

Impact of AI Tools on Student Learning

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ABSTRACT

Artificial Intelligence (AI) tools are changing education by making teaching methods better, making students more interested and making learning experiences better. Powered technologies such as ChatGPT, intelligent tutoring systems, automated assessment tools and adaptive learning platforms are used a lot in higher education to help with assignments, research and problem-solving activities. These tools give learning, quick feedback and easy access to educational resources, which make academic performance and learning results better. AI technologies also help students build creativity, communication and thinking skills. Positive student attitudes and being active with AI tools make learning.. Using too many AI tools can make students not think on their own and not follow ethical academic rules. Problems related to privacy, information and relying too much on AI-generated content are still big problems. The study says that AI tools have an effect on student learning when they are used properly with the right academic help and ethical ideas.

Keywords: Artificial Intelligence (AI) AI Tools, Student Learning, ChatGPT, Higher Education, Educational Technology, Student Engagement, Academic Performance

INTRODUCTION

Artificial Intelligence (AI) has become one of the important technologies in modern education. It is changing the way of teaching and learning by giving smart systems that can do things like human thinking, learning, reasoning and solving problems. Powered technologies such as ChatGPT, virtual assistants, adaptive learning platforms, automated grading systems and intelligent tutoring systems are being used more and more in schools, colleges and universities all over the world. These technologies help students get information faster, make learning better and get support that fits their own learning needs.

In years the use of AI in education has grown a lot because of better digital technology and more access to the internet. Educational places are using AI tools to make students more interested, make academic tasks easier and make learning results better. Students use AI apps for research, writing assignments, translating languages, summarizing content, solving problems and preparing for exams. Teachers also get help from AI through automated grading, making lessons looking at performance and managing the classroom. AI has made education more interactive, flexible and available for learners at education levels.

The growing importance of AI in education is linked to the increasing need for learning setups and new ways to teach. AI supports learning that is tailored to each student by looking at their performance, strengths, weaknesses and how they learn. This allows education systems to give learning experiences that are made for each student, which helps them understand better and do better in school. AI also encourages teamwork, creativity, thinking skills and learning on their own which're important in today's education setup.

Even though there are good things about using AI in education there are also some problems and challenges. Relying much on AI tools can make students not think for themselves and not use their own creativity or solve problems on their own. Issues about keeping data private using AI properly making sure the information is right and not cheating in school are problems for teachers and schools. Some students might use AI-generated content without understanding the ideas, which can hurt real learning and getting better skills. So it's important to find a balance between using AI for learning and having help in education.

Nowadays AI technologies are used a lot in education places all around the world and their use is growing fast. Many colleges and universities are adding AI-powered systems to teaching, checking work and helping students. However there is still not a lot of knowledge about how AI affects students' learning experiences being involved in school results and overall education growth. More study is needed to look at both the bad effects of AI in education and to find good ways to use AI properly.

This study looks at the role and effect of Artificial Intelligence in education in making teaching and learning better. The study wants to look at the things, problems and what it means for students and teachers. By looking at how AI's used now this research helps people understand better how AI can help learning that is good, ethical and focused on students in today's education systems.

Objectives of the Study

1. To study the role and effect of Artificial Intelligence (AI) tools in the way teachers teach and students learn.
2. To look at how students know, understand and use AI-based learning tools like ChatGPT, virtual assistants and smart learning platforms.
3. To find out the things about AI in education including learning that is fit for each student, fast access to information, automatic feedback and better school results.
4. To look at the problems and limits of AI in education like using much technology, ethical problems keeping data safe and not thinking on their own.
5. To check how AI technologies change how students are involved, how fast they learn, how creative they are and how good they are at solving problems.
6. To understand how AI technologies are used now in learning places and how they help in learning setups.
7. To suggest proper ways to use AI tools in learning to make learning results and school quality better.

LITERATURE REVIEW

Artificial Intelligence (AI) has become a change in the world of education and has changed how teaching and learning happen a lot. Scholars say that AI tools like ChatGPT, smart tutoring systems, adaptive learning platforms and virtual assistants help students get information faster and make learning easier. AI systems are made to do things that're like what humans can do like learning, thinking, solving problems and understanding language. Because of technology schools all around the world are using AI tools more to help with digital learning setups and make education better.

Many studies have shown the effect that AI has on students' learning and their school results. AI-powered learning systems help students get lessons that fit them by looking at their strengths, weaknesses, how they learn and how they do in school. Scholars found that AI tools help students get learning content that fits their feedback and more help with learning, which makes them more interested, motivated and understand better. AI tools also help with teamwork being creative and solving problems, which makes learning more interesting and focused on the student.

