International Journal of Education, Modern Management, Applied Science & Social Science (IJEMMASSS)
An International Quarterly bi-lingual Multidisciplinary Double Blind Open Access Peer Reviewed Refereed Journal
ISSN :2581-9925, Impact Factor (Cosmos: 7.555 & I2OR: 5.105), Volume 08, No. 02(I), April- June, 2026, pp. 88-92

Application of Artificial Intelligence in Classroom Teaching Practice

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Citation: Kumari, S. & Gangal, M. (2026). Application of Artificial Intelligence in Classroom Teaching Practice. International Journal of Education, Modern Management, Applied Science & Social Science, 08(02(I)), 88–92.

ABSTRACT

These papers providing application of Artificial Intelligence (AI) is quickly changing the way of teacher teach in classroom teaching. It has become a revolutionary way to improve the quality, accessibility, and effectiveness of education. the National Education Policy 2020 presents a forward-looking framework that encourages the integration of technology, including AI, improve teaching-learning cycle. It highlights how AI-based tools—such as intelligent tutoring systems, adaptive learning platforms, automated assessments, and virtual assistants—can support personalized and competency-based learning. This paper examines how to use AI tools in the classroom to improve learning and teaching efficiency. It also points out that AI can make learning more Implement Personalized Learning and lesson planning and content creation, Intelligent tutoring and chat-bots, Manage Classroom Activities, Data-Driven and Decision-Making and analytics and Teacher support and content creation, At the same time, it recognizes emerging challenges for learners, including adapting to technological changes, managing digital distractions, and addressing issues of access and equity. So, a careful and balanced use of AI is necessary to maximize its benefits and to prepare students to face the new challenges emerging in the evolving landscape of education.

***Keywords**: Artificial Intelligence, Classroom Teaching, National Educational Policy-2020, Educational Technology.*

Introduction

Education is experiencing a major shift due to continuous developments in digital technologies, especially Artificial Intelligence (AI). Conventional teaching methods are gradually being replaced by more interactive, learner-centered, and technology-integrated approaches. AI supports teachers in recognizing individual differences among students, adjusting teaching methods accordingly, and increasing student participation. Through the use of data analysis, AI helps in detecting learning difficulties, offering immediate feedback, and enabling differentiated instruction, thereby improving the overall quality of classroom teaching. The role of AI in classroom teaching extends beyond basic technological tools, as it helps create smart learning environments where both teachers and learners engage actively in the teaching-learning cycle. AI-enabled tools like adaptive learning systems, intelligent tutoring applications, and automated evaluation methods facilitate personalized learning experiences. These tools allow learners to progress at their own speed, revisit challenging topics, and receive ongoing guidance, which enhances their understanding and long-term retention of concepts.

In the Indian education system, the National Education Policy 2020 identifies technology integration as a central element of educational transformation. It promotes the use of advanced

technologies, including Artificial Intelligence, to create a more learning environment that is inclusive, flexible, and competency-oriented learning environment. The policy also highlights the importance of reducing the digital divide, supporting multilingual education, and ensuring equal access to quality learning opportunities for all students. Moreover, AI assists teachers by simplifying administrative responsibilities, supporting lesson design and encouraging the use of innovative like learning approach. It also helps contributes to the developing essential 21st-century skills among learners, including critical thinking, problem-solving, and digital literacy.

Concept of Artificial Intelligence in Education

Artificial Intelligence (AI) in education involves the use of advanced technologies that enable machines to carry out tasks usually associated with human thinking, as learning, reasoning, and problem-solving. In the educational context, AI helps create technology-supported learning environments where teaching and learning become more efficient and interactive. These systems can examine student performance, recognize patterns in learning behavior and deliver tailored feedback based on individual needs. In addition, AI supports the development of adaptive learning systems that adjust content, difficulty level, and pace according to each learner. It also assists teachers by automating routine tasks such as assessment and record-keeping, allowing them to focus more on guiding and mentoring students. Furthermore, AI encourages self-directed learning by providing instant support, practice opportunities and continuous feedback. As a result, AI makes the learning process more flexible, personalized, and responsive, helping to improve both teaching effectiveness and student learning outcomes.

