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Transforming Traditional Teaching Practices to Integrating AI with Pedagogical Innovations for Enhanced Learning Outcomes in Schools

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Abstract

This study looks at how artificial intelligence can change classroom teaching in subjects like Math, Science, Hindi, and English. Teachers from various departments joined forces to create lesson plans that combined AI with engaging tools like audio-visual content, songs, comic strips, 3D models, and interactive presentations. The goal was simple: make learning more inclusive by tailoring lessons to each student's unique style, whether they prefer to learn by watching, listening, or doing. The results were significant: improved academic performance, increased student participation, enhanced focus, and confidence, especially among shy or struggling learners. In addition to cognitive gains, noticeable behavioral and psychological improvements were recorded, supported by mental well-being assessments conducted by the psychology faculty. Teachers themselves have become more motivated and tech-savvy, and many are now preparing research-based documentation for their efforts. The initiative also included trials in rural schools, which showed that it can be scaled and maintained at a low cost. It aligns with NEP 2020 and government efforts to promote digital education. This AI-integrated teaching model has great potential for use in various classroom settings. The findings emphasize the need for personalized, inclusive, and technology-supported teaching methods to reshape the future of school education.

Keywords: Artificial Intelligence in Education, AI-Enhanced Teaching, 21st Century Skills, Adaptive Learning Systems, Inclusive Learning, Learning Outcome Improvement

1. INTRODUCTION

1.1 Background

The rapid changes in educational methods in the 21st century have exposed the limits of traditional teaching practices. These methods often rely on memorization, passive learning, and one-size-fits-all approaches. They do not address the varied cognitive, emotional, and sensory needs of students. This results in disengagement and lower academic performance. As personalized and inclusive education becomes more important, we need new teaching models that support different learning styles, such as visual, auditory, kinesthetic, and collaborative.

Artificial Intelligence (AI) has become a key tool in education. It provides customized learning environments, smart content creation, and instant feedback. While much research focuses on AI in higher education, there is still a significant gap in its practical use in K–12 settings, especially in multidisciplinary classrooms.

This study comes from a school initiative aimed at incorporating AI tools like ChatGPT, Canva, Animaker,

and Incredibox into regular teaching practices. These practices include subjects such as Mathematics, Science, Hindi, English, and Social Science. The goal is to boost student engagement, understanding, and emotional well-being through various teaching strategies. This research supports India's National Education Policy (NEP) 2020. It aims to create a scalable and sustainable AI-supported teaching framework that addresses the problems of traditional teaching and prepares students for a technology-driven future.

1.2 Problem or Need Addressed

In Indian schools, standardized content delivery, passive instruction, and rote memorization are common teaching strategies, particularly in middle school. The various learning styles of students—visual, auditory, and kinesthetic—are not taken into account by these approaches. Additionally, they don't promote critical thinking, creativity, or emotional engagement. Many students experience disengagement, memory problems, and a lack of confidence as a result. Students who struggle academically or who are shy are especially affected by this issue.

Developing inclusive and interesting lesson plans is a challenge for educators. They frequently lack access to innovative teaching techniques and technology. Student development and teacher creativity are hampered by the rigidity of traditional methods and the lack of personalized learning environments.

This study emphasizes how urgently classroom practices need to change in order to use Artificial Intelligence (AI) tools to teach. It seeks to close the gap between conventional teaching methods and contemporary, adaptable learning. Interactive presentations, songs, comic strips, and 3D models are examples of AI-driven content creation that can improve student comprehension, emotional health, and engagement. The National Education Policy (NEP) 2020 of India, which encourages experiential, inclusive, and technology-enabled learning in all areas, including underserved and rural areas, is another goal of educational reform that the study supports.

