Exploring Awareness, Usage, and Ethical Concerns of AI in Academic Research: A Perspective Study

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Abstract

Artificial intelligence (AI) in academic research has transformed our approach to traditional methods, enhancing efficiency, accuracy, and collaboration. This study examines the awareness of AI tools among research scholars in different academic fields in India, how they use them, and the ethical challenges they face. In this study, we surveyed forty-six research scholars using a structured questionnaire to explore their experiences with AI tools, their ethical concerns, and the level of support they receive from their institutions. People are becoming more comfortable using basic AI tools such as Grammarly and ChatGPT, but there is still a lack of understanding when it comes to more advanced applications in areas like data analysis and literature review. There are concerns about ethical issues such as data privacy, AI model bias, and overdependence that are becoming increasingly prominent. Many scholars are also expressing a desire for support and guidance from institutions regarding the ethical practices of AI. The findings highlight an important need for focused training, better mentorship, and ethical guidance to help scholars use AI tools responsibly in their academic research.

Keywords: Artificial Intelligence, Academic Research, Research Scholars, AI Tools, Ethics in AI, Data Privacy, India, AI Awareness, AI in Higher Education

Introduction

The application of artificial intelligence (AI) has emerged as a significant influence in the dynamic domain of academic research. Artificial intelligence focuses on creating systems that can execute tasks necessitating human cognitive abilities by algorithms, machine learning (ML), deep learning (DL), and neural networks, primarily through computer systems. This involves processes such as learning (acquiring information and rules for its use), reasoning (using the rules to reach approximate or definite conclusions), self-correction, language comprehension, and problem-solving (Russell & Norvig, 2021). Artificial intelligence is notable in research for its capacity to process and analyse large volumes of data efficiently and

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precisely. In contrast to conventional approaches, AI possesses the capability to discern intricate patterns, forecast results, and reveal previously undiscovered information (Zhang, 2020). Artificial intelligence (AI) refers to the methodologies employed in academic research for processing, analysing, and interpreting data through computer algorithms and statistical models. AI is rapidly transforming various aspects of contemporary society, including academic research.

Artificial Intelligence (AI) has evolved significantly since its inception in the mid-20th century. The journey began in the 1940s when Warren McCulloch and Walter Pitts introduced a model of artificial neurones, setting the stage for neural networks (History of Artificial Intelligence, JavatPoint, n.d.). The term "artificial intelligence" was coined by John McCarthy in 1956 during the Dartmouth Conference, marking the official birth of AI as a field (Copeland, 2024; History of Artificial Intelligence, JavatPoint, n.d.). The following decades, particularly the 1960s and 1970s, saw the emergence of early AI programs like ELIZA and SHRDLU, showcasing the potential for natural language processing and problem-solving (Copeland, 2024). However, the field faced challenges during the "AI Winter" in the mid-1970s due to funding cuts and unmet expectations. A revival occurred in the 1980s with the rise of expert systems, followed by significant advancements in machine learning in the 1990s, particularly the back propagation algorithm. The 21st century has ushered in a new era of AI, characterised by remarkable growth fuelled by enhanced computational power, big data, and deep learning techniques. This has led to groundbreaking achievements, including IBM's Watson, Google's AlphaGo, and OpenAI's GPT models (Copeland, 2024).

Artificial Intelligence (AI) seeks to replicate human intelligence, enabling systems to operate autonomously across various applications, including ridesharing, shopping, power electronics, transportation, and healthcare. Its potential as a market differentiator has attracted significant interest from multiple industries, prompting governmental support and funding due to the importance of AI advancements for national security and economic competitiveness (Abadi et al., 2020). As the academic community increasingly engages with AI technologies, understanding their impact on research methodologies, conclusions, and knowledge creation becomes essential (Lee, 2023). AI also has significantly transformed academic research by enhancing efficiency, accuracy, and collaboration. One major contribution is the automation of repetitive tasks, such as data collection, analysis, and literature reviews, which allows researchers to concentrate on more complex aspects of their work (Chubb et al., 2021). AI-driven literature review systems can swiftly analyse thousands of academic papers, providing