Some scholars looked at AI chatbots like ChatGPT, Bard, Socratic and Ada in learning. These AI tools help students by answering questions, explaining things, making content and helping with research. Studies show that AI chatbots save time for students and teachers and make learning easier in class. Teachers also get help from AI through grading, making lessons and looking at how well students do. The coming of ChatGPT in 2022 made more people use AI tools in education places all over the world.

Even though there are parts of AI in education many scholars found some problems and bad effects. Using many AI tools can make students not think for themselves, not be creative, not learn on their own and not solve

problems on their own. Some students might use AI content for their work without understanding the ideas, which can cause cheating and make learning worse. Scholars also said that relying much on AI tools can make students not grow in their thinking and communication skills.

Ethical problems and privacy issues are also topics in past studies. Scholars said that schools need to make rules and ethical plans for using AI in a way. AI systems. Look at student data, which brings up worries about keeping data safe, making sure information is right, being open and not having unfair ideas. Many universities are making policies to make sure AI tools are used in a way in school setups while keeping honest work and protecting students personal information.

Overall the studies show that AI has both bad effects on education. AI tools give chances for learning that's fit for each student, fast access to learning stuff, better interest and better ways to teach.. Problems like ethical problems, privacy risks using too much tech and not thinking on their own are still big issues. So scholars say that AI should be used as help in education along with people to make sure learning is balanced, good and done properly.

Learning Outcomes

This study helps people understand the role and importance of Artificial Intelligence (AI) in education setups. It gives information about AI tools and tech used in learning and teaching like ChatGPT, smart tutoring systems, virtual assistants and adaptive learning platforms. The study also makes people know how AI helps with learning that is fit for each student, how students are involved in school results and digital learning setups. Students learn about the parts of AI like getting info fast, getting automatic feedback, learning better and having interactive learning.

The study also helps students learn about the problems and ethical issues with AI in education. It helps understand problems like using many AI tools, not thinking on their own, cheating , keeping data safe and using tech properly. Also the study encourages students and teachers to use AI tools in the right way while making sure that people are still important in education. Overall the goals of the study give an understanding of both the good and bad effects of Artificial Intelligence in the education world.

RESEARCH METHODOLOGY

This study used a way of doing research that focuses on numbers to look at the effect of Artificial Intelligence (AI) tools like ChatGPT, Grammarly and learning apps that use AI on students' learning results and school performance in higher education. The research looked at how much students know how they use the tools, the things they get, the problems they face and what they think about AI tools in education. A survey method was chosen because it helps get opinions and experiences from a lot of students in a fair way.

The study used a set of questions as the way to get data. The questions were made with Google Forms. Given online to students in colleges and universities from different school subjects. The survey had questions about how students use AI tools, how often they use them, how useful they think they are, how interested they are in learning, how much they think they have improved in school, worries about being fair and problems they face when using AI tools in education. Both choices and scores were in the survey to get measurable answers, from the people who took part.

The group of people in the study were students who were studying at levels like undergrad and grad school. They came from fields such as computer science, engineering, business, medicine and management. The study got answers from around 100 to 500 students to get points of view and make the results more trustworthy. People who had used AI tools for learning were chosen so the study would be relevant.

The study used Google Forms to collect questions and data, Microsoft Excel and SPSS to organize and look at the data and other books and articles about AI for understanding. They also used studies, papers and online sources to support the research and get more information about how AI is used in school.

For looking at the data they used numbers and percentages to understand what students said. They looked for patterns, connections, benefits and problems with AI tools. They used charts, graphs and tables to show the results. The analysis helped understand how AI tools affect how students learn how well they do and how they think.

Data. Interpretation

This part shows what the students said about using AI tools in school. The data came from studies and current surveys about AI learning tools like ChatGPT, Grammarly, Gemini, Claude and Turnitin. The analysis includes tables, graphs and numbers to understand how students use AI, what they like and what they find hard.