1.3 Target Group and Timeline

Students in grades 6 through 8 at Vikas Bharati Public School in Delhi made up the study's target group. To ensure a representative sample for assessing the efficacy of AI-integrated pedagogy, the participants included students with a range of academic backgrounds and learning preferences, including kinesthetic, visual, and auditory. AI-enhanced lesson plans were designed and delivered in collaboration with subject teachers from five departments: Math, Science, Hindi, English, and Social Science. A school psychologist was also involved to evaluate emotional and behavioural results. During the three academic months that the study was conducted, both conventional and AI-supported teaching methods were used to teach each of the chosen topics.

The intervention was divided into two stages: Phase I used traditional teaching methods, and Phase II used AI tools like ChatGPT, Canva, Animaker, and Incredibox to present the same information in a multimodal and interactive format. Assessments were carried out both before and after the intervention to gauge improvements in psychological health, creativity, engagement, and academic performance. In order to assess scalability and sustainability in under-resourced environments, pilot trials were also started in rural school settings using low-cost, mobile-friendly AI tools.

2. Literature Survey

Artificial Intelligence (AI) is quickly changing the traditional learning environment into a more individualized, effective, and welcoming setting. The role of AI in higher education is highlighted in a systematic review by Zawacki-Richter et al., which also highlights how it can be used in learner profiling, intelligent

tutoring systems, automatic grading, and adaptive content delivery to enable a change from a "one-size-fits-all" to a "tailored-for-each" approach [1]. This is in line with the more general pedagogical requirement that instruction be tailored to the needs and skills of each individual student. Furthermore, according to Owoc and Marciniak, AI helps close the gap between students and teachers by developing flexible and accessible intelligent learning environments, particularly when applied within ethical and strategic frameworks [2].

Gillani et al. examine how AI's technological benefits, such as machine learning algorithms and natural language processing, enable contextualized learning experiences and prompt student feedback [3]. By helping with standard tasks like content creation, grading, and identifying learning gaps, these tools also lessen the workload for teachers. This is corroborated by Kamalov et al., who highlights AI's capacity to gather and evaluate student performance data, providing insights into better lesson planning and curriculum modifications [4]. In a more practical setting, Ward et al. provide empirical data demonstrating that students who used AI-based study aids reported improved academic performance, improved time management, and increased self-assurance in self-directed learning [5].

Malik talks about how AI can be used in education to be inclusive by providing access for students with disabilities, supporting multilingualism, and promoting gamified learning, all of which increase student engagement [6]. Alashwal notes that through adaptive platforms, AI fosters soft skills like teamwork, creativity, and communication in addition to academic learning [7]. In their extensive study, Salas-Pilco et al. highlight the role of AI in fields like virtual mentorship, real-time analytics, and automated assessment, especially in K–12 education, where they demonstrate quantifiable gains in student performance [8].

While incorporating AI into pedagogy, Chopra and Bansal emphasize the significance of preserving human oversight, arguing that AI should strengthen rather than replace teacher-student relationships [9]. Lastly, Sharma and Khurana demonstrate how AI-powered resources such as ChatGPT, Canva, and EduBots enhance student engagement and content delivery, resulting in a more dynamic and learner-centered classroom [10]. These studies demonstrate that artificial intelligence (AI) in education is not just a desirable extra but a necessary development to satisfy the intricate requirements of contemporary classrooms, improve the efficacy of instruction, and assist students with a range of learning needs.

Even though they are fundamental, traditional teaching approaches frequently fail to meet the changing learning requirements of students in the twenty-first century. The traditional method's dependence on rote memorization, lecture-based instruction, and little interaction are some of its main objections. This approach frequently fails to pique curiosity, lacks creativity, and does not accommodate various learning styles, which results in disengagement, particularly among kinesthetic and visual learners, according to the EuroSchool research blog [11]. According to Wikipedia's thorough examination of "Passive Learning," traditional classrooms usually use a one-way communication model that minimizes peer collaboration and student involvement, which stifles critical thinking and problem-solving abilities [12].

