

OPEN ACCESS

Volume: 13

Special Issue: 3

Month: August

Year: 2025

P-ISSN: 2321-788X

E-ISSN: 2582-0397

Citation:

Mary, J. Akila, and S. Sharon.
“Effective Usage of AI Tools
among College Teachers.”
*Shanlax International
Journal of Arts, Science and
Humanities*, vol. 13, no. S3,
2026, pp. 115–21.

DOI:

<https://doi.org/10.34293/sijash.v13iS2-Aug.10442>

Effective usage of AI Tools among College Teachers

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Abstract

The integration of Artificial Intelligence (AI) tools in education has transformed the way teaching and learning occur. This study investigates the effectiveness of AI tools among college teachers, focusing on their awareness and its usage. The study also focused on the challenges faced by teachers in utilizing AI tools for educational purposes.

The findings of this conceptual study provide insights into the current state of AI tool adoption among college teachers, highlighting areas of strength and weakness. The study's results help policymakers, educators, and stakeholders on how to enhance teacher training programs, address challenges, and optimize the use of AI tools in higher education. By examining the effectiveness of AI tools, this study aims to contribute to the ongoing discourse on the role of technology in shaping the future of education. Ultimately, this research helps to ensure that AI tools are harnessed to support teaching and learning in a way that benefits both educators and students.

Keywords: Artificial Intelligence, College teachers, Educators, Effectiveness.

Introduction

Artificial Intelligence is transforming the global educational landscape. A major technological transformation with the integrated of Artificial Intelligence.AI is bringing revolution in education, providing teachers to streamline tasks, personalize learning and increase engagement. Tools can help with the text plan, material construction, evaluation, and even communication, eventually saving time for students to take time and improve overall learning experiences. AI tools can increase effectiveness by automatically automating administrative functions, providing personal learning experiences and insights. These devices can free the time of teachers for more concentrated instructions and students' interaction, while students can improve the results through analog support and attractive learning experiences. The integration of AI devices in higher education has changed the teaching process, yet there is a significant interval in understanding the effectiveness of these devices among college teachers. By increasing AI technology, many teachers lack the technical knowledge and skills required to use these devices, which obstruct their ability to increase

teaching and learning experiences. Increasing awareness in AI equipment for teachers is important in today's educational environment. It creates the efficiency, privatization and professional development of teachers to help with modern education in the present. AI supports human teaching, user friendly and minimum cost. In the Modern era, many institutions and center workshops and webinars, hands-on training, professional teaching communities etc. provide awareness through the way of operation. This conceptual study aims to focus on the effectiveness of AI tools among college teachers, focusing on their awareness, usage, benefits, and challenges, to inform strategies for improving teacher productivity and student learning outcomes.

Transformation of AI in Modern Education

1. **Assistive Technology:** Tools like speech recognition software convert spoken words into text. This helps students with hearing impairments or dyslexia take part in the classroom by turning speech into text and the other way around.
2. **Data and Learning Analytics:** AI analyzes data from online learning platforms, classroom attendance, and grades. This information provides insights on student performance. It helps educators spot trends and adjust their teaching to fill gaps in understanding and performance.
3. **Classroom Management:** Some platforms use AI to make classroom management more engaging. AI tracks student behavior and participation, rewarding positive actions with points and badges. It also gives teachers insights into classroom dynamics to help manage and motivate students.
4. **Automated Grading and Assessment Tools:** These tools use AI to review assignments and give detailed feedback. This makes the grading process quicker and more consistent, saving teachers time. AI can also grade essays by assessing content for clarity and relevance.
5. **Curriculum Planning:** AI helps educators design curricula by examining educational data to find trends and gaps. This keeps the curriculum relevant and ensures it meets learning goals. AI suggests updates based on the latest educational needs and standards.
6. **Interactive and Learning Games:** AI improves educational games by creating engaging and adaptive experiences. These games adjust tasks and challenges based on student responses, encouraging active participation and a better understanding of complex subjects.
7. **Smart Content Creation:** AI supports teachers in creating digital lessons and study materials. Tools like Magic School AI and Eduaide.AI simplify lesson planning, create assessments, write individualized education plans (IEPs), and more to modernize learning and streamline instruction.
8. **Proctoring:** AI-powered proctoring systems oversee exams to prevent cheating and maintain academic integrity. These systems watch students' behavior during exams and provide real-time alerts for suspicious actions, ensuring a secure testing environment.
9. **Edutainment and Gamification:** AI adds game elements to academic content to make learning enjoyable. Platforms use AI to create interactive quizzes and games that help students understand and remember educational material better.
10. **Test Prep:** AI platforms like Magoosh offer personalized test preparation by analyzing student performance. They adjust practice questions and study plans to focus on areas needing improvement, increasing students' chances of success.
11. **Academic Research:** AI aids academic research by analyzing large datasets to find trends and generate insights. Tools like IBM Watson Discovery give researchers powerful analytics tools, helping them discover new findings and speed up the research process.
12. **Guest Speakers and Events:** AI supports virtual events and guest lectures, letting students learn from leading figures and experts in different fields. Tools like BigMarker help organize and manage virtual conferences, enriching the learning experience with expert insights.

