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AI_Driven Education: A Review of Current Practices and Future Directions

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A B S T R A C T

Purpose: The implementation of artificial intelligence (AI) into education has drawn significant interest from scholars, educators, and lawmakers alike. AI has emerged as a disruptive force across multiple disciplines. The applications, benefits, challenges, and possible future paths of intelligent machines in education are explored in this literature review.

The investigation starts out by examining the wide spectrum of artificial intelligence (AI) technologies which are currently employed in educational situations, such as natural language processing tools, adaptive learning platforms, virtual reality simulations, and intelligent tutoring systems. It speaks about the way new technologies, which facilitate immediate feedback, customisation of learning experiences, and greater participation by pupils, are changing traditional teaching techniques. The review additionally investigates the potential benefits of AI in education, particularly how it could improve learning outcomes, make learning more accessible to a broader spectrum of students, and help teachers with their administrative duties. It also emphasizes the importance of solving ethical, privacy, and equity concerns with the goal to encourage responsible and equitable use of AI technology. These are the issues that in one way or another are associated with the use of AI in learning situations. Furthermore, the investigation looks at the current state of the research on AI in education currently, emphasizing significant developments, knowledge gaps, and potential research topics. It emphasises how to optimize the efficiency and moral implications of AI in education through interdisciplinary cooperation, strict evaluation processes, and learner-centred design principles. This literature study ends by giving an in-depth account of artificial intelligence's (AI) place in education as well as insights into its future prospects, problems, and transformative potential. It provides a framework for additional study, the development of policies, and well-informed decision-making in using AI to enhance teaching and learning.

. Design/Methodology Approach: This review study involved comparing many research publications from reliable sources in an effort to gather the necessary information.

Objectives: To review effective literature in a bid to get broad knowledge about AI technology in education so as to enable the development of new education systems for teachers and researchers.

Findings/Result: This paper has brought focus on incorporating AI facilitated approaches in teaching due to the problems affecting the classroom education system in the context of post COVID world. These techniques are to be designed for assisting the students, enhancing student engagement and for facilitating teacher's aid and contribution.

Originality/Value: The novelty of literature review article in AI in education can be highlighted in terms of how it collects and synthesizes a broad array of research and presents new ideas and directions for future studies. This is highly advantageous in several aspects because the practical help that is offered in the processes of implementing procedures, creating policies or solving ethical issues is essential. It therefore greatly accelerates the development of education methods and technologies.

Type of Paper: Literature Review.

Keywords: Artificial Intelligence, Education, personalize learning, Technology, Adaptive learning, Natural Language Processing, Data privacy

1. INTRODUCTION:

AI as the ultimate human invention has continued to evolve at a very fast pace and has significantly affected many facets of life, including the education sectors. This paper will attempt to assess the effects of artificial intelligence advanced in learning and instruction by reviewing sample articles relating to the subject.

Based on the studies related to the role of artificial intelligence in learning, this literature can be broadly categorized into three categories. AI has proved to be harmless in education tailored to individual needs and preferences, which is achieved through the use of AI solutions controlling the content and approaches to teaching based on students' needs and preferences (Owoc et., al., 2021 [1]). Intelligent Tutoring Systems (ITSs) are an example of such a concept because they observe students' inputs; select adequate activities for them; provide useful input for when the student stumbles; and enabling human–computer communication (Zhai et., al., 2021 [2]).

The current academic literature has also shown that AI, as a tool has the possibility of enhancing students' performances especially in language acquisition as well as reading. It is for this reason that AI systems have the capability of analyzing student data in relation to a certain student in order to determine the particular aspects that the certain student may have difficulty comprehending and then provide possible solutions to the problem. Moreover, there are numerous benefits associated with AI writing assistants, including the improvement of the pupils' writing skills due to feedback and prompt advice.

However, as was stated before, there are challenges regarding the implementation of artificial intelligence in the area of education. The need to understand the social and ethical challenges that are brought by AI-based education models is growing. Policy makers and academics must be careful that these technologies do not widen the existing gap in the society or diminish the role of interaction between people during learning. (Owoc et., al. (2021), [1] (Liu (2022). [3]), (Kamalov et., al. (2023). [4]) and (Tanveer et., al. (2020). [5]).