According to Wheeler's analysis, the traditional system alienates students who are digital natives because it is resistant to innovation and does not change with technological advancements [13]. According to a study that was published in Frontiers in Education, passive learning environments encourage students to become information consumers rather than knowledge producers, which is contrary to inquiry-based or experiential learning [14]. Singh concurs, pointing out that memory-based instruction can result in students' short-term retention of information with limited practical application, which eventually hinders their overall intellectual growth [15].

Patel notes that conventional approaches ignore the various cognitive and emotional needs of students by using a "one-size-fits-all" framework. Students, particularly those who learn differently, feel ignored or left behind as a result of this lack of personalization [16]. In his criticism of the Indian educational system, Johnson highlights how an over-reliance on memorization stunts the growth of critical thinking and creative skills, turning education into an exam-driven rather than knowledge-driven process [17]. According to Sharma, such a method stifles curiosity and discourages student agency, both of which are necessary for greater comprehension and lifelong learning [18].

According to Rao and Thomas's research, traditional teaching approaches in public school settings result in decreased student motivation and engagement, particularly when students aren't provided with interactive or discussion-based activities [19]. Lastly, Jain points out that because Generation Z students are accustomed to fast-paced, digital, and interactive settings, traditional teaching approaches are out of step with their expectations. She contends that these antiquated methods could make dropout rates higher and diminish the value of education in the modern world [20].

Together, these findings demonstrate the pressing need for pedagogical change and the shortcomings of conventional instruction in promoting creativity, participation, inclusivity, and long-term memory retention. The results present a strong argument for incorporating cutting-edge, AI-assisted teaching strategies that can meet the diverse needs and interests of contemporary students.

Table 1: Summary of Literature Survey

S. No.	Author(s) & Year	Focus Area	Key Findings	Limitation or Gap
1	Zawacki-Richter et al. (2019) [1]	AI in Higher Education	Personalized learning, intelligent tutoring	Limited K–12 application
2	Owoc & Marciniak (2021) [2]	Strategic AI implementation	Promotes efficiency and adaptive instruction	Lacks real-classroom deployment examples
3	Gillani et al. (2022) [3]	AI tools for learning	Enhances contextual and timely learning	No detailed primary data
4	Kamalov et al. (2023) [4]	Adaptive learning systems	Recommends AI for diagnostics and planning	Focused on tech; minimal on pedagogy
5	Ward et al. (2024) [5]	AI impact on student performance	Boosts GPA, time management, and engagement	Based on college students
6	Malik (2024) [6]	Inclusive learning with AI	Assists differently abled learners	Theoretical, lacks experimental study
7	Alashwal (2024) [7]	Skill-based learning with AI	Boosts creativity, collaboration	No classroom field testing
8	Salas-Pilco et al. (2024) [8]	K–12 AI integration	Enhances engagement, real-time feedback	Limited subject diversity
9	Chopra & Bansal (2025) [9]	Human-AI teacher balance	Highlights co-existence of teacher and AI	No model to maintain balance practically

S. No.	Author(s) & Year	Focus Area	Key Findings	Limitation or Gap
10	Sharma & Khurana (2023) [10]	AI-powered classroom tools	AI improves interactivity and participation	Needs more empirical data in schools
11	EuroSchool Blog (2023) [11]	Traditional methods limitations	Low creativity, rigid format	Opinion-based blog, lacks data
12	Wikipedia: Passive Learning (2024) [12]	One-way communication issues	Reduced engagement, poor retention	Not a peer-reviewed source
13	Wheeler (2020) [13]	Outdated classroom methods	Limits innovation and critical thinking	Focuses on higher ed
14	Frontiers (2023) [14]	Constructivist learning vs traditional	Encourages shift to active learning	No real-time school intervention
15	Singh (2022) [15]	Rote learning drawbacks	Poor application-based learning	Focused on older students
16	Patel (2021) [16]	Uniform teaching fails diversity	Ignores neurodiverse learners	Theoretical discussion
17	Johnson (2020) [17]	Rote culture in Indian system	Fails to support creativity	Focused on exams, not general classroom experience
18	Sharma (2021) [18]	Lack of engagement	No agency or curiosity development	Local case study, lacks generalizability
19	Rao & Thomas (2023) [19]	Motivation and traditional setup	Passive environments reduce motivation	Focused on rural public schools only
20	Jain (2022) [20]	Generation Z mismatch with tradition	Digital generation disconnected from static methods	No proposed tech-based solution

