

Impact of AI in Research Studies among Arts and Science College Students with Special Reference to Coimbatore District

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ABSTRACT

The fast spread of artificial intelligence (AI) tools is changing how undergraduate students do research in different subjects. This study looks at how AI is affecting research skills, the ways students choose methods, academic honesty and what students think they are learning. The research used a descriptive method, gathering data from 100 final-year students in arts and science colleges through a survey. It also included 100 student researchers who had structured interviews. The data was analyzed both quantitatively and qualitatively. The quantitative part looked at how often and for what reasons students used AI tools like for finding literature, analyzing data, helping with writing and managing citations. It also looked at how students rate their research skills and their feelings about AI. The qualitative part explored students' experiences, the benefits they saw and their worries about ethics. The results show most students use AI regularly for finding information and writing drafts. They say it helps them work faster and come up with better ideas, but there is variation in how it impacts their ability to critically evaluate sources and use proper research methods. Teachers and students mentioned saving time and getting more sources, but also worried about becoming too dependent on AI, the risk of plagiarism and less development of important research skills like careful analysis and understanding statistics. Students who were taught how to use AI responsibly were better at using it with good research methods and felt more confident in their results. The study suggests that colleges should include AI education in their research courses, create rules for using AI ethically and train teachers to help students think critically about AI. These steps can help make the most of AI's benefits while keeping research quality and academic honesty high in Coimbatore's universities.

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KEYWORDS: Artificial Intelligence, Research Studies, Arts and Science College Students.

INTRODUCTION

In recent years, Artificial Intelligence (AI) has become one of the biggest changes in higher education and research. Its use in academic work has changed how students collect information, analyze data and present their research findings. AI tools like ChatGPT, Grammarly, Scite and research databases with smart algorithms have become important parts of the research process. These tools help students find information, create content and improve the accuracy and speed of their work. Yet, as students use AI more, there are important questions about originality, academic honesty and the development of their own research abilities. In arts and science colleges, research has always focused on building critical

thinking, creativity and analytical skills. The rise of AI has changed this by making tasks like reviewing literature, interpreting data and writing academic papers faster and easier. Some experts say AI helps students improve their research skills and encourages innovation, but others worry that too much reliance on technology could harm intellectual growth and creativity. Coimbatore District, which is a major educational center in Tamil Nadu, has many arts and science colleges where students are using AI tools more and more in their studies and research. Understanding how AI affects research among these students is important to see both its advantages and possible issues. This study looks at how AI influences

the quality, efficiency and ethics of student research, as well as students' views and knowledge of AI-based tools. It also aims to find out how much AI helps in building skills like problem-solving, data analysis and academic writing. Moreover, it examines the challenges students and teachers face when using AI properly in research. By focusing on Coimbatore District, this research offers useful insights on how educational institutions can use technology wisely while maintaining academic standards and promoting responsible AI use in higher education.

DEFINITION

Definition of Artificial Intelligence

"Artificial Intelligence is the capability of a machine to imitate intelligent human behavior, including learning, reasoning and self-correction."-**Russell, S. J., & Norvig, P. (2021)**.

STATEMENT OF THE PROBLEM

The fast growth of Artificial Intelligence (AI) has changed how higher education, especially research, is done. Students in arts and science colleges are using AI tools more and more for tasks like finding sources, analyzing data, helping with writing, checking for plagiarism and managing citations. These tools make research faster, more accurate and more accessible. But they also bring up issues like cheating, original ideas, thinking skills and using AI in the right way. In Coimbatore District, which is a big area for education in Tamil Nadu, students from arts and science colleges are using AI for their research more quickly than before. However, how much AI is really helping their research quality, learning skills and ethical behavior isn't well understood. Many students use AI without knowing how it works or its limits, which can cause problems like depending too much on technology, not thinking as much on their own and accidentally copying others' work. Also, there isn't much awareness or clear rules in schools about how to use AI properly in research. Because of this, this study looks into how AI is affecting the research habits of arts and science college students in Coimbatore District. It wants to find out how AI changes their research speed, creativity, knowledge of research methods and how well they follow academic rules. The study also wants to learn about the difficulties, feelings and views of both students and teachers about using AI in research.