2. OBJECTIVES REVIEW PAPER:

1. This study aims to establish the research gaps in the existing prediction models for efficient AI incorporated education and to endorse the use of AI and ML to fill the arising gaps.
2. To equip the teachers with the modern teaching aids and techniques to improve on their teaching skills.
3. To carefully evaluate potential benefits challenges, and future directions of this emerging technology.
4. To investigate the various approaches in which AI is being integrated into educational settings.
5. To assess its impact on instructional methods, student engagement, individualized instruction, and administrative responsibilities.

3. METHODLOGY

A basis for the analysis was established from data that was gathered from different places including scholarly journal articles, papers that were presented in conferences, website contents and publications.

4. A REVIEW OF RELATED WORKS AND LITERATURE

Artificial intelligence (AI) has been expanding in the education sector as a promising tool in the near future. A study on the classification of AI-driven technology use in education shows that AI technology can function as a new module, an 'actual' mediator, and as a supporting actor, affecting the instructor-student, the student-self, and the student-student dynamics (Karan, B et., al. (2023) [6]). AI usage in learning can promote differentiation, assessment and measurement, an intelligent learning environment, learning management, and a learning dashboard that can be useful to students with LD and other learning styles (Weiqi Xu et., al. (2021).[7]). Moreover, investigations have recognized the AI technologies influence major education areas, including learning, education, appraisal, and management, as being resourceful and as having potential threats to the education system (Bressane, A et., al (2024). [8]). Positive impacts include making learning personal, making assessments efficient, and increasing engagement, while negative impacts include privacy issues, possibilities of bias, and other ethical issues that may need to be resolved in the future (Chiu, T. K et., al. (2024).[9]).

The field of education has experienced remarkable advancements and applications of artificial intelligence (AI) in various areas, from student profile models to personalised learning systems. (Bressane, A et., al. (2024).[8]). The literature describes the emergence of AI research areas, which may include knowledge representation and adaptive learning, and underscores that tailored AI applications are significant for different educational levels (Li, L., Fengchao, Y et., al. (2024).[10]). In addition, general artificial intelligence (GAI) has emerged as a field focusing on generating content that is similar to that offered by humans, which is done by utilising advanced models developed using huge language models trained from a large dataset comprising different contents (Zouhaier, S. (2023).[11]). Careful analysis of artificial intelligence (AI) in education and general artificial intelligence (GAI) finds that it is crucial to understand the impact of AI on learning processes, teaching methodologies, and content creation, along with encouraging ethical issues and methodological constraints to achieve broader acceptance and interdisciplinary collaboration (Martin, F et., al. (2023) & Gupta, P et., al. (2024). [12 -13]). All these implications provide us with a better understanding of the role of AI in education and content creation, allowing us to advance further in the field.

Research shows that education is moving away from traditional teaching methods to activity-based learning (ABL). A lot of traditional techniques were criticised for making the settings passive for learning and for not interacting well with the various needs of learners (Al Shloul. T et.,. al. (2024). [14]. Activity-Based Learning, on the other hand, is a student-centred pedagogy that inculcates active learning experiences, critical thinking, and practical knowledge. ABL supports hands-on learning, which enhances curiosity, teamwork, and the development of crucial skills such as analytical thinking and problem-solving, making the student better off in terms of intellectual and personal advancement (Al Shloul, T et. al. (2024).[14]). This transition

fundamentally alters the approach to education, fostering a more inclusive, engaging, and successful learning environment. First and foremost, it values the ability to awaken students' curiosity and imagination, equipping them with the skills necessary to navigate the intricate ways of modern life (Yang, M.et. al. (2023). [27]).