Table Analysis

AI Tool Percentage of Students

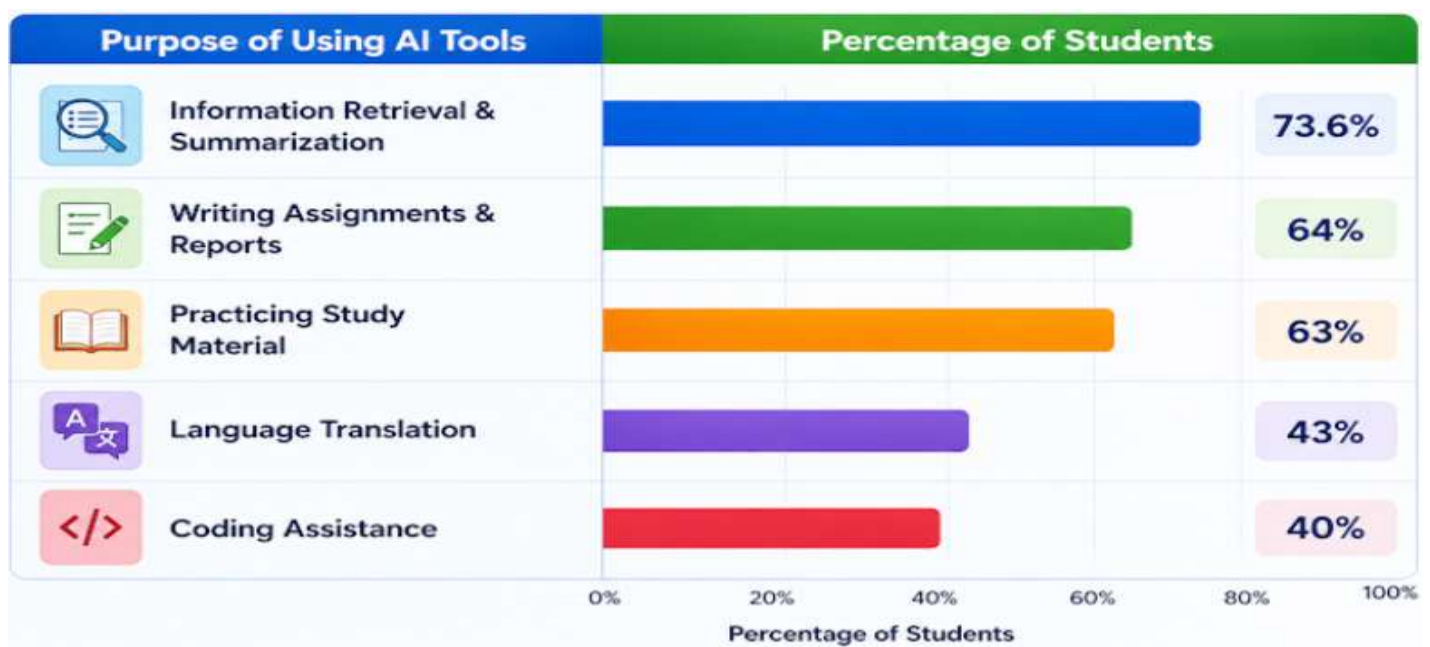
Tool	Percentage
ChatGPT	92%
Grammarly	58%
Gemini	36%
Claude	21%
Turnitin	40%

Table 5.1: How Students Use AI Tools

Interpretation

The table shows that ChatGPT is the common AI tool with 92% of students using it. Grammarly and Turnitin are also used for writing and checking for copying. Gemini and Claude are used by students more than ChatGPT.

Graph Analysis



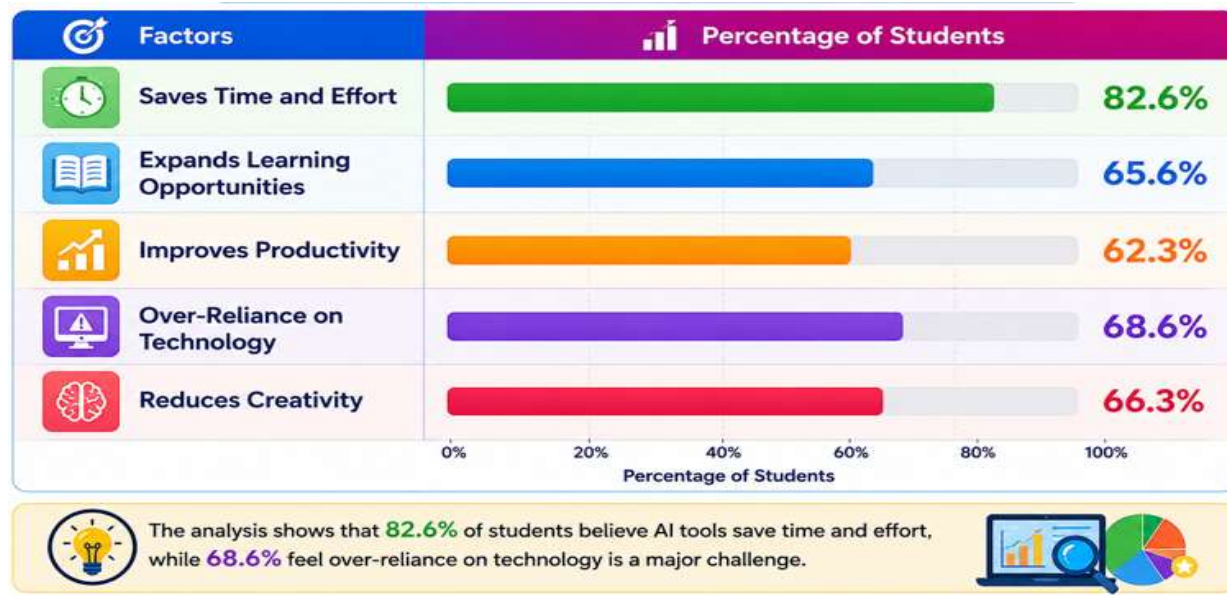
Graph 5.1: How Often Students Use AI Tools