Objectives

1. To examine the level of awareness of AI tools among college teachers.
2. To identify the various AI tools used in education.
3. To explore the challenges faced by college teachers.

Scope of the Study

This conceptual study specifically examines the effective use of AI tools by college teachers in Tamil Nadu. Due to time limitations, the study primarily describes the awareness, benefits and challenges of AI tools among college teachers.

Review of Literature

Rainer (2016) stated that AI is a subfield of computer science dedicated to understanding human thought processes and recreating their effects through information systems. The primary goal of AI is to create intelligent systems that are capable of intelligent behaviors including learning, reasoning, problem-solving, perception, and creating. Typical examples of AI technologies include expert systems including machine learning and deep learning techniques.

Sharma (2024) explored that AI integration in teacher training programs in Rajasthan positively impacts professional development and student outcomes. A survey of 50 educators showed satisfaction and engagement with AI-led platforms, improved pedagogical knowledge, and convenient sharing of teaching materials. The study suggests that AI integration can enhance teacher training programs and improve student outcomes.

Chopra & Arora (2023) stated that AI has revolutionized education by offering personalized learning, student performance insights, and aiding in content creation, virtual teaching assistant management, and predictive analytics. However, ethical considerations, data privacy, and equity concerns remain. Future AI trends include personalized learning, improved teacher. Collaboration, multimodal platforms, soft skills focus and augmented/virtual reality. Balancing technology with human interaction is crucial for a future where technology improves education globally.

Haddad & Ashqar (2023) explored the integration of AI in Israel's education system, highlighting the interconnectedness between education and AI. The study examined how teachers, school ICT coordinators, principals, and parents handle AI implementation, using innovative tools and addressing student challenges. Teachers receive a coordinated training course, while schools designate instructors for digital skill workshops. The principal collaborates with the Ministry of Education to oversee AI integration educational institutions.

Awareness Level

The integration of Artificial Intelligence (AI) into higher education is rapidly progressing, research indicates a varying and still developing level of awareness about AI tools among college teachers. Several studies suggest that while college teachers generally recognize the existence and potential of AI tools, their overall awareness remains at a moderate level. This means they may be familiar with the concept but lack deeper knowledge about specific applications and functionalities.

Benefits of AI Tools in Education

1. Personalized Learning: AI tools can help learning experiences to needs of individual students, learning styles and Analysis.
2. Increased Efficiency: AI can free up teachers to focus on teaching and student support as well.
3. Enhanced Engagement: AI-powered tools can make learning more interactive in attractive and engaging full of interest, increasing student motivation and their participation in leaning.
4. Improved Assessment: AI can help teachers assess student performance more accurately and efficiently,

providing valuable insights for instruction.

5. **Access to Resources:** It can provide students with access to a vast array of educational resources, including interactive simulations, videos, and games.
6. **Support for Diverse Learners:** It can help support students with diverse learning needs, including those with disabilities or language barriers for study.
7. **Data-Driven Insights:** AI can provide teachers with data-driven insights on student performance, identify areas where students need extra support.
8. **Streamlined Content Creation:** AI tools can help teachers to create high-quality educational needed content, including presentations in PowerPoint, quizzes, and assessments.