5. LITERATURE REVIEW:

Table 1: Review of some of the scholarly papers related to Applications and Algorithms in AI:

S NO.	RESEARCH FIELD	FOCAL POINT AND RESULT	REFERNCE
1.	• Artificial intelligence and its applications in education industry. • Machine learning and its role in simulating human learning behaviour.	• Focal point: AI in Education – ways through which artificial intelligence is used in the educational industry. • Result: Enhanced decision-making, problem-solving, and analytical capabilities in education.	Liu, Y. (2022). [3]
2.	• Artificial Intelligence applications in education. • Impact of AI on teaching paradigms and learning outcomes.	• Focal point: The effects of AI in education measures, use of applications, benefits and drawbacks associated with the use of AI in education. • Result: Embrace AI with guardrails to prevent misuse and abuse	Kamalov, F. et. al. (2023) [4]
3.	• AI education for K-12 students. • Learning task design in educational settings.	• Focal point: AI education task design for K-12 students. • Result: Diverse task landscape, emphasizing hands-on learning for engagement.	Li, L., Fengchao, Y. et. al. (2024) [10]
4.	• Impact of Artificial Intelligence on Higher Education. • Influence of AI on learning and teaching in higher education.	• Focal point: Ethics and cognition. • Result: AI is more effective in assessments than humans.	Zouhaier, S. (2023). [11]
5.	• Artificial Intelligence implementation in education sector. • Challenges and opportunities of AI in educational settings.	• Focal point: The advantages and disadvantages of applying AI in education. • Result: Recommendations for further exploration in AI education field.	Rizvi, M. (2023, June). [15]
6.	• AI in education is a transformative research field with diverse applications.	• Focal point: AI in education for personalized learning and engagement • Result: Enhanced student engagement, improved learning outcomes, and customized instruction.	Pendy, B. (2021). [16]
7.	• AI integration in higher education. • Impact on teaching, learning, and assessment practices. • Personalized and efficient learning experiences.	• Focal point: AI tools in higher education for personalized learning. • Result: Enhanced student engagement, personalized learning, and optimized assessment processes.	Gupta, S. et. al. (2024) [19]
8.	• Role of AI in education sector. • AI applications for personalized learning and student engagement.	• Focal point: Role of AI in education sector. • Result: AI enhances personalized learning, efficiency, and student outcomes.	Harry, A. (2023). [20]
9.	• Automated assessment systems in post-secondary education using AI and NLP.	• Focal point: In post-secondary education system the assessment mechanism are automated. • Result: Overview of text-based assessment systems for educational applications.	Gao, R. et. al. (2024) [22]

	• Grading, scoring, feedback challenges, and analyzing meaning in open-ended texts. • Future directions for improving model performance and generalizability.		
10	• Artificial Intelligence in Education (AIEd) creates personalized learning pathways by tailoring educational experiences to individual student needs, preferences, and progress.	• Focal point: AIEd for personalized learning pathways in education. • Result: Improved learning effectiveness, personalized content, real-time feedback, and mental stimulation.	Olga, Tapalova. Et. al. (2022). [25]
11	• Artificial Intelligence in Education (AIEd) research field. • Focus on AI technologies in learning, teaching, assessment, and administration.	• Focal point: Roles and outcomes of AIEd in education domains. • Result: Identified 13 roles, 7 learning outcomes, and 10 major challenges.	Chiu, T. K. et. al. (2023) [26]
12	• Higher education transformation with generative AI like ChatGPT. • Investigating student perspectives on GenAI's impact on higher education.	• Focal point: Impact of GenAI on higher education. • Result: Recommendations for future research in education transformation.	Sun, J. C. Y. et. al. (2023) [30]
13	• Effects of AI-enabled visualization on students' self-regulation in online learning. • Personalized learning platform with open learner model for research ethics course.	• Focal point: Effects of integrating open learner model with AI visualization. • Result: Enhanced self-regulation behaviours and learning performance in students.	Chiu, T. K. (2024). [31]
14	• Chatbots applications in education.	• Focal point: Chatbots applications in education. • Result: Systematic review of 53 articles on Chatbots in education.	Okonkwo, C. W. et. al. (2021) [35]
15	• Impact of Artificial Intelligence in the education sector. • Qualitative study on AI's role in schools and academics.	• Focal point: Impact of AI in education sector in Indian context. • Result: AI brings new goods, benefits, and drawbacks to education.	Era, H. K. G. (2023). [36]
16	• Artificial General Intelligence (AGI) and its potential in education. • AGI's transformative impact on education and ethical considerations. • Fundamental principles of AGI: cognition, learning, decision-making, and reasoning.	• Focal point: AGI's impact on education. • Result: Revolutionizing learning outcomes and enhancing teaching quality.	Ehsan, Latif. et. al. (2023) [39].
17	• Generative AI integration in education and research field.	• Focal point: Generative AI integration in education.	Latif, E. et. al. (2023) [41].