SCOPE OF THE STUDY:

This study looks at how Artificial Intelligence (AI) is affecting research work among students in arts and science colleges in the Coimbatore District of Tamil Nadu. The main goal is to understand how AI tools and apps are changing how students approach their research, develop their skills and maintain academic honesty. It also explores how AI helps in making

research more efficient, encouraging innovation and improving the accuracy of data. At the same time, it looks at the difficulties AI brings in keeping research original and upholding ethical standards. The study includes both undergraduate and postgraduate students who are working on research projects and dissertations across different subjects in arts and science. It also includes the viewpoints of teachers and research supervisors, who help students, learn how to use AI tools properly and follow good research practices. The research looks at common AI tools like ChatGPT, Grammarly, Mendeley, QuillBot and AI-powered data analysis programs. It checks how these tools help with reviewing literature, writing, doing statistical analysis and presenting research results. The study is focused on selected arts and science colleges in Coimbatore District, including both urban and semi-urban ones. It does not include colleges in engineering, management or medicine, since the focus is on students in arts and science fields. The results of this study should help teachers, policy makers and school administrators create better guidelines and course plans that encourage the smart and safe use of AI in academic research. It also aims to help students learn how to use AI in their research while still developing their thinking skills, analytical abilities and ethical standards.

REVIEW OF LITERATURE

Sharma, P., & Mehta, R. (2022) this study explored AI tools influence students' approaches to academic research, focusing on their use of applications like Grammarly, Mendeley and AI-based writing assistants. The findings revealed that AI tools significantly improved students' ability to gather and organize information, enhanced language quality and reduced time spent on repetitive research tasks. However, the study also highlighted ethical concerns, including over-reliance on AI-generated content and the potential for plagiarism. The authors concluded that while AI contributes to research efficiency, structured guidance and AI literacy are essential for responsible usage in higher education institutions. Universe of the Study: Undergraduate students pursuing arts and science programs in urban colleges in India. Sampling Method: Stratified random sampling method was adopted to ensure representation from both arts and science streams. Sample Size: 250 students from five major colleges were selected.

Johnson, L., & Thomas, K. (2023) this study examined the relationship between AI adoption and research skill development among college students. It found that students who frequently used AI for literature search and statistical analysis reported greater confidence and precision in their research

output. However, many participants lacked awareness of data privacy and ethical implications. The study emphasized the need for colleges to incorporate AI ethics and training into research methodology courses. The researchers recommended developing institutional frameworks to balance AI-driven efficiency with academic integrity. **Universe of the Study:** College students engaged in undergraduate and postgraduate research projects in Tamil Nadu. **Sampling Method:** Purposive sampling technique was used to select students who had prior experience using AI tools in research. **Sample Size:** 300 respondents from arts and science colleges across Tamil Nadu, including 60 from Coimbatore District.

Krishnan, D., & Selvaraj, M. (2024) this study specifically investigated how AI applications affect the research competency and academic behavior of arts and science students in Coimbatore. The results indicated that AI tools are widely used for citation management, grammar correction and summarizing research papers. Students perceived AI as a valuable aid for improving presentation and structure though faculty members expressed concern about the decline in originality and analytical depth. The study also found that institutions lack clear policies regarding AI use in academic research. The authors suggested that integrating AI training modules and ethical awareness programs could strengthen responsible research practices among students. **Universe of the Study:** Arts and science colleges in Coimbatore District affiliated with Bharathiar University. **Sampling Method:** Non-probability convenience sampling was employed due to the availability of respondents and institutional consent. **Sample Size:** 200 final-year students and 20 faculty research supervisors participated in the study.

Methodology of the Study

Objectives of the Study

- To study the personal profile of the respondents.
- To access the impact of Artificial Intelligence (AI) in research studies among arts and science college students.