concise summaries to help researchers stay informed about the latest developments in their fields (Slimi, 2023). It is increasing both speed and efficiency while opening up novel research avenues. Furthermore, AI algorithms excel at analysing large datasets, revealing patterns and correlations that might elude human researchers, particularly in data-intensive disciplines like genomics and social sciences (Abbadia, 2023; Tang et al., 2020). Predictive modelling using AI can forecast future trends, aiding decision-making in areas such as epidemiology and environmental science (Chubb et al., 2021). Additionally, AI-powered collaboration tools facilitate data sharing and interdisciplinary research, fostering new insights (Abbadia, 2023). The peer review process is also enhanced, with AI assisting in identifying reviewers and checking for plagiarism, thereby expediting evaluations (Lund et al., 2024; Schintler et al., 2023). However, as AI's role expands, ethical considerations regarding data accuracy, bias, and transparency in model development become paramount (Lund et al., 2024; Pigola et al., 2023).

Artificial Intelligence (AI) has introduced a variety of tools that significantly enhance the efficiency and effectiveness of academic research. Notable among these is Semantic Scholar, which employs natural language processing to analyse academic papers, providing summaries and identifying key insights to streamline literature reviews (Ardem, 2024). Elicit utilises semantic search to help researchers find relevant literature and summarise papers, keeping them updated with the latest research developments (Unriddle, 2024). Another useful tool, Consensus AI, filters research papers based on quality and relevance, facilitating quick access to pertinent studies (Unriddle, 2024). Scite.ai enhances credibility by providing real citations and measuring the accuracy of research claims, ensuring that researchers can support their work with reliable sources (Unriddle, 2024). Additionally, Research Rabbit builds a research library and offers recommendations for new papers, helping researchers discover relevant studies (Chaturvedi, 2024). Tools like PaperPal streamline academic writing and journal submission processes, integrating features like grammar checks and citation management (Unriddle, 2024). For qualitative data analysis, Maestra and ATLAS.ti assist in transcribing and visualising data. For quantitative analysis, Power BI enables researchers to visualise data trends. Finally, Scribbr serves as an AI-powered proofreading tool, improving clarity and style in academic writing (Ardem, 2024). More AI tools, particularly academic research shown in Figure 1:
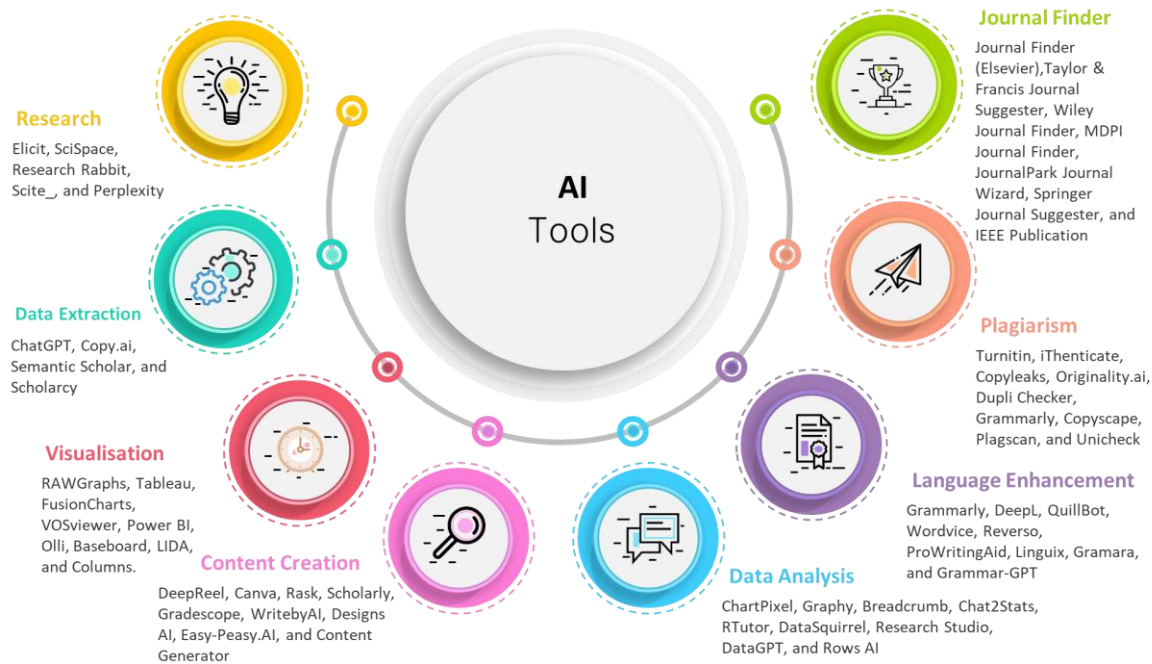
Figure 1: AI tools used as academic assistants to enhance the overall learning process and foster collaboration between students and teachers.

