the student's learning style, strengths, and weaknesses.

In order to help students master the subject, adaptive learning platforms can react in real-time to each student's progress, identifying knowledge gaps, giving prompt feedback, and recommending focused interventions. Teachers can concentrate more on instruction and student interaction by automating administrative tasks with the aid of AI.

Additionally, students can receive round-the-clock support from AI-powered virtual tutors, and personalised learning programs can help students with exceptional needs realise their full potential. Immersion learning and gamification have the potential to increase student engagement, enjoyment, and retention. [4]

**Review of Literature:**

Since the beginning of human history, creativity has existed, and it is a natural ability and process shared by all people. According to R. Richards (2007), creativity is used in daily tasks as well as in contexts where problem-solving is the primary focus of artistic and creative undertakings. The authors' study investigates whether and how students can improve their creative thinking skills, in particular their divergent thinking skills, by using Chat-GPT-3. This is in light of the growing interest in generative Artificial Intelligence (AI) and the availability of technical AI chatbot tools like Chat-GPT, Google Bard, Microsoft Bing, Jasper, and others. [5]

Additionally linked to originality and efficacy, creativity is seen as a skill that is useful and desirable in a wide range of fields, including business, health, medicine, the arts, sciences, entertainment, and music. Some people link creativity to problem-solving skills and the capacity to modify one's viewpoint in order to draw fresh conclusions (Guilford, 1967). The individual as well as the collective human experience can be impacted by creativity when it is valued. [6]

Over the past 50 years, a variety of technologies have been created to enable machines to perform tasks that have traditionally required human intellect, such as sensing, reasoning, learning, and interacting. These technologies are together referred to as artificial intelligence (AI). However, recent breakthroughs in generative AI (GenAI), notably models like ChatGPT, have brought unprecedented attention to AI's revolutionary potential across numerous industries. Generative AI is focused on producing new material, such as writing, images, and codes, by utilizing deep learning models. This is in contrast to predictive (pre-generative) AI, which involves predictions and decision making through a variety of machine learning and modeling techniques (Dai, 2023). This distinction is critical to comprehend the scope of AI applications in education. [7]

A subfield of computer science known as artificial intelligence (AI) replicates or simulates human intelligence via the application of algorithms and machine learning techniques (Helm et al. 2020). Artificial Superintelligence, Narrow AI, and General AI are the three categories of AI. The most prevalent and developed type of AI to date is narrow AI. Utilizing machine learning tools, such as image and facial recognition and Siri/Alexa, it is very goal-oriented and works toward a single objective or task. Artificial intelligence (AI) that is considered to be comparable to human intelligence (e.g., AI that can detect the wants and emotions of other intelligent entities) is known as general AI (or deep AI).Thirdly, Artificial Superintelligence refers to AI that is more powerful than humans (think of a sci-fi movie where AI dominates human society on all fronts). [8]

A future full of intriguing possibilities is promised by the incorporation of AI into education. Its capacity to enhance learning outcomes is among its most important advantages. Precise education based on each student's strengths and shortcomings helps them understand subjects more fully. Teachers are able to provide focused interventions and make sure all kids attain their full potential since AI can identify students who might need extra help. AI has the potential to greatly increase classroom productivity. According to Gökçearslan et al. (2024), teachers can allocate more chance to student development and generating engaging learning experiences by automating administrative activities such as grading and attendance tracking. AI can also improve resource allocation, guaranteeing that all students have easy access to important learning resources and tools. [9]

With the emergence of virtual assistants like Siri and Google Assistant, as well as numerous other AI-enabled applications in a wide range of industries like healthcare, automotive, education, social media, entertainment, and robotics, artificial intelligence (AI) is growing up alongside a generation of kids in a digital world that is changing quickly (Druga et al., 2018). [10]

According to Wang (2020), artificial intelligence (AI) is the science and engineering of solving problems using cutting-edge technologies like machine learning and neural networks. It stands for the integration of

STEM fields—science, technology, engineering, and mathematics—which is important in today's technologically advanced society.