		• Result: Balanced perspective on responsible AI use in education.	
18	• AI in education established as academic research field since 1980s.	• Focal point: AI technologies in education. • Result: Potential to transform teaching and learning processes.	Ungerer, L. et. al. (2022) [44]
19	• Ethical risks of integrating AI into education and potential countermeasures. • Data security, teacher-student role deconstruction, and educational inequality risks. • AI technology in education, ethical concerns, and regulatory recommendations.	• Focal point: Ethical risks of integrating AI into education. • Result: Advocacy for redefining teacher duties and regulating AI deployment.	Nguyen, A. et. al. (2023) [47]
20	• Artificial Intelligence in Education • Impact of AI on Higher Education	• Focal point: Attitudes of Al Ain University students towards AI in education. • Result: Positive views on AI benefits, concerns about job impact and interaction.	Tao, B. et, al. (2019) [49]
21	• ChatGPT application in higher education for learning enhancement and challenges. • Combining ChatGPT with teaching strategies for improved educational experiences. • Investigating ChatGPT efficacy in STEM subjects for personalized education.	• Focal point: ChatGPT application in higher education. • Result: Mixed outcomes, need for balanced integration.	Khanzode, K. et. al. (2020) [51]
22	• E-learning in university education. • Advantages and disadvantages of e-learning.	• Focal point: Advantages and disadvantages of e-learning in university education. • Result: Identified student perspectives on e-learning in UAE universities.	Kalla, D., et. a; (2023). [53]
23	• Artificial Intelligence in Education and Schools. • Phenomenological study on AI implications in education sector.	• Focal point: Impact of AI on education. • Result: Positive perceptions towards AI with some highlighted drawbacks.	Al Rawashdeh, A. Z et.al. (2021) [54]
24	• AI literacy in Teacher Education (TE) research field. • Focus on teachers' professional knowledge, AI literacy, and ethical questions. • Global interest, various countries contribute to AI in education research.	• Focal point: AI literacy in teacher education. • Result: Identified research gaps in teachers' practical and ethical knowledge.	Fitria, T. N. (2021, December) [58]
25	• Artificial Intelligence applications in the Indian education sector.	• Focal point: Role of Artificial Intelligence in Indian education sector. • Result: AI enhances teaching methods, addresses teacher shortages, and improves learning.	Singh, B., & Malhotra, M. (2020). [60]

6. PRESENT STATUS & NEW ISSUES RELATED TO THIS:

1. The current state of AI in education has been characterized by both successes and challenges To integrate AI with success and permanence, we must confront these issues and ensure the ethical and and guarantee the ethical and responsible use of Artificial Intelligence in education.
2. The present-day educational technology calls for competency in use of technology in order to positively impact the teaching practices so as to enhance the learning achievements of the students (Sperling, K., et. al. (2024).[57].
3. The role of teachers in embracing the technological advanced world by implementing advanced technological resources and approaches into lesson delivery (Sadhana Tiwari1 et, al, (2023). [32]. This current state also lays the foundation of a progressive and ever developing implementation of technology into education and its desire to enhance the learning process of students via the proper incorporation of technological means and tools.
4. The ethical issues are emerging thus making it necessary to act proactively to tackle such new courses (Ungerer, L et. al. (2022) , Adıgüzel, T.et. al. (2023) [44-45]). The use of technology and social media has been praised as its availability brought novel opportunities and challenges such as data privacy, fairness, and accessibility for students.

7. OPTIMAL RESOLUTION IN AI FOR EDUCATION: STRATEGIES AND SOLUTIONS:

1. As highlighted in the literature review on the use of AI in education, the best answer can only be made after considering the ethical factors as well as the successful implementation of AI into educational institutions and constant risky and beneficial assessment for proper implementation.
2. The specific objective here is to adopt artificial intelligence in areas of; personalizing learning, provision of intelligent tutoring systems, enhancing students' engagement through motives of gamification and enhancing student assessment through the use of AI techniques such as neural networks and natural language processing.
3. Important future works are the practical application of the AI technique in education, the inclusion of a diverse range of input data, and the focus on the meaningful interpretation that is aligned with the goals of education. AI can bring positive changes within the environment of education since it gives the opportunity for individualized learning, unique feedback, and an unbiased approach towards the students. An important factor to consider also is ethical concerns and the impact of AI in education ought to be checked often.