Effectiveness of AI Tool

Artificial Intelligence is a tool that offers several advantages for college teachers, enhancing both their teaching and evaluation tasks. AI tools, such as automated grading systems & chatbots, can significantly reduce a teacher's burden, allowing them to focus on more complex teaching responsibilities. This frees up time for educators to build strong relationships with students and help them to develop social and emotional skills in field of education.

1. It creates personalized learning methods, which are shown to improve student test results. AI enhances student learning in their learning process.
2. It analyzes student performance and provides teachers with feedback on their teaching methods and materials. This feedback loop allows for continuous improvement and more effective instruction.
3. It helps teachers manage classroom engagement and student behavior at a time. AI to gamify classroom management by tracking student behavior as well.

AI Tools for College Teachers

AI TOOLS FOR SCIENCE TEACHERS	
AI TOOL	USAGE
Khan Migo	It is used to create Lesson plan generation, Quiz Creation
Brisk Teaching	It is provided for science related word problems, engaging lessons and promoting critical thinking
Labster	It offers virtual science labs, allowing students to conduct experiments.
Quiver	It is used in augmented reality to bring science concepts to refer.
Anchor AI	To create assessments aligned with specific topics.
Diffit	It generates resources and assessments based on different reading levels.
Hey Science	It Provides data-driven insights and assisting with tasks like journal submissions.
Bio automated	It is used for biological research, project model selection and data processing.
Canva	It is used for creating stunning visuals and presentations
AI for teachers	It is used to simplify grading and enhances productivity

Grammarly	It is a tool which checks grammar, spelling, and style for teachers and students
ChatGPT	It is widely used as a versatile AI tool for brainstorming lesson ideas and creating educational content. It is very useful to make all the relevant topics and gives simplified meaning along with materials.
Khan Academy AI Tutor	It is used to personalize student learning and provides insights for teachers.
Edpuzzle	It is one kind of tool to transform videos into interactive lessons with embedded quizzes.
Quizlet	The tool helps to create flashcards and interactive quizzes to engage students.
GradeCam	The tool is used to simplify grading paper tests and offers instant feedback and analytics.
SlidesGo	It is used to create eye-catching presentations.
Gemini AI	It helps to assist with content creation, brainstorming, and research.
Magic School	It is an AI assistant for teaching-related tasks.
Quizgecko	AI-powered tool helps teachers make materials, quizzes, and flashcards. It can generate study notes from files like PDFs, Word documents, or PowerPoint presentations.

Challenges in using AI Tools

Educators face several challenges when using AI tools, primarily stemming from uncertainties about effective integration and technical demands. Many educators struggle with the lack of training and support, hindering their ability to leverage AI technologies responsibly.

Technical Challenges: Guarantees that AI tools are precise, current, and pertinent to the curriculum are significant, as AI systems are no better than the content they present.

Academic Integrity: Academic dishonesty can be made easy by AI tools, and teachers worry about students using AI-generated material without comprehending it or working with the content.

Bias and Equity: AI systems can reinforce existing inequalities if they are trained on biased data and will produce unfair results, for example, biased grading or unequal access to learning opportunities.

Resistance to Change: Educators resist the uptake of AI because of job displacement fears, unfamiliarity, or disbelief in efficiency.

Training and Support: Teachers require extensive training to use AI tools successfully in teaching, such as discussion regarding critical evaluation and integration into pedagogical practices.



Suggestions

- Educational institutions should provide regular training programs to enhance teachers’ skills in using AI tools.
- Institutions should provide technical support to facilitate the effective use of AI tools.
- Institutions should allocate resources to support the adoption and implementation of AI tools.
- Institutions should collect regular feedback through AI tools for the development of Students and Teaching Centric methods using AI to be enhanced.
- A policy framework should be developed to guide the adoption and use of AI tools in educational institutions.

Conclusion

This study on the effectiveness of AI tools among college instructors indicates that AI tools can potentially improve teaching and primarily learning experience. Teacher productivity, student involvement, and learning approaches can be improved through AI tools. It also identifies the necessity for required training and support of teachers to integrate AI tools in their practices successfully in task accomplishment. The strengths of AI tools and overcoming the challenges, institutions of higher learning can develop a more effective, customized, and interactive learning experience and methods for students. This study becomes part of the expanding literature on the place of AI in education and gives educators, policymakers, and stakeholders to utilize the capability of AI tools in institutions of higher learning and teaching Practices.

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