Early childhood education (ECE) has faced several fundamental challenges as a result of AI education, including the following: (1) why AI is appropriate and necessary for learning in the early years; (2) what is the subset of important AI ideas and concepts that children can learn; and (3) how to involve children in meaningful and playful experiences that will enable them to pick up these foundational AI concepts. [11]

AI education has a lot of potential to improve children's learning because it can combine knowledge from several disciplines and technologies at the same time. According to earlier research, AI-enabled interfaces facilitate young children's access to digital services and content through child-computer interactions like touch, gesture, and speech (Williams et al., 2019). The creative, emotional, collaborative, and literacy skills of preschoolers can be enhanced through their interactions with AI-enabled toys or robots (Kewalramani et al., 2021). [12]

In reality, there are more and more resources and curricula available to teach students about artificial intelligence. The majority of AI education materials and initiatives, however, are designed for students in elementary and secondary education and higher. Seldom is the effective design and implementation of AI curricula that can assist young non-programmers in gaining AI literacy through developmentally appropriate learning materials and methods studied. This article uses an exploratory literature review to identify important factors and provide additional guidance for curriculum design and implementation in early childhood education (ECE). The goal is to close the knowledge gap and tackle the fundamental challenges associated with AI education. The three fundamental questions concerning curriculum development for young children, ages 3 to 8, are the framework around which these important factors are organised: why, what, and how. (2020, Bredekamp) [13]

**Objectives:**

- To study the role of AI on student creative thinking.
- To impact of Artificial Intelligence and Curiosity among Students to learn new things
- To study the role of AI in education

**Research Methodology:**

The purpose of this study is to examine what possible scenarios are there with the arrival of AI in education and what kind of implications it can reveal for future of schools. The research was designed as a phenomenological study, a qualitative research method, in which the opinions of participants from different sectors were examined. The results show that schools and teachers will have new products, benefits and also face drawbacks with the arrival of AI in education. The findings point out some suggestions for use of AI and prevention of possible problems. While participants generally seem to have positive perceptions towards AI, there are also certain drawbacks, especially highlighted by teachers and academicians, regarding the future of teaching. This research work is based on secondary data, which was acquired from various sources such as published articles, journals, magazines, websites, reputable public institution reports, blog posts, and so on.

**Result and Discussion:**

**Overview Of AIED(Artificial Intelligence in Education)**

Artificial Intelligence (AI) is the process of imitating human intelligence in a computer system to enable it to behave and think like a person. This technique enables a computer system to think similarly to a person. The goal of artificial intelligence is to behave like humans. AI has many applications and uses in a variety of fields, including education.

AIED emerged as a specialized field to address new technology in teaching and learning, particularly for higher education, in the 1970s. In addition to fundamental automated tasks, the primary goal of AIED is to enable learners with flexible, individualized, and engaging learning experiences. Adaptive learning, smart classroom technology, intelligent tutoring systems, and pedagogical agents are a few of the prevalent trends in AIED. The link between each of these trends is depicted in the diagram below: [10]