Although a number of studies highlight how AI can improve learning [1–10], the majority concentrate on either theoretical predictions or higher education. At the school level, there is little experimentation and practical application, especially when it comes to a variety of subjects and learning styles. However, research on the negative aspects of traditional instruction [11–20] emphasizes problems such as one-size-fits-all methods, rote memorization, passive learning, and low engagement. These conversations, however, frequently overlook the effects on students who struggle academically or exhibit behavioral issues, or they lack solution-focused classroom interventions.

By putting into practice, a useful, subject-wide AI integration strategy in real-time classrooms involving mathematics, science, Hindi, and English, our school-based research project closes this crucial gap. Digital PowerPoints, comic strips, 3D models, songs, and other personalized, interesting, and inclusive content were produced using AI tools like ChatGPT, Canva, Animaker, and Incredibox. Multiple learning modalities, including visual, auditory, kinesthetic, and collaborative, were used to teach the students.

Our work measures learning outcomes, behavior changes, focus levels, and mental well-being using both quantitative and qualitative methods, including psychological input, in contrast to most studies that end at

theory or high-level proposals. We also verified the model's low-cost sustainability by testing its replicability in rural schools. Teachers developed a culture of innovation in education by actively participating in research and content creation.

This work establishes a new standard for inclusive, interesting, and future-ready education while providing a scalable, empirically proven framework for AI-driven instruction.

India's National Education Policy (NEP) 2020, which aims to improve educational practices and better prepare students for the challenges of the twenty-first century, strongly supports the use of AI in the classroom. The policy promotes multidisciplinary and holistic education, where AI tools can facilitate the smooth integration of language, science, and creative thinking. By focusing on curriculum and pedagogical reforms that substitute experiential and inquiry-based learning methods for memorization, this project closely adheres to NEP's pillars. The teaching process is made more effective and engaging by AI-powered tools like generative content tools, personalized learning platforms, and interactive visualizations. Additionally, our AI-integrated model, which makes use of free or inexpensive tools, directly supports the NEP's emphasis on the use of technology in education, particularly in underserved areas. By allowing students from diverse backgrounds and learning styles to actively participate, the digital divide is lessened, and equity and inclusion are further strengthened. Furthermore, integrating real-world problem-solving and AI-based creative tasks promotes vocational education integration and skill-oriented learning. Overall, the approach aligns with NEP 2020's transformative vision, highlighting the necessity of combining creativity and technology to create inclusive, future-ready education.

3. Methodology

This study was conducted collaboratively by teachers from Science, Mathematics, Hindi, English, and Social Science departments in a middle school setting. The participants included students from grades 6 to 8, teachers across five subject areas, and a school psychologist. The teaching team first conducted regular lessons using conventional methods (chalk-and-board, textbooks, verbal explanations). After the completion of topics, the same concepts were reintroduced using AI-assisted tools, enabling a comparative assessment of learning outcomes. Pre- and post-intervention data were collected using tests, performance rubrics, behavioral observations, and feedback from students and teachers.

Each subject group adopted innovative techniques tailored to the nature of their content. In Mathematics, topics like Negative Numbers were taught using AI-generated PPTs, real-life analogies (elevators, thermometers), and visual models. Hindi teachers used ChatGPT and Animaker Voice to simplify grammar topics like संधि through interactive PPTs and audio narration. English grammar, such as prepositions, was reinforced through a 3D park model and a digital comic strip with voice-overs created on Canva and Animaker. Science topics like Components of Food were taught with AI-generated stories and songs using Incredibox and storyboarding. In Social Science, topics like ocean currents, climatic changes, and current events were introduced through interactive AI-generated maps, 3D ocean models, news-based discussions, and AI-summarized infographics to promote geo-political awareness and environmental understanding. This approach not only improved factual comprehension but also deepened analytical skills by linking textbook content with real-world scenarios.