How to Use AI Tools in the Classroom to Improve Learning and Teaching Efficiency

Artificial Intelligence (AI) tools can be effectively used in classroom teaching to enhance learning to improve teaching efficiency and learning more meaningful. According to the National Education Policy 2020, teachers can use AI in real-life situations in practical ways to improve both teaching and student outcomes.

- **Lesson Planning and Content Creation:** AI tools assist teachers in planning lessons and creating content by helping them organize topics, set objectives, and design structured lessons efficiently. They generate teaching materials like examples, worksheets, and quizzes that are appropriate for students at different levels of learning. AI also creates interesting resources like presentations and activities while changing content for diverse different types of learners. These tools help teachers spend less time getting ready to focus more on interactive teaching and student engagement, thereby improving the overall quality of instruction better.
- **Implement Personalized Learning:** Personalized learning uses AI tools to change the way of teaching methods, content, and pace according to each student's needs and abilities. AI analyzes student performance and provides Personalized learning paths for them this helps learners receive appropriate support and challenges. It enables students to progress at a pace that suits their individual learning needs, go back to difficult topics, and get instant feedback. This method makes classrooms more inclusive, improves engagement, and enhances overall learning outcomes.
- **Intelligent Tutoring Systems and Chat-Bots**: these AI-based tools provide student immediate academic support. They function as virtual assistants by helping student, explaining concepts, answering questions, and guiding learners through problem-solving. These tools allow students can study at their own pace with these tools get instant feedback and clarify doubts anytime, even beyond classroom hours. Because of this, they promote student to learn on their independent learning, improve understanding and student engagement.
- **Manage Classroom Activities**: AI tools improve classroom management by handling routine tasks like attendance, tracking participation and maintaining records automatically. They also help in observing student engagement and identifying those learners who need additional support and organizing assignments and schedules. By reducing manual work and simplifying daily activities, AI tools help teachers manage the classroom more effectively and concentrate on teaching.
- **Data-Driven and Decision-Making:** AI supports data-driven decision-making by analyzing student learning patterns and providing meaningful performance. These insights help teachers can adapt their teaching strategies, provide focused support to learners who need additional

support and plan suitable remedial or enrichment activities. It also helps in continuously monitoring of student progress, identifying strengths and weaknesses and timely adjustments in teaching. As a result, the teaching process becomes more effective, focused and responsive to individual learner needs.

- **Promote Skill Development:** AI tools can be used by teachers to enhance essential skills among students, such as critical thinking, problem-solving, creativity, and digital literacy. By engaging students in interactive activities, simulations, and real-world problem scenarios. AI encourages deeper understanding and independent thinking. It also helps learners develop technological skills needed for the modern world. As a result, students become more confident, analytical, and better prepared to face future academic and professional challenges.
- **Classroom Management:** AI plays an important role in improving classroom management by helping teachers monitor student participation and engagement more effectively. It help to student learn together by encouraging them to group activities and interaction among students. AI tools can also create interactive learning environments through digital resources, making lessons more fun and organized. Additionally, these tools also help teachers identify students who may need extra attention and make sure the classroom run smoothly, leading to a more organised and productive learning environment.
- **Language Processing and Translation:** AI-based language processing and translation tools help overcome language barriers in the classroom by enabling students to understand content in different languages. These tools can translate text, speech, and instructions in real time, which makes it easier for learning who speak more accessible for multilingual learners. They also support reading, writing, and communication skills by providing grammar correction, vocabulary and suggesting new words, and helping with language. As a result, AI supports inclusive education by allowing students from diverse linguistic backgrounds to participate actively and learn more effectively.

Role of Teachers in AI-Enabled Classroom

AI-enabled in classroom, the role of the teacher shifts from being only a knowledge provider to a facilitator, guide, and mentor. Teachers use AI tools to support and enhance the teaching–learning process rather than replace their role. They help students understand concepts, encourage critical thinking, and ensure meaningful learning experiences.