Artificial intelligence facilitates the resolution of complex issues that conventional approaches frequently fail to address, allowing for the analysis of extensive datasets and the creation of predictive models that produce innovative insights across various disciplines. The efficiency of processes is especially vital in dynamic fields such as genomics and climate science, where swift outcomes can greatly impact policy and practice. Furthermore, AI facilitates interdisciplinary research by offering flexible methodologies that promote collaboration among diverse fields, thereby enhancing academic inquiry and driving innovation. AI technologies enhance the integrity of academic research by aiding in plagiarism detection, data verification, and the facilitation of unbiased peer reviews, thereby ensuring the credibility of published work. Understanding the current and potential future impact of AI is essential for preparing the next generation of researchers. This study seeks to address the existing gap by examining the current utilisation and awareness of AI tools among research scholars in India, where there are no organisational or institutional guidelines for the use of AI tools in academic research that have been established. This study aims to analyse the AI tools in use and the perception about the associated ethical issues.

Objectives of the Study

1. To study the awareness of research scholars across various academic fields regarding applications of AI tools.

2. To identify AI tools that are currently being used in academic research among scholars.

3. To study the perception of research scholars regarding ethical concerns and guidelines about the use of AI in academic research.

Research Methodology

The target population consists of research scholars, and the research methodology involves selecting 46 participants via convenience sampling. A closed-ended structured questionnaire was employed, aligned with the study's objectives, to gather quantitative data regarding various aspects of the research experience. Statistical software will be employed for data analysis to provide descriptive statistics. Simultaneously, researchers emphasise ethical considerations by guaranteeing informed consent and upholding participant confidentiality.

Data Analysis and Interpretation

This section analyses the data based on the objective of the study:

It is important to comprehend the fundamental demographic information of the research scholars and the ways in which their academic pursuits and experiences are influenced by a variety of factors, including their educational background and stream.

Table 1: Responses of Affiliated Institution from Pursuing Ph.D.

What type of institution are you affiliated with pursuing a Ph.D.?	N	%
Central University	44	95.7%
State University	1	2.2%
Research Institute	1	2.2%

Table 2: Responses Ph.D. in Disciplines

Which discipline are you pursuing a Ph.D.?	N	%
Humanities and Social Science	13	28.3%
Science, Technology, Engineering and Mathematics (STEM)	11	23.9%
Education	19	41.3%
Others	3	6.5%

Table 3: Responses of Stage in Doctoral Program

In which stage are you in your doctoral program?	N	%
Early Stage (coursework)	24	52.2%
Middle Stage (Data Collection/Fieldwork)	10	21.7%
Final Stage (Writing Analysis)	12	26.1%

Table 1 reveals that 95.7% of participants are affiliated with central universities. Furthermore, looking at the disciplinary focus, Table 2 shows that a significant portion of research scholars are pursuing Ph.D. in education (41.3%) and humanities and social sciences (28.3%), while those in STEM fields represent a smaller segment at 23.9%. Additionally, Table 3 illustrates that most of the research scholars (52.2%) are just starting their doctoral journeys, which supports the idea that those in the early phases of their studies tend to be more open to exploring and adopting new technologies such as AI. On the other hand, the smaller percentages of research scholars are in the middle (21.7%) and final stages (26.1%). Table 4 reveals that 80 percent of research scholars are utilising AI tools in their doctoral research.