Finds of the Study

Factors	MEDIUM	FREQUENCY	PERCENT
Age	17yrs-23yrs	72	72%
Gender	Female	69	69%
Education Qualification	UG	64	64%
No. of Dependents	1-2	71	71%
Locality	Semi urban	75	75%
Socio economic background	Upper –middle	68	68%
Fathers educational qualification	12 th	62	62%
Fathers Occupation	Private employee	72	72%
Family monthly income (in Rs.)	Rs.35,000- Rs.50,000	71	71%
Students Hobbies	Music Listening and Playing games	73	73%

- To discover the association between personal profile and impact of Artificial Intelligence (AI) in research studies among arts and science college students.
- To assess the difference between personal profile and impact of Artificial Intelligence (AI) in research studies among arts and science college students.
- To study the influence of impact of Artificial Intelligence (AI) in research studies among arts and science college students.

Research Design: The present study is descriptive in nature, aiming to examine and describe the personal profiles and impact of Artificial Intelligence (AI) in research studies among arts and science college students.

Universe of the Study: The universe of the study comprises arts and science college students in Coimbatore District. From this population, the researcher selected a total of 100 students to constitute the study sample.

Sampling: A non-probability sampling method was adopted for the study. Specifically, purposive random sampling was engaged to identify and select respondents who met the criteria relevant to the study objectives. Using this method, 100 students from arts and science college students in Coimbatore were selected as the sample for data collection.

Tools for Data Collection: Data were collected using a self-structured questionnaire designed to impact of Artificial Intelligence (AI) in research studies among arts and science college students.

Data Analysis: The collected data were analyzed using various statistical tools, including simple percentage analysis, independent t-test and ANOVA, to interpret the findings and derive meaningful conclusions regarding the impact of Artificial Intelligence (AI) in research studies among arts and science college students.

Simple Percentage Analysis

- Majority (72%) of the respondents is in the age group between 17yrs-23 yrs.
- Majority (69%) of the respondents have female.
- Majority (64%) of the respondents have education qualification UG.
- Nearly (71%) of the respondents have numbers of dependents of 1-2.
- More than (75%) of the respondents have locality in semi urban.
- Majority (68%) of the respondents have socio economic background of upper middle.
- Majority (62%) of the respondents have 12th of father's educational qualification.
- Majority (72%) of the respondents have occupation of private employee.
- Majority (71%) of the respondents have family monthly income of Rs.35,000-Rs.50,000.
- Majority (73%) of the respondents have music listening and playing games of students hobbies.

DISTRIBUTION OF THE RESPONDENTS BY LEVEL OF IMPACT OF ARTIFICIAL INTELLIGENCE (AI) IN RESEARCH STUDIES

S. No	Impact of Artificial Intelligence (AI) in research studies	Number of Respondents	Percentage %
1	High	65	65
2	Moderate	15	15
3	Low	20	20
TOTAL		100	100

INTERPRETATION

The above table highlights the artificial intelligence to reduce parental burnout during children's homework supervision level of the respondents. It is understood from the above table that 65 percent of the respondents have high level of impact of artificial intelligence (AI) in research studies, 15 percent of the respondents have moderate level of impact of artificial intelligence (AI) in research studies and 20 percent of the respondents have a low level of impact of artificial Intelligence (AI) in research studies.

Influence of Personal Profile and Level of Impact of Artificial Intelligence (AI) in Research Studies