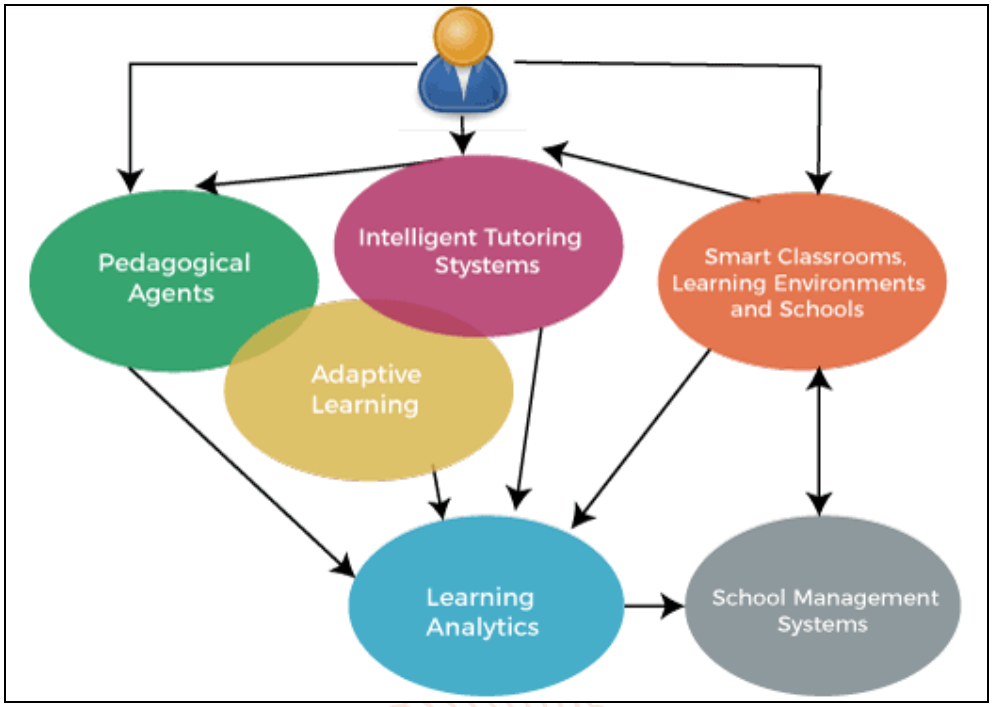


**Figure 1: Relationship between all these trends** (Source: www.javatpoint.com) [11]

**AI-powered Student Support and Engagement**

As artificial intelligence (AI) has grown, technology has been used into the educational system to increase student support and participation. Chatbots are one way artificial intelligence is being used in schools. These chatbots improve accessibility while offering students tailored, engaging learning experiences. They also offer 24/7 assistance. Artificial intelligence (AI)-driven chatbots can assist teachers in managing large class numbers by creating personalized dialogues for every student.

Additionally, data analytics offered by AI technology can assist teachers in keeping tabs on the development, involvement, and welfare of their students. With this knowledge at their disposal, educators can modify their curriculum to suit each student's needs and pinpoint any areas in which they might need more help.

Early exposure to the idea of artificial intelligence can also help pupils become digitally prepared for success in the classroom in the future. While showcasing real-world applications of AI in academic domains like mental wellness and expediting instructional processes, educators also have a responsibility to teach students about the ethics of AI use. [12]

With the release of ChatGPT in November 2022, the use of AI in society underwent a sea change. Many were taken aback by ChatGPT's exceptional writing and understanding skills, which attracted a diverse audience and attracted never-before-seen attention. It was the first time the potential and immediate nature of AI was fully appreciated by an audience outside the machine learning field. One could argue that ChatGPT had the most impact on the education sector.

There is a lot of controversy around ChatGPT's ability to provide intelligent tutoring systems and, on the other side, be used as a tool for academic dishonesty. Teachers at secondary and postsecondary educational institutions have expressed concern about potential student misuse of ChatGPT and have asked for its regulation. The use of ChatGPT on student devices and networks is forbidden in school districts in Seattle, New York City, and Queensland, Australia.

Similar limitations are being considered by a number of colleges, institutions, and schools. It doesn't seem able to stop the pupils from employing AI, though. As is evident from, ChatGPT offers a great deal of potential to help college students with a variety of tasks, including writing essays and developing code. In the end, integrating AI into the educational system and utilizing its potential to improve student learning results is the wisest course of action. (Figure 2). [13]