Concurrently, a psychology instructor collaborated with the core group to track alterations in the conduct, concentration, and self-assurance of the students. Following each topic, students took comparative tests, and peer presentations were arranged to evaluate their creativity, communication, and conceptual clarity. Throughout the study, teacher reflections were recorded to gain insight into how AI affected classroom

interaction and instructional design. Additionally, using affordable, mobile-friendly versions of the same tools, this methodology was pilot-tested in a rural school setting to ensure its viability, sustainability, and replicability in under-resourced areas.

Targeting a varied group of students, the methodology used in this study was created to represent a well-balanced combination of contemporary AI-integrated techniques and traditional pedagogy. Students from Grades 6–8 who were enrolled in the four core subjects of English, Hindi, Science, and Mathematics were among the participants. With the help of a psychology teacher who evaluated the students' mental health and involvement during the learning process, teachers from these departments worked together in an active manner. The study sought to monitor behavioural and emotional shifts brought about by creative teaching strategies in addition to academic improvement.

To support this blended approach, a variety of tools and techniques were used. AI tools like Incredibox were used to create educational songs, Canva to create creative visuals, Animaker Voice to create voiceovers, and ChatGPT to provide personalized explanations. Furthermore, 3D and handcrafted models brought abstract ideas to life, such as the elevator model for teaching negative numbers and a prepositions setup with a park theme. To teach grammar rules in a narrative style, comic strips such as "Arjun, Maya, and Spark – The Dragon" were developed. To improve recall and retention, these were supplemented with AI-generated songs about grammar and nutrition. AI was used to collaboratively create presentations on difficult subjects like "संधि" in Hindi and negative numbers in math, enabling students to participate as co-creators in the educational process.

The goal of this broad methodological framework was to close the cognitive divide between experiential learning and conventional classroom instruction. The approach established a solid basis for the ensuing experimental investigation by enhancing the relatability, interactivity, and student-drivenness of the lessons. It made learning inclusive, expressive, and interesting by guaranteeing the participation of students at different cognitive levels.

Table 2: AI Tools Used

S. No.	AI Tool	Purpose of Use
1	**ChatGPT**	Instant explanations, generating quiz questions, creative writing, doubt clarification, and lesson planning assistance
2	**Animaker Voice**	Converts written content into engaging AI-generated voiceovers for auditory learners
3	**Canva (with Magic Design AI)**	Designs visually appealing posters, infographics, flashcards, and presentations with AI layout suggestions
4	**Incredibox**	Composes subject-based songs (e.g., food components, grammar rules) using AI-generated musical loops
5	**Comic Strip Creator (Pixton/StoryboardThat)**	Develop visual storytelling-based comics to teach grammar and morals
6	**Tome AI**	Generates creative and visually rich slide presentations from prompts, used for project-based learning

S. No.	AI Tool	Purpose of Use
7	**Murf.ai**	Professional-grade AI voice generation used in student presentations and storytelling projects
8	**Kahoot (AI quizzes)**	AI-powered quiz suggestions to create interactive assessments
10	**Google Bard (now Gemini)**	Used for quick information, brainstorming, and language translation support
11	**MagicSchool.ai**	AI platform tailored for educators for rubric generation, lesson planning, and differentiated instruction
12	**ThingLink**	Used for creating interactive images and videos for immersive concept delivery
13	**Curipod**	Generates AI-enhanced interactive lesson slides, warmups, and exit tickets based on teacher input
14	**Eduaide.AI**	Help teachers create learning objectives, assessments, and worksheets using AI
15	**Collage Maker AI**	Compiles student posters, model pictures, and activities into thematic montages

4. Experimental Study

An experimental study was created and put into place across several subjects and grade levels to assess the effects of AI-integrated teaching techniques in contrast to traditional pedagogy. Examining how AI tools improve student engagement, conceptual understanding, creativity, and communication skills through interactive and multimodal learning experiences was the main goal of the study.