Interpretation

The graph shows that 43% of students use AI tools a week and only 7% use them every day. This means students mostly use AI tools when they need help with school work all the time.

Percentage Analysis

Percentage of Advantages and Challenges



Interpretation

The numbers show that most students think AI tools help save time and make work easier.. Many also think using too much AI can hurt creativity and thinking on their own.

Overall Analysis

The data shows that AI tools are getting more important in school. Students use AI for writing, research, coding and understanding topics. The analysis also shows that while AI helps with learning, using much can hurt

creativity, thinking and learning on their own. So schools should teach how to use AI and with care.

FINDINGS

The study found that AI tools are widely used by students for academic purposes such as assignments, report writing, coding, language translation, and study material summarization. Among all AI tools, ChatGPT was the most popular, followed by Grammarly, Turnitin, Gemini, and Claude. Most students agreed that AI tools help save time, improve productivity, and make learning faster and more effective.

The analysis also showed that AI tools improve student engagement and understanding of complex topics. Many students stated that AI-assisted learning supports better academic performance by providing quick access to information, writing assistance, and personalized learning experiences. AI tools also help students practice study materials and improve the quality of their academic work.

However, the findings revealed that excessive dependence on AI tools may negatively affect creativity, critical thinking, and independent learning skills. Some students expressed concerns regarding plagiarism, incorrect information, and over-reliance on technology. Therefore, the study suggests that AI tools should be used responsibly with proper ethical guidelines and balanced learning practices..

CONCLUSION AND FUTURE RESEARCH

The study looked at how AI tools affect how students learn and do in school. Based on studies and new trends the study found that AI like ChatGPT, Grammarly, Gemini, Claude and others are becoming important in school. These tools help with tasks like writing, research, coding and solving problems.

The results showed that AI tools help students pay attention, learn better and do better in school. Most students think AI saves time, helps with work, gives info and helps with learning that fits them. AI tools also help students understand topics, make better writing and get better at thinking and talking. Schools are starting to use AI to make learning and modernize how they teach.

The study also showed that ChatGPT is the used AI tool, followed by Grammarly, Turnitin, Gemini and Claude. Students mainly use AI for writing, summarizing, practicing, coding and research. The study showed that when students like AI tools and use them a lot it helps them learn better and do better in school.

The study found some problems with using too much AI. Relying much on AI can hurt thinking on their own, creativity and problem-solving. Issues like copying, wrong info and privacy are problems. Some students might depend much on AI answers without fully getting the ideas, which can hurt real learning and skills.

The study says AI tools can help a lot when used right and with care. AI should be a help for learning, not a replacement for teachers and people. Schools need to guide students on using AI and teach them to think and learn on their own.

Future Research

Future research can further explore the long-term impact of AI technologies on students' cognitive development, critical thinking skills, and academic behavior. More studies are needed to examine how AI affects different educational levels, learning styles, and subject areas. Researchers can also investigate the effectiveness of AI tools in improving personalized learning, classroom interaction, and student motivation in both online and offline educational environments.

Further research may focus on ethical concerns related to AI in education, including plagiarism detection, privacy protection, bias reduction, and responsible AI usage policies. Studies can also examine the role of teachers and educational institutions in guiding students toward ethical and balanced use of AI technologies. Comparative studies between traditional learning methods and AI-assisted learning systems may provide deeper understanding about the actual educational impact of AI tools.

In addition, future researchers can explore the development of AI-based educational frameworks, training programs, and digital literacy initiatives for students and teachers. Research may also investigate how AI technologies can support inclusive education, accessibility, and skill development in different regions and educational systems. As AI continues to evolve rapidly, continuous research will be essential to ensure that AI technologies contribute positively to education while minimizing potential risks and challenges.

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