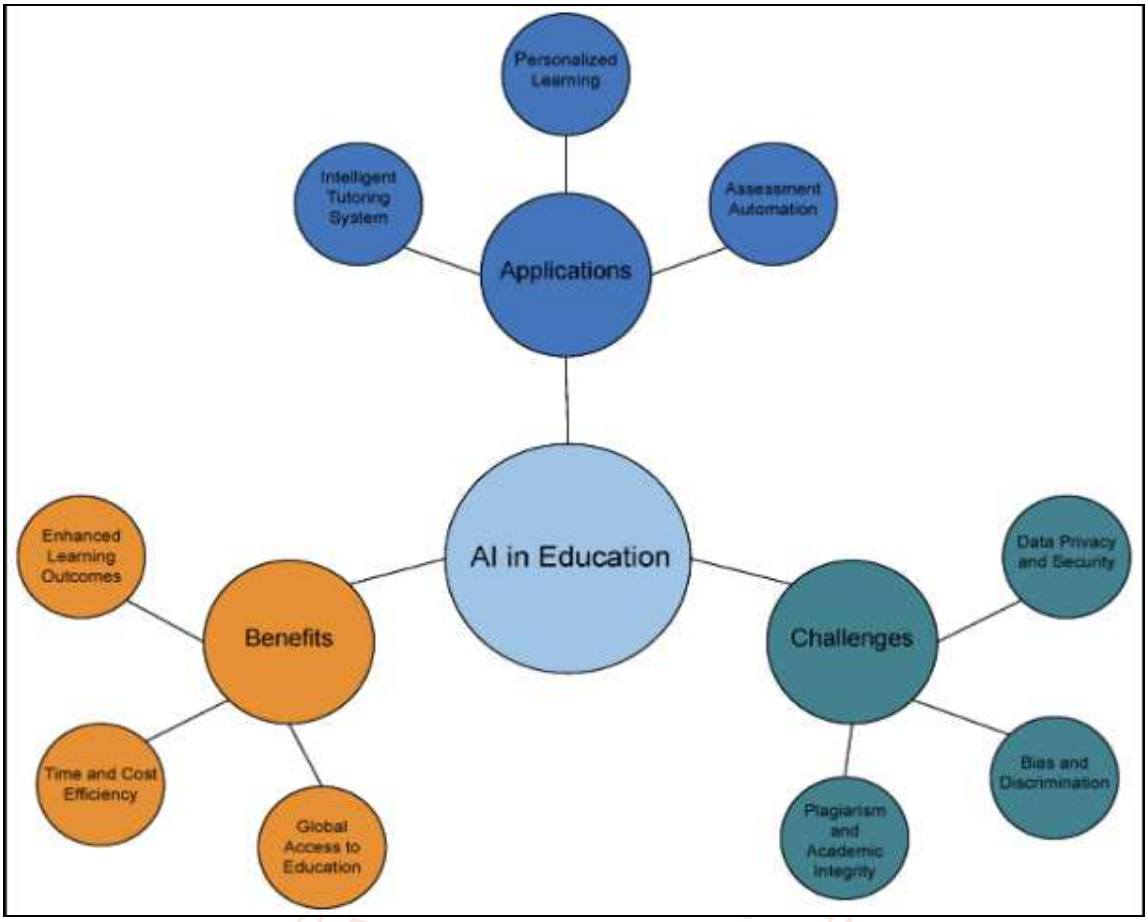


**Figure 2. Multifaceted impact of AI in education.** (Source: www.mdpi.com)

The effects of AI capabilities on students' cognitive abilities—particularly critical thinking—remain unclear, despite the fact that AI technology has brought about many benefits for education. In order to fully understand the implications of AI capabilities, more thorough research is required. Numerous variables, such as general self-efficacy, learning motivation, cognitive ability, emotional intelligence, and environment, might influence critical thinking. Prior research has demonstrated that learning styles and general self-efficacy are important factors in the development of critical thinking abilities. Through learning motivation and self-regulated learning, digital learning technologies like Google Classroom can also have an impact on critical thinking. Learning objectives and self-evaluations can be changed by general self-efficacy. Investigating how AI capabilities affect critical thinking through these mediating variables is crucial, for this reason. This research will have both theoretical and practical ramifications and seeks to advance our knowledge of how AI-enabled learning environments and AI capabilities influence critical thinking. [14]

The development of critical thinking awareness is aided by learning encouragement, especially when it comes to intrinsic drive. Furthermore, having a high sense of self-worth might enhance one's cognitive capacities and learning zeal, which will ultimately increase academic success. Studies have revealed that pupils who have a higher level of computer self-efficacy are more likely to use technology for activities, indicating that they feel themselves to be more proficient in artificial intelligence. The relationships between these variables are emphasized in these studies, along with the possible influence of general self-efficacy and learning motivation on students' critical thinking awareness. Thus, it is important to investigate further how artificial intelligence capabilities influence critical thinking awareness through general self-efficacy and learning motivation given the potential relationships among them, critical thinking awareness, and learning motivation.This is the main subject of the current investigation.