Table 4: Responses of Any AI Tools Used in Doctoral Research

Have you used any tools in doctoral research?	N	%
No	9	19.6%
Yes	37	80.4%

This part examines the awareness and comprehension of AI tools among research scholars, an essential topic of investigation due to the swift adoption of artificial intelligence into academic research.

Table 5: Response of the Awareness of the AI Tool Among the Researcher Scholars

Statements		Percentage
How familiar are you with the AI tools available for academic research?	Very Familiar	17.4%
	Somewhat Familiar	43.5%
	Neutral	30.4%
	Somewhat unfamiliar	4.3%
	Not familiar at all	4.3%

Do you know how to access and use AI tools relevant to your research field?	Yes, I know how to access and use them	50.0%
	I know how to access them but need help using them	21.7%
	I know about them but don't know how to access or use them	17.4%
	No, I don't know about them	10.9%
Have you been introduced to the concept of AI tools in your coursework or research training?	Yes, thoroughly	8.7%
	Yes, somewhat	28.3%
	No, but I am aware of them through other sources	47.8%
	No, I have not been introduced to them	15.2%
Do you believe that understanding AI tools is essential for your research?	Strongly Agree	37.0%
	Agree	45.7%
	Neutral	13.0%
	Disagree	2.2%
	Strongly Disagree	2.2%
How confident are you in your ability to evaluate the quality and reliability of AI tools used in research?	Very Confident	19.6%
	Somewhat Confident	43.5%
	Neutral	28.3%
	Somewhat Unconfident	2.2%
	Not Confident	6.5%

Table 5 indicates a significant engagement with AI tools among scholars, with approximately 61% of respondents reporting at least some level of familiarity. Despite this positive trend, a notable 30.4% remain neutral, reflecting uncertainty regarding their familiarity. Access and utilisation of these tools show that while 50% of scholars feel confident in using them, 21.7% require assistance, and 17.4% lack both access and knowledge. This highlights a pressing need for targeted training and support. Furthermore, only 8.7% reported receiving thorough exposure to AI tools in their coursework, with 47.8% becoming aware through informal channels, suggesting a critical gap in formal education on the subject. The importance of AI tools in research is widely recognised, with 82.7% agreeing that understanding them is essential. However, confidence in evaluating the quality and reliability of these tools varies,

with only 63.1% feeling confident, indicating potential areas for development in training. Despite this positive trend, a notable 28.3% remain neutral.

General, there is a foundational awareness of the significance of AI tools in academic research; it is evident that more structured support and comprehensive training programs are necessary. Academic institutions should prioritise integrating AI tool education into their curricula and research training, enhancing scholars' confidence and capabilities in effectively utilising these technologies.

Table 6: Responses of Awareness of AI Tools

Awareness of AI tools	Percentage of Yes	Percentage of No
Natural Language Processing tools (e.g., Grammarly, ChatGPT)	93.5%	6.52%
Data analysis tools (e.g., IBM Watson, Tens or Flow)	10.9%	89.13%
Literature review tools (e.g., Iris.ai, Research Rabbit)	19.6%	80.43%
Predictive modeling tools (e.g., Google Cloud AI, Azure AI)	10.9%	89.13%
Dalle	2.2%	97.83%
None	4.3%	95.65%

Table 6 reveals a pronounced awareness of natural language processing (NLP) tools among research scholars, with an impressive 93.5% familiarity with applications such as Grammarly and ChatGPT. In contrast, only 10.9% of respondents are aware of data analysis and predictive modelling tools, which is concerning given the reliance on data analytics in research. Similarly, awareness of literature review tools, at just 19.6%, indicates a missed opportunity for scholars to improve their research efficiency through better organisation and synthesis of literature. The remarkably low awareness of DALL-E, at only 2.2%, highlights its niche appeal, likely due to its lesser relevance to conventional research tasks compared to text-based tools. There is a pressing need to raise awareness of other AI tools that could enhance their research practices. Educational initiatives and workshops focused on data analysis and literature review tools are essential to bridging this knowledge gap. Furthermore, comprehensive training programs that encompass a broader range of AI tools relevant to research will empower scholars to leverage technology effectively in their work.