- **Facilitator of Learning:** Teacher acts as a facilitator of learning by guiding and supporting students rather than simply delivering information. The teacher helps students use AI tools effectively, encourages active participation, and promotes independent learning. By creating interactive and engaging learning environments, the teacher ensures that students understand concepts deeply, ask questions, and develop critical thinking skills.
- **Monitoring Student Progress**: Teacher can closely monitor student progress with the help of AI tools that continuously track performance and learning patterns. These tools provide detailed insights into student's strengths, weaknesses, and areas that need improvement. Based on this information, teachers can offer timely feedback, plan extra help and adjust their teaching strategies to meet each student's needs. It also helps in setting learning goals, tracking progress over time, and ensuring that each student is making good progress in their learning.
- **Ethical use of AI**: Teachers are very important role in promoting the responsible and ethical use of AI tools. They teach students how to use technology in a safe way, protect data privacy, and avoid misuse such as plagiarism or overdependence on AI. Teachers also promote fairness, transparency, and responsible digital behavior in the learning process.
- **Social and Emotional Development**: Teacher's support students grow socially and emotionally growth by encouraging them to interaction, collaboration, and positive relationships. They help students learn how to talks to others, empathy and confidence, ensuring balanced development beyond academic learning.

Challenges of AI in Education

Artificial Intelligence (AI) in education offers many benefits, but it also presents several challenges. These include the digital divide, where some students lack access to devices and internet. Additionally,

overreliance on technology may reduce interpersonal engagement in the learning process. Therefore, careful planning and balanced use of AI are essential for its effective implementation in education.

- **Digital Divide and Unequal Access to Technology:** it refers to the gap between students who have access to technology—such as devices and internet connectivity. This inequality limits the effective use of AI tools in education, as a learners are unable to benefit from digital resources, leading to differences in learning opportunities and outcomes.
- **Lack of Infrastructure and Resources:** Many schools and educational institutions face challenges due to insufficient technological infrastructure, such as unreliable internet connectivity, limited access to computers or smart devices, and a lack of proper technical support. In addition, the absence of updated software, maintenance facilities, and digital learning platforms further restricts the effective use of AI tools in classrooms. These limitations make it difficult for teachers to integrate AI into their teaching practices and for students to access digital learning resources. As a result, the full benefits of AI in improving teaching and learning cannot be realized, especially in under-resourced and rural areas.
- **Need for Teacher Training and Skill Development:** The successfully use of AI in education depends largely on teachers' ability to use these technologies effectively. Many educators lack sufficient knowledge and practical skills to incorporate AI tools into their teaching practices. Without proper training, they may face difficulties in selecting appropriate tools, designing AI-supported lessons, and interpreting data generated by these systems. Therefore, ongoing professional development is essential to strengthen teacher's digital competence and confidence. Such training should include both technical knowledge and teaching strategies to ensure the meaningful use of AI in the classroom. When teachers are properly equipped, AI can be used more effectively to improve teaching practices and enhance student learning outcomes.
- **Overdependence on Technology:** AI and digital tools in education can limit meaningful interaction between teachers and students. When technology becomes the primary mode of instruction, learners may miss opportunities to develop important social, emotional, and communication skills. It can also reduce critical thinking if students depend too much on automated answers rather than engaging deeply with concepts. In addition, technical issues or system failures may disrupt the learning process. Therefore, it is essential to use technology in a balanced way, where AI supports learning but does not replace the vital role of teachers and human interaction in education.

Effective Implementation of AI Education

There are a few important steps that need to be taken for AI to be used effectively in education. Teachers should be provided with proper training programs to build the skills needed to use AI tools confidently using in the classroom teaching. Schools need to improve their digital infrastructure by ensuring the availability that there is reliable internet, devices, and technical support. It is also essential to provide that all students have fair access to technology so that they can all benefit from AI-based learning. Additionally, the responsible and the ethical use of AI should be promoted, with attention to data privacy and responsible practices. Finally, a balanced approach should be maintained, where technology supports teaching without replacing the essential role of human interaction in the learning process.

Conclusion

Artificial Intelligence has the ability to reshape classroom teaching by making learning personalized, interactive, and effective, while supporting both teachers and students in achieving better outcomes. Through tools such as adaptive learning systems, automated assessments, and data analysis, AI enhances teaching efficiency and responsiveness. However, its effective implementation requires careful planning, strong digital infrastructure, and continuous teacher training to fully realize its benefits. In the context of the National Education Policy 2020, AI integration supports the creation of an inclusive, flexible, and future-ready education system. At the same time, it is essential to maintain a balanced approach where technology complements, rather than replaces, the role of teachers, as human interaction, guidance, and emotional support remain vital for holistic student development.

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