The study uses the resource-based theory (RBT) as its theoretical framework and analyzes universities from an organizational perspective. The study views university-owned resources as important strategic assets in this context, including AI data, algorithms, and application platforms. The administration and integration of these resources are seen as the basic competences and organizational capabilities of universities. The study systematically examines how universities' integration of AI resources affects students' development of critical thinking awareness by measuring students' AI capabilities. Based on RBT, the study investigates how general

self-efficacy and learning motivation, as shown in Figure 3, are affected by AI skills on critical thinking awareness. [15]

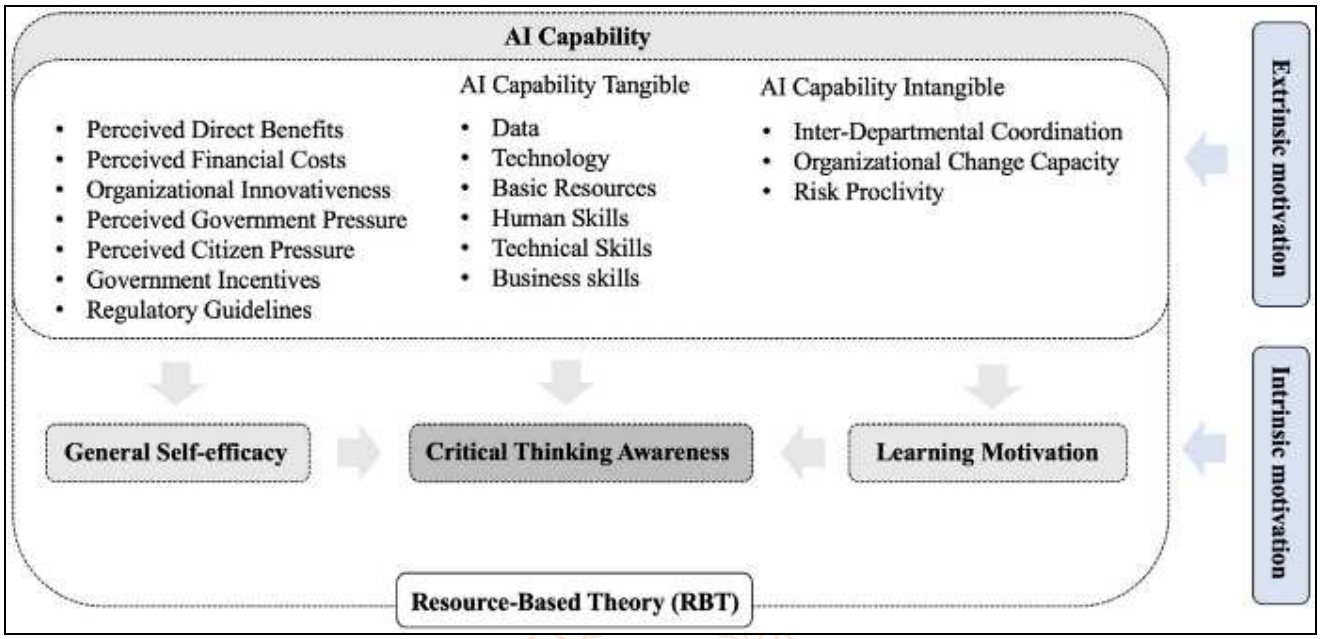


**Figure 3: Resource Based Theory** (Source: www.mdpi.com)

**Conclusion:**

The impact of Artificial Intelligence (AI) on student learning outcomes suggests a transformative potential for AI technology in education. The review of the literature reveals that integrating AI has both major advantages and noteworthy drawbacks. Through adaptive learning platforms and intelligent tutoring systems, artificial intelligence (AI) has showed potential in improving academic achievement, personalizing learning experiences, and increasing student engagement. By targeting each person's unique strengths and weaknesses, these technologies provide individualized support that can result in more efficient and personalized learning pathways. However, integrating AI also presents difficulties, such as the requirement for equitable access to technology and ethical issues like algorithmic bias and data privacy. The individualized learning, crucial skill development, and cutting-edge educational opportunities that AI brings to children have a profoundly positive influence. While appropriate implementation ensures that AI favorably impacts students' whole learning journey and prepares them for a dynamic future, it also presents problems, such as data privacy concerns.

**References:**

[1] Adams, C., Pente, P., Lemermeyer, G., Turville, J., & Rockwell, G. (2022). Artificial intelligence and teachers' new ethical obligations. The International Review of Information Ethics, 31(1)

[2] Aldabe, I., &Maritxalar, M. (2014). Semantic similarity measures for the generation of science tests in basque. IEEE Transactions on Learning Technologies, 7(4), 375–387.