Table 7: Responses of Support and Resources for Enhancing Understanding and Utilization of AI Tools in Research

Support and Resources	Percentage of Yes	Percentage of No
Workshops or Seminars	58.7%	41.30%
Online Tutorials or Courses	58.7%	41.30%
Guidance from faculty or mentors	37.0%	63.04%
Access to AI tool experts	32.6%	67.39%
None	6.5%	93.48%

Table 7 highlights a notable interest among research scholars in expanding their knowledge of AI tools, with 58.7% expressing a desire for workshops or seminars that offer interactive, hands-on learning experiences. This strong interest in structured learning is mirrored by a similar percentage (58.7%) seeking online tutorials or courses, emphasising the importance of flexible, self-paced educational options that accommodate the busy schedules of researchers. However, only 37.0% of respondents sought guidance from faculty or mentors, suggesting potential barriers to mentorship engagement, such as availability or the mentors' own familiarity with AI tools. Additionally, just 32.6% expressed a need for access to AI tool experts. Furthermore, a small 6.5% of respondents indicated they did not require any support. The table above indicates a significant demand for training materials, especially seminars and online tutorials, to enhance scholars' understanding of AI techniques. There exists an opportunity to improve mentorship by urging instructors to adopt a more proactive approach in facilitating their students' development. The restricted interest in engaging AI professionals may indicate a deficiency in awareness, implying that enhancing the visibility of these resources could prove advantageous.

The second objective examines how researchers are employing AI technologies to improve their research methodologies, encompassing data analysis, literature reviews, and collaborative initiatives. Analysing the scope and effects of AI tool utilisation among academics provides critical insights into the potential and difficulties these breakthroughs pose within the scholarly context.

Table 8: Responses of frequency of uses of AI tools in research

How frequently do you use AI tools in your research?	Percent
Rarely	30.4
Monthly	6.5
Weekly	37
Daily	26.1
Total	100

Table 8 shows that weekly usage is the most common, with 37% of respondents indicating they utilise AI tools on a weekly basis. Moreover, 26.1% of respondents reported daily usage of AI tools, indicating a significant reliance on these resources for various research tasks. Conversely, a notable 30.4% of respondents reported using AI tools rarely, which points to a substantial segment of scholars who may not fully recognise the value or may lack access to these tools in their research activities. The trend suggests that AI tools are increasingly becoming a regular component of scholars' research processes, reflecting a growing acceptance and integration of technology within academia.

Table 9: Responses of AI tool used in research for specific purposes

AI tools used in research	Percentage of Yes	Percentage of No
Natural Language Processing tools (e.g., Grammarly, ChatGPT)	89.1%	10.87%
Data Mining and Analysis Tools (e.g., IBM Watson, TensorFlow)	6.5%	93.48%
Literature review tools (e.g., Iris.ai, Research Rabbit)	10.9%	89.13%
Predictive modeling tools (e.g., Google Cloud AI, Azure AI)	13.0%	86.96%
Research paper summariser tools (such as Scholarcy/POPAi/Scisspace, Scopus Ai)	15.2%	84.78%
AI-Powered Research Paper Writing Assistants	10.9%	89.13%
References tools (Google Scholar, Zotero, Mendeley, Endnote, etc.)	52.2%	47.83%
NA	2.2%	97.83%