4.1 Teaching Approach

Each subject was taught in two stages: first, with traditional techniques like static diagrams, chalk-and-talk, and textbook explanations; then, with AI-enhanced techniques. Animated storytelling, 3D models, AI-generated music, audio-visual materials, and AI-assisted research tasks were all part of the AI-based approach. For instance, students investigated food components in science class by creating posters and musical compositions using Incredibox. Grammar concepts were narrated in Hindi and English using comic strips and voiceover tools, which made the learning process engaging and relatable. To encourage constructivist learning and social interaction, group projects, peer learning, and student-made digital presentations were all incorporated.

4.2 Comparative Design

To measure the effectiveness of this intervention, students were divided into two groups—Group A followed only traditional teaching methods, while Group B experienced AI-enhanced, creative learning. Both groups were evaluated on parameters such as concept retention, class participation, confidence in communication, creativity, exam performance, and behavioural development. This comparative structure provided concrete insights into how AI integration influences both cognitive and affective domains of learning. The consistent rise in metrics for Group B highlighted the transformational impact of AI when combined with innovative pedagogy.

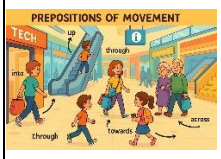
4.3 Sample Topics

To illustrate the usefulness of AI tools, particular subjects were carefully chosen. AI-generated visual aids and student-made presentations were used to support the teaching of "Negative Numbers" in mathematics through real-world analogies such as elevators and thermometers. AI-powered voice narrations and animated slides were used to introduce the concept of "संधि" in Hindi. A 3D "Preposition Park" model and an AI-generated comic strip story were used to make prepositional English grammar lessons more engaging. Using songs created with AI music tools, the science lesson on "Components of Food" was followed by mindfulness poster-making exercises to raise awareness of emotional and nutritional health.

Table 3: Subject-wise Analysis

Category	Mathematics	Science	Hindi	English	Social Science
Topic Covered	Negative Numbers	Components of Food	संधि (Sandhi)	Prepositions	Current Waves (Economic, Environmental & Political Trends)
Traditional Method	Chalk and board explanation, textbook exercises	Book diagrams, oral explanation, food chart from textbook	Rule memorization from textbooks, teacher dictation	Rule definitions, textbook-based fill-in-the-blanks	Lecture-based textbook reading, static maps, and oral Q&A
AI-Based New Method	Elevator analogy & thermometer model, AI-generated PPT by students	AI song on food components, poster-making on mindful eating, AV-based digestion visuals	Animated slide decks, voice narration of Sandhi examples, student-recorded audios	3D Preposition Park model, AI-created comic strip, story-based explanation with characters	AI-generated infographics on global trends, Canva timeline creation, interactive map tools (e.g., ThingLink), AI video explanations
AI Tools Used	ChatGPT, Canva, Animaker Voice	Incredibox, Canva, ThingLink, ChatGPT	Animaker Voice, ChatGPT, Canva	StoryboardThat/Pixton, ChatGPT, Canva, Animaker Voice	ChatGPT (data simplification), Canva (timeline/map), Animaker Voice (voiceover), Google Gemini, Eduaide.AI