Variables	Statistical tool	Value	Result
Age and Impact of Artificial intelligence (AI) in research studies	Chi-Square	7.205(a) (P=.000 < .005)	Significant
Gender and Impact of Artificial intelligence (AI) in research studies	Chi-Square	4.064 (a) (P=.000 > .106)	Not Significant
Educational Qualification and Impact of Artificial intelligence (AI) in research studies	t-test	t=7.225 P = .001< 0.05	Significant
No. of Dependents and Impact of Artificial intelligence (AI) in research studies	t-test	t=4.205 P = .002< 0.05	Significant
Locality and Impact of Artificial intelligence (AI) in research studies	t-test	t=8.225 P = .004< 0.05	Significant
Socio Economic Background and Impact of Artificial intelligence (AI) in research studies	ANOVA	F=5.125 P = .000< 0.05	Significant
Fathers Educational Qualification and Impact of Artificial intelligence (AI) in research studies	ANOVA	F=.346 P = .115> 0.05	Not-Significant
Fathers Occupation and Impact of Artificial intelligence (AI) in research studies	ANOVA	F=9.275 P = .012< 0.05	Significant
Family monthly income (in Rs.) and Impact of Artificial intelligence (AI) in research studies	ANOVA	F=.505 P = .114> 0.05	Not-Significant
Students hobbies and Impact of Artificial intelligence (AI) in research studies	ANOVA	F= 6.122 P = .001< 0.05	Significant

- There is a significant association between age and the level of Impact of Artificial intelligence (AI) in research studies.
- There is a no significant association between gender and the level of Impact of Artificial intelligence (AI) in research studies.

- There is significant difference in the education qualification and the level of Impact of Artificial intelligence (AI) in research studies.
- There is significant difference in the number of dependents and the level of Impact of Artificial intelligence (AI) in research studies.
- There is significant difference in the locality and the level of Impact of Artificial intelligence (AI) in research studies.
- There is significant difference in the socio economic background and the level of Impact of Artificial intelligence (AI) in research studies.
- There is no significant difference in the fathers education and the level of Impact of Artificial intelligence (AI) in research studies.
- There is significant no difference in the fathers occupation and the level of Impact of Artificial intelligence (AI) in research studies.
- There is no significant difference in the family monthly income and the level of Impact of Artificial intelligence (AI) in research studies.
- There is significant no difference in the students hobbies and the level of Impact of Artificial intelligence (AI) in research studies.

Recommendations

- Arts and Science Colleges should include AI-based subjects, tools and methodologies in their academic curriculum to enhance students' research capabilities.
- Regular seminars and workshops should be organized to educate students about the importance, applications and ethical use of AI in research.
- Students from arts, science and technology streams should be motivated to collaborate on AI-driven research projects to promote innovation and cross-disciplinary learning.
- Colleges should offer students access to AI research tools, data analytics platforms and simulation software to support their academic projects.
- Students must be guided to use AI responsibly, ensuring respect for data privacy, originality and unbiased research outcomes.
- Training programs should be conducted to improve students' skills in data handling, coding and AI applications relevant to their field of study.
- Teachers should mentor students in using AI effectively for research, helping them design studies, analyze data and interpret AI-generated results accurately.
- Colleges should establish AI-focused research and innovation centers that provide resources and support for student-led research initiatives.
- Institutions can partner with industries and research organizations to provide students with real-time exposure to AI applications in research and development.
- Scholarships, awards and recognition should be given to students who incorporate AI tools effectively in their research work to encourage broader participation.

CONCLUSION

The integration of Artificial Intelligence (AI) in research studies among Arts and Science college students has revolutionized the way knowledge is explored, analyzed and presented. AI has empowered students to conduct research more efficiently by simplifying data collection, improving data accuracy and providing deeper insights through intelligent analysis tools. It has enhanced creativity, innovation and problem-solving skills among learners, enabling them to approach research with a modern and scientific perspective. Moreover, AI has bridged the gap between traditional and digital learning, allowing students from both arts and science streams to utilize technology for multidisciplinary research. However, challenges such as limited awareness, lack of technical expertise and ethical concerns must be addressed through proper training and institutional support. In conclusion AI serves as a powerful catalyst in transforming the research culture among Arts and Science college students. With adequate guidance, ethical awareness and access to AI resources, students can leverage AI not only to enhance the quality and credibility of their research but also to contribute meaningfully to academic advancement and societal development particularly in regions like Coimbatore District, where educational innovation is rapidly growing.

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