Responses in Table 9 indicate that a significant proportion of scholars use Natural Language Processing (NLP) tools, with 89.1% of respondents employing applications such as Grammarly

and ChatGPT. The data also reveals a significant disparity in the frequency of data mining and analysis tool usage, with only 6.5% of respondents reporting their utilisation. Furthermore, the engagement with literature review tools is just 10.9%, indicating a substantial opportunity for researchers to augment their scholarly endeavours by refining their methods of organising and synthesising existing material. Engagement with predictive modelling stands at 13.0%, while research paper summarisation tools account for 15.2%, indicating significant opportunity for enhancement and more training in these areas. Notably, 52.2% of respondents utilise reference management programs such as Google Scholar, Zotero, and Mendeley, indicating a clear comprehension of the need of organising citations in academic writing. Notably, only 2.2% of respondents indicated they do not utilise any AI tools, underscoring that the bulk of scholars are adopting some degree of AI technology in their research endeavours. The institutions should consider providing seminars or courses to enhance the utilisation of underused technologies, particularly in domains such as literature review and predictive modelling, which might significantly enhance the research experience for all participants.

Table 10: Responses of types of AI tools used in research

AI tools arefrequently used in research works	Percentage of Yes	Percentage of No
ChatGPT	78.3%	21.7%
Google Gemini	30.4%	69.6%
Research Kickstart	4.3%	95.7%
Grammarly	69.6%	30.4%
QuillBot	65.2%	34.8%
Microsoft Copilot	15.2%	84.8%
PDF.ai	6.5%	93.5%
Consensus	2.2%	97.8%
WordAi	6.5%	93.5%
Research Rabit	6.5%	93.5%
N/A	2.2%	97.8%

Table 10 demonstrates the growing trust of scholars in AI tools, with 78.3% of respondents using ChatGPT as their preferred option. Similarly, Grammarly has garnered significant adoption, with 69.6% of scholars using it to enhance their writing, a crucial aspect of academic practices. Furthermore, 65.2% of research scholars use QuillBot for writing assistance and text enhancement. Additionally, 30.4 percent of research scholars also used Google Gemini. The utilisation of alternative tools such as Microsoft Copilot (15.2%) and Research Kickstart

(4.3%) remains relatively low. The data indicates a distinct preference for writing assistance tools, as evidenced by the prevalent use of ChatGPT, Grammarly, and QuillBot, all of which significantly enhance writing quality in research. The limited adoption of tools like Microsoft Copilot and Research Kickstart presents an opportunity for educational initiatives to demonstrate their benefits.

Table 11: Responses of benefits of AI tool used in research

Benefits of using AI in research	Percentage of Yes	Percentage of No
Increased efficiency	52.2%	52.2%
Improved accuracy	52.2%	52.2%
Enhanced data analysis capabilities	19.6%	19.6%
Time savings	69.6%	69.6%
Better research insights	43.5%	43.5%
No major impact	2.2%	2.2%

Table 11 demonstrates the impact of AI tools on research practices. Notably, 52.2% of research scholars acknowledged that AI tools contribute to improvements in both efficiency and accuracy. Furthermore, 69.6% of researchers believe that AI tools enhance the efficiency of their research processes, thereby conserving valuable time. Conversely, only 19.6% of respondents identified enhanced data analysis capabilities as a benefit. Additionally, 43.5% of researchers contend that AI tools provide more significant research insights. The perception of time savings as a significant advantage of AI tools may result in increased adoption among users. The diverse perception of efficiency and accuracy emphasises the importance of improving comprehension and demonstrating the capabilities of AI. The data also suggests that research scholars perceived the AI tool as ineffective in data analysis.