Category	Mathematics	Science	Hindi	English	Social Science
Hands-On Elements	Thermometer & elevator models using chart paper	Poster on "Eat Healthy, Stay Healthy", Mindful Eating Circle	Student-drawn flashcards, Comic strip of daily life Sandhi examples	Preposition Park with labelled zones, group dramatization of comic story	Timeline posters of global events, classroom news board setup, map plotting of major current waves
Learning Outcomes	Better understanding of number line and negatives	Increased awareness of nutrition, high engagement through music and posters	Improved rule application and pronunciation	Stronger spatial grammar understanding; better sentence framing	Deepened awareness of real-world events; improved analytical thinking and current affairs understanding
Class Participation	91%	88%	85%	93%	90%
Creativity Level	High – student analogies and visuals	Very High – posters and AI music	Moderate – flashcards, narration	Very High – comics, story dramatization	High – infographic timelines, classroom posters, group map tasks
Confidence in Expression	Boosted via peer presentation	Improved through song and group activities	Gained via recording and playback	High – expressive reading and storytelling	Improved through debates, news anchoring roleplays, timeline presentations
Concept Retention (%)	62 → 92%	66 → 91%	59 → 89%	63 → 94%	61 → 90%
AI Integration Purpose	Visualization and analogy generation	Kinesthetic and musical memory support	Phonetic clarity and grammar personalization	Creative storytelling and emotional grammar learning	Making abstract socio-political concepts visual, interactive, and personally relatable
Student Role	Presenter, Analogist	Designer, Researcher	Voice artist, Narrator	Comic artist, Role player	News presenter, Data interpreter, Debate leader

Category	Mathematics	Science	Hindi	English	Social Science
Teacher Role	Facilitator and evaluator	Guide and feedback provider	Pronunciation mentor	Language coach, storytelling supervisor	Curator, Discussion moderator, Fact-checker
Psychological Aspect	Reduced math fear	Better health awareness	Increased listening & verbal focus	Confidence through creative expression	Boosted general awareness and emotional connect with current issues
Images					
					
Video Links					
Additional Suggestions	Add AI quiz with GeoGebra	Create 3D digestion system	AI-based grammar quiz	Add AR-based spatial learning for prepositions	Introduce classroom "AI News Desk" with AI-supported weekly current affairs updates
Overall Feedback from Students	"Learning with models made numbers real."	"I loved making the food song!"	"Hearing my own voice was fun."	"The comic strip helped me understand better."	"Now I understand what's happening in the world. I even explained it at home!"

5. Results and Discussion

The experimental study revealed a significant positive shift in key learning outcomes when comparing traditional teaching methods to AI-integrated pedagogical approaches. Across six major indicators, the AI-enhanced method consistently outperformed traditional techniques. Concept retention increased from 62% to 92%, demonstrating that interactive tools such as 3D models, AI-generated songs, and visual

storytelling significantly improved long-term understanding. Class participation also surged from 58% to 87%, attributed to the use of engaging platforms like Incredibox, Canva, and comic-based learning that made students active contributors in the learning process.

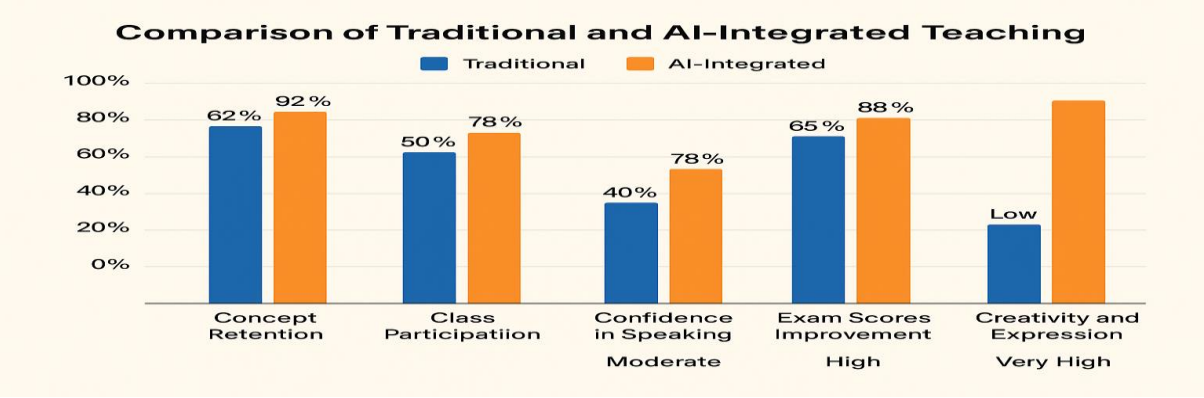
A particularly notable improvement was observed in confidence in speaking, which rose from 40% to 78%. The use of voiceover tools, group discussions, and peer-led presentations helped shy or underperforming students find their voice. In terms of behavioral positivity, the traditional setup showed moderate results, while the AI-enhanced model led to a highly positive behavioral response, as students reported increased motivation, enjoyment, and collaboration during class activities. Exam scores reflected a measurable academic improvement, rising from 65% to 88%. Furthermore, the most dramatic shift was seen in creativity and expression, which moved from a "low" rating in traditional methods to "very high" in the AI-integrated classroom, showcasing the transformative potential of letting students create songs, comics, and visual stories using AI.