8. RESEARCH GAP:

1. The gaps which have been identified in the presented contexts pertain to several vital areas within artificial intelligence and education.
2. The analysis of the implementation of Activity-Based Learning (ABL) with ChatGPT; further use of ChatGPT in various fields of education; the possibility of the utilization of ChatGPT for educators and the development of curricula.
3. The comparison of traditional and activity-based types of education; and the consideration of GenAI's influence on the higher education, according to students' perceptions.
4. Further research can be directed towards what kind of interfaces should be incorporated into AI systems to most effectively engage students, and specifically in the areas where students are known to have difficulties, like Maths and Sciences
5. To involve research on students' data protection and privacy when employing AI environments in education. This involves having strong guidelines for managing data and comprehending the consequences that stem from the gathering and analyzing of information.
6. Another important gap is to insert artificial intelligence into the teaching processes demands that teachers are well enlightened on how to go about it and handle any moral dilemmas arising from the same.

9. EVALUATION OF RESEARCH GAP-BASED AGENDAS:

1. Evaluate the cross-context learnability of ChatGPT.
2. Assess the efficiency and potential of generative AI in terms of shaping individualized learning experiences.
3. Evaluate the extent of the change in availability of educational material and educational technology among the needy.
4. Carry out experimental studies to compare the achievement of students that attend AI-based learning environments with those attending traditional learning environment.
5. Track shifts in the teaching process and teachers' self-estimations of AI tools utility.
6. Survey students on the interactions they have had with AI tools within learning and teaching processes.

7. Carry out assessments of the implementation of AI systems to check compliance to the laws regarding data protection.

10. EVALUATION OF SCHOLARLY AGENDAS:

Analyze scholarly agendas from the perspectives of interdisciplinary cooperation, how the effects of the research into policy and practice, and stakeholder engagement. Several studies have been conducted relating to the use of artificial intelligence in education in a way that would facilitate achievement of course goals, refine teaching techniques, and prepare the learners to use AI in their learning and future careers. In a case, a study was made stressing on the need to apply sound measures to assess AIEd impact or effectiveness. AI systems should protect and utilize student, teacher, and other human data securely and privately. Thus, the partnerships between the educators, computer scientists and policy makers will help in the creation of an effective AIED and, more importantly the educators themselves should also be AI literate so that they can be able to incorporate AI practices in their teaching. In summary, based on the presented scholarly norms, the AI in education needs to propose efficient AIEd solutions, improve learning and teaching processes and contemplate ethical questions.

11. RESEARCH PROPOSAL:

The area of study proposal in artificial intelligence in education is to find the benefits and drawbacks of including artificial intelligence in educational institutions. This plan focuses on the goals, approach as well as the expected results of the study. The present research paper focuses upon identifying the possibility of applying generative AI in Indian education system to increase learning, engagement and interaction.

11.1 Proposed Title: Generative AI in Education: An Exploratory Analysis on Its Effect on Learning Achievements of the Students and Practice of Teachers.

11.2. Purpose: The use of generative AI in education is to increase learning achievements for learners and to impact the teaching profession for teachers. Thus, adopting Generative AI models such as adaptive learning platforms, intelligent tutoring systems, and automated grading tools makes learning individualized, efficient, and engaging. This not only alters the methods of teaching and learning as well as the assessment activities within educational settings but also enhances all other administrative activities aimed at increasing the effectiveness of students learning and providing equal opportunities for all. Generative AI in education tries to enhance the provision of teaching and learning in a more personalized and efficient manner for improvement of learning outcomes by students and teachers.