[3] Almasri, F., Hewapathirana, G. I., Alhashem, F., Daniel, C. E., & Lee, N. (2022). The effect of gender composition and pedagogical approach on major and non-major undergraduates' biology students' achievement. Interactive Learning Environments, 1–33.

[4] Demchenko, I., Maksymchuk, B., Bilan, V., Maksymchuk, I., &Kalynovska, I. (2021). Training future physical education teachers for professional activities under the conditions of inclusive education. BRAIN. Broad Research in Artificial Intelligence and Neuroscience, 12(3), 191-213.

[5] R. Richards Everyday Creativity and New Views of Human Nature: Psychological, Social, and Spiritual Perspectives: Vol. Kindle Edition (Kindle Edition), American Psychological Association (APA) (2007)

[6] J. P. Guilford The nature of human intelligence McGraw-Hill, New York, NY (1967)

[7] Dai, Y. (2023). Negotiation of epistemological understandings and teaching practices between primary teachers and scientists about artificial intelligence in professional development. Research in Science Education, 53(3), 577–591.

[8] Helm J. Matthew, Swiergosz Andrew M., Haeberle Heather S., Karnuta Jaret M., Schaffer Jonathan L., Krebs Viktor E., Spitzer Andrew I., Ramkumar Prem N. Machine learning and artificial intelligence: Definitions, applications, and future directions. Current Reviews in Musculoskeletal Medicine. 2020; 13:69–76. doi: 10.1007/s12178-020-09600-8.

[9] Gökçearslan, S., Tosun, C., &Erdemir, Z. G. (2024). Benefits, challenges, and methods of artificial intelligence (AI) chatbots in education: A systematic literature review. International Journal of Technology in Education, 7(1), 19-39.

[10] S. Druga, R. Williams, H.W. Park, C. Breazeal How smart are the smart toys? Children and parents' agent interaction and intelligence attribution Proceedings of the 17th ACM conference on interaction design and children, IDC, Trondheim, Norway (2018), pp. 231-240, 10.1145/3202185.3202741

[11] P. Wang On defining artificial intelligence Journal of Artificial General Intelligence, 11 (2) (2020), pp. 73-86

[12] S. Kewalramani, G. Kidman, I. Palaiologou Using artificial intelligence (AI)-interfaced robotic toys in early childhood settings: A case for children's inquiry literacy European Early Childhood Education Research Journal, 29 (5) (2021), pp. 652-668

[13] S. Bredekamp Effective practices in early childhood education: Building a foundation (4th ed.), Pearson (2020)

[14] Fazlollahi, A. M., Bakhaidar, M., Alsayegh, A., Yilmaz, R., Winkler-Schwartz, A., Mirchi, N., Bajunaid, K. (2022). Effect of artificial intelligence tutoring vs expert instruction on learning simulated surgical skills among medical students: a randomized clinical trial. JAMA Network Open, 5(2), e2149008-e214900

[15] Hwang, G.-J., & Tu, Y.-F. (2021). Roles and research trends of artificial intelligence in mathematics education: A bibliometric mapping analysis and systematic review. Mathematics, 9(6), 584.

[16] Shippee, Micah. 2020. “No Brainer: AI in the Classroom.” *Teach*, September, 20-21. van den Berg, Geesje and Elize du Plessis. 2023. “ChatGPT and Generative AI: Possibilities for Its Contribution to Lesson Planning, Critical Thinking and Openness in Teacher Education.” *Education Sciences* 13, no. 10: 998.

[17] Benson, Alayne. 2023. “The Future of AI in Education: AI Classroom Partners.” XRDS: Crossroads, the ACM Magazine for Students 29 (3): 30–35.

[18] Bundit, Anuyahong., Chalong, Rattanapong. (2023). Analyzing the Impact of Artificial Intelligence in Personalized Learning and Adaptive Assessment in Higher Education. International journal of research and scientific innovation, doi: 10.51244/ijrsi.2023.10412

[19] Chaudhery, Mustansar, Hussain. (2023). Opportunities for Automated E-learning Path Generation in Adaptive E-learning Systems. doi: 10.1109/estream59056.2023.10134844