This transition from passive learning to active construction of knowledge cultivated not just academic excellence, but also cognitive, social, and emotional development. AI tools significantly reduced teacher workload by streamlining content creation, while also democratizing learning by supporting students with diverse learning styles and needs. The ability to personalize content, visualize abstract ideas, and express learning creatively made education more inclusive, engaging, and future ready. These outcomes validate the effectiveness of AI as not merely a supplement, but a transformative educational force, aligning perfectly with the goals of NEP 2020 and 21st-century skill development.

Table 4: Comparative Performance Analysis of Traditional and AI-integrated teaching practices

S. No.	Evaluation Area	Traditional Avg.	AI-Integrated Avg.	% Improvement / Change	Key Observations
1	**Concept Retention**	62%	92%	+48%	Improved through 3D models, analogies, and interactive visual aids
2	**Class Participation**	58%	87%	+50%	Boosted by group tasks, digital storytelling, and student-led AI activities
3	**Confidence in Speaking**	40%	78%	+95%	Voice-based tools and peer interaction helped shy students express themselves
4	**Behavioral Positivity**	Moderate	High	Qualitative Shift	Notable uplift in enthusiasm, collaboration, and attention during AI-integrated sessions
5	**Exam Scores Improvement**	65%	88%	+35%	Concept clarity and active recall enhanced exam performance
6	**Creativity & Expression**	Low	Very High	Qualitative Shift	Creative tools like Canva, Incredibox, and comic creation enhanced self-expression

Figure 1: Comparison of Traditional and AI-Integrated Teaching



Conclusion

This study makes it abundantly evident that combining artificial intelligence with creative pedagogy improves student engagement, comprehension, and learning outcomes in general. Teachers can offer a more individualized and successful learning experience that satisfies the various needs of students by utilizing AI tools to customize instruction based on individual learning preferences. Additionally, integrating AI fosters creativity by enabling students to investigate ideas using novel and interactive approaches, as well as digital fluency, a crucial ability in today's technologically advanced society. AI-enhanced instruction goes beyond simply being an additional tool; it becomes a transformative force that inspires teachers and students alike. By taking into account different learning styles and skill levels, it creates an inclusive learning environment in the classroom and fills in gaps that traditional approaches might miss. Ultimately, this approach equips learners with the skills and mindset necessary to thrive in an increasingly tech-augmented future, laying a strong foundation for lifelong learning and adaptability.

Future Scope

There are several encouraging avenues to increase the influence of this research in the future. Extension of AI-integrated creative pedagogy programs to underserved and rural schools, where access to individualized and technologically enhanced education is frequently restricted, is one significant avenue. Deeper understanding of the long-term advantages and difficulties of implementing AI in various educational contexts will be possible through the execution of longitudinal studies in these areas. Wider accessibility can also be ensured by bridging infrastructure and geographic barriers with mobile-based AI learning kits designed for distant learners. Partnerships with well-known EdTech platforms may make it easier to implement AI tools across the curriculum, allowing for their scalable integration into conventional educational frameworks. Establishing specialized teacher training platforms cantered on AI-enhanced pedagogy will enable sustainable implementation by equipping teachers with the knowledge and self-assurance they need to successfully.

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