12. ABCD FRAMEWORK ANALYSIS OF MACHINE LEARNING TECHNIQUES FOR AI IN EDUCATION:

The ABCD framework analysis of machine learning techniques for teachers concerns the use of Artificial Intelligence (AI) in learning, more specifically, supporting teachers with relevant teaching strategies, enhancing their learning abilities, and generally, aiding them in their professional development (Weiqi, Xu., Fan, Ouyang. (2021) [7], Martin, F et., al. (2023) [28]). Its approach emphasizes the importance of AI methodologies like Artificial Neural Network, Decision Tree, and Bayesian approaches when it comes to assisting teachers in monitoring the students, grading, and decision-making (Chiu, T. K et. al. (2023)[9]). In addition, the use of AI is crucial in providing automated support to students in learning and providing advisory services to teachers on the basis of machine learning predictive analysis (Yang, M. et. al. (2023).[27]). Overall, regarding the AI technologies instructors had positive attitude however, there are concerns about the power, comprehensibility and the ethics of these systems. This stresses the need for further research and innovation in the area of artificial intelligence in education (Gupta, S, et. al. (2024) [19]).

The assessment of the use of Machine Learning techniques in the applicability of Generative AI in education can be segregated into the following aspects according to the ABCD framework: ChatGPT and other similar services are used to make customized learning more effective, to write or rework instructional materials, and to code research (Gupta. S. et. al. (2024)[19], Gao, R. et. al. (2024). [22]). Such types of AI tools range from decision making tools, intelligent tutors, adaptive tools, assessment and evaluation tools, all are important in enhancing students learning and offering feedback at the right time (Chiu, T. K. (2024). [23]). AI in education seeks to transform the paradigm of teaching and learning, improve learner interactivity, as well as streamline assessment mechanisms and techniques including the issuance of smart grading by learning management systems (Ouyang, F et. al. (2021), Olga et. al. (2022). [24 -25]. With the help of GenAI technologies, such as ChatGPT and Midjourney, educators can offer additional and efficient approaches to learning that will embrace the aspects of post-pandemic education.

ADVANTAGES:

1. **Personalized Learning Paths**: It also means that with generative Ad, a learning program can be adaptive to the needs of every student, his or her interests and learning abilities hence making it possible to retain the interest of the student in the learning program (Latif, E et. al. (2023). [41]). To ensure that students respond to different questions accurately and to the level of their capability and also to ensure that they maintain the required level of motivation while learning (Sun, J. C. et. al. (2023). [30]).
2. **Interactive and Engaging Learning Experiences:** Another advantage of the generative AI is that it can be used in developing informative and entertaining simulations and games for teaching, complex information and concepts, which can be hard for students to grasp (Chiu, T. K. (2024). [31]).

3. **Insights from Data Analysis for Teachers:** Generative models can also be beneficial for educators, as they will be able to gain important information about the student's performance and learning habits, therefore being able to tailor their teaching strategy in order to achieve the best results predicted by the AI (Chiu, T. K. (2024).[23]). For using given data, like text, images, audio, or video materials to create new ones, which will significantly simplify the creation of educational course materials for teachers (Sadhana Tiwari et. al. (2023). [32]).
4. **Lifelong Learning:** As for the lifelong learners, educational AI can enhance their learning journeys and offer them more options and diversified routes, with which the learners can equip themselves with up-to-date knowledge and competencies in their areas of expertise (Kamalov, F., et. al (2023) [4], Alfredo, R. et. al. (2024). [33]).
5. **Teacher Support:** There are numerous ways that generative AI can help teachers: it can generate ideas for attractive courses; it can generate course topics and different activities in correlation with the curriculum and students; it can also provide teachers with different tools that would help them to minimize the time spent on work (Martin, F et. al. (2023). [34]).
6. **Efficiency and Effectiveness:** The use of AI in education can help to make learning processes more effective in terms of administrative support and individual learners' interactions with the system as well as to optimize teacher's support (Gao, R. et.al. (2024). [22]).

CONSTRAINTS:

1. **Data Quality and Quantity**: The quality and quantity of training data can significantly impact the accuracy and diversity of the generated output. Poor quality or low quantity data can lead to inaccurate or incomplete output (Okonkwo, C. W. et. al. (2021). [35]).
2. **Contextual Understanding**: Generative AI lacks the ability to understand context and draw conclusions based on complex situations, requiring human intervention (Ouyang, F. et. al. (2021). [38]).
3. **Accessibility and Inclusivity**: Generative AI may not be accessible or inclusive for all users, particularly those with limited access to the internet or those who do not speak the dominant languages used in training data (Claw, K. G. et. al. (2018), Latif, E. et. al. (2023). [40- 41]).
4. **Ethical Concerns**: Generative AI raises ethical concerns such as potential biases, data privacy, and intellectual property issues, which need to be addressed through responsible AI frameworks (Richter, O. Z et. al. (2019). [43]).

DISADVANTAGES:

1. **Decreased Human Connection:** A major demerit of artificial intelligence learning is the lack of a physical form of the tutor, and the ability to relate and show concern where a student is going through a tough day for example. This is something which artificial intelligence does not possess (Gocen, A et. al. (2020). [56]).
2. **Data Privacy and Security:** AI systems in education require the input of sensitive information/ data about students and then process it hence data privacy/ protection issues arise. Again, schools have to put measures to discourage loss of information, hacking or unauthorized access (Bu, Q. (2022). [48]).
3. **Overdependence on AI**: It could also limit students' capacity to learn independently with the aid of critical thinking skills since overreliance on the AI solutions might be counterproductive as it weakens these skills (Al-Tkhayneh, K. M, et. al. (2023). [50]).
4. **Emotional Intelligence lack:** One major problem associated with AI is the inability of the system to comprehend or respond to students' feelings during learning as human teachers can do. Such a deficiency may also jeopardize the growth of emotional aspect and interpersonal skills among the students (Tao, B et. al. (2019). [49]).
5. **Reliance on Technology:** Overuse of the AI tools and has some drawbacks because of the technical challenges that are likely to occur in the learning process. At the same time, it has been observed that students tend to rely heavily on such technologies reducing their ability to solve problems (Castro, R. A. G et. al. (2024). [55]).
6. **Existential hazard number:** is that the use of AI in education leads to the problem of cheating in education. This is because there are new ways of cheating that can be created by the students through making use of the tools provided by the AI in coming up with new content (Kalla, D et. al. (2023).[53]).

13. GUIDELINES FOR COMPLETING RESEARCH ACTIVITIES:

1. The goals are clean and focused on the resolution of specific gaps or issues in education with the help of AI.
2. Involve all of the stakeholders including educators, students, parents, and administrators right from the start to get buy-in and ideas.
3. Prioritize ethical considerations to protect participant rights and data privacy.
4. Select AI tools that are appropriate for your research objectives and educational context.
5. Ensure that the necessary technological infrastructure is in place and accessible to all participants.
6. Prepare the educators with requisite competencies that will enable them to incorporate AI in teaching processes.

7. Be prepared to adapt your research plan based on ongoing findings and feedback.
8. Use robust data collection and analysis methods to ensure the validity and reliability of your findings.
9. Consider how your findings and solutions can be scaled and sustained over time.
10. Share your research findings widely to maximize impact and contribute to the broader knowledge base.
11. View your research as part of an ongoing process of learning and improvement.

14. CONCLUSION:

The study shows that AI has a huge potential for improving the future of education. However, a person-centered approach that considers ethical issues, teacher strengthening, and the relationship between technology and learning is necessary for its effective implementation. To achieve the best outcome in education, AI must overcome these obstacles. We expect AI to transform the teacher from an informative source into a guide and mentor. The AI handles most of the work, allowing teachers to focus on nurturing EI (emotional intelligence), collaboration, and communication. As a result, this technology may have the potential to extend and advance teachers' functions and activities by providing opportunities for their professional growth, management, differentiation, and assessment of students. However, the introduction of AI raises questions related to instructor independence and collaboration, implying the need for cautious implementation and adequate teacher training. I believe that AI can make a significant contribution to improving student and teacher communication. It can achieve this by providing accommodation, instruction strategies, tests and quizzes, feedback grading, increased communication, distance education, and staff development. However, there is a fear that the use of AI will make people interact less often with one another. Therefore, it is critical to make social interaction a principle component of AI and, at the same time, ensure that teachers possess the right skills and expertise to harness AI to improve teaching methods. Teachers require constant professional development to grasp these systems, their constraints, and how best to use them responsibly. Policies on the collection and use of student data, the use of safe pathways for data storage and transmission, and obtaining consent from parents and children are also necessary. Teachers should consider the following ethical issues, based on the points mentioned above: Thus, students will be able to engage in fair, non-bias, and polite interaction with the AI system, as well as learn critical thinking skills, creativity, and social responsibility.

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