Table 12: Responses of benefits of AI tool used in research

Statements		Percentage
How effective were the AI tools in supporting the presentation of papers?	Extremely Effective	6.5%
	Very Effective	21.7%
	Moderately Effective	28.3%
	Slightly Effective	39.1%
	Not Effective	4.3%
How did the AI tools impact the clarity and effectiveness of paper presentations?	Major Impact	4.3%
	Significant Impact	41.3%
	Moderate Impact	39.1%
	Minor Impact	13.0%
	No Impact	2.2%
How has AI impacted the quality of your research?	Significantly Improved	37.0%
	Somewhat Improved	50.0%
	No Impact	8.7%
	Somewhat Worsened	2.2%
	Significantly Worsened	2.2%

Table 12 shows the scholars have various perception of the different questions. In terms of the effectiveness of AI tools in academic paper presentations, just 6.5% of research scholars found these tools to be extremely effective, 21.7% rated them as very effective, and a notable 39.1% viewed them as only slightly effective. When it comes to clarity and effectiveness, 41.3% of those surveyed observed a notable positive effect from AI tools, while 39.1% mentioned a moderate effect. Additionally, an impressive 87% of research scholars acknowledged that AI tools had positively impacted research quality, with 37% noting a significant boost and 50% reporting a moderate improvement. Interesting, 8.7% of research scholars said there was no effect on research quality. This table shows that AI tools improve the quality of research and make presentations more effective.

The third objective explores the ethical implications of AI use in research, emphasising the importance of responsible practices in research.

Table 13: Responses on Challenges of AI Tool Used in Research

Challenges of AI in using research	Percentage of Yes	Percentage of No
Technical difficulties	47.8%	52.2%
Lack of training or knowledge	54.3%	45.7%
Data privacy and security issues	45.7%	54.3%

Ethical Concerns	63.0%	37.0%
Integration with existing tools	23.9%	76.1%
High Cost	32.6%	67.4%

Table 13 highlights various challenges that research scholars encounter when trying to use AI tools effectively. More than half of the respondents, specifically 54.3%, pointed out that a lack of training or knowledge stands out as a major hurdle. Moreover, 63.0% shared their ethical concerns, showing a significant understanding of the issues surrounding bias, transparency, and accountability in the use of AI. Nearly half of the research scholars faced technical difficulties, pointing to possible challenges in usability and accessibility. Nearly half of the scholars expressed worries about data privacy and security, emphasising the need for strong protections and effective practices in managing sensitive information while incorporating AI in research settings. Although just 23.9% faced challenges with integrating into existing workflows, this small percentage indicates that most scholars find the process manageable. However, it's still important to pay attention to the occasional integration issues that may arise. 32.6% of research scholars identified high costs as a challenge, implying that while financial barriers may not affect everyone, they could potentially restrict access for certain scholars. It's clear that tackling ethical concerns with training and open conversations is essential for using things responsibly. Improving user experiences requires better technical support and a strong emphasis on data privacy best practices.

Table 14: Responses on Ethical Consideration of AI Tool Used in Research

Ethical considerations associated	Percentage of Yes	Percentage of No
Adhering to ethical guidelines	69.6%	30.4%
Using anonymised data	26.1%	73.9%
Consulting with ethics committees	21.7%	78.3%
Regularly reviewing AI models for bias	30.4%	69.6%
Not come across such issues	2.2%	97.8%

Table 14 shows the perception of research scholars towards ethical considerations in AI research. A significant 69.6% of research scholars acknowledged how crucial it is to follow ethical guidelines. Nonetheless, it's concerning to see that just 26.1% indicated they were using anonymised data. Moreover, just 21.7% of scholars reported that they seek guidance from ethics committees. Additionally, 30.4% of respondents take the time to regularly check AI models for bias. It's quite revealing that just 2.2% of individuals reported not facing ethical challenges connected to AI in their research. It indicates a strong commitment to ethical

standards, which institutions should keep emphasising in the realm of AI in research. Yet, the limited use of anonymisation practices highlights the need for more emphasis on educating people about data privacy and providing them with the necessary resources. Moreover, fostering stronger connections with ethics committees can enhance scholars' understanding of ethical compliance.

Table 15: Responses on Ethical Concerns of AI Tool Used in Research

Statements	Extremely Concerned	Moderately Concerned	Somewhat Concerned	Slightly Concerned	Not at all concerned
Plagiarism risk (AI-generated content being unoriginal)	41.3%	10.9%	17.4%	26.1%	4.3%
Bias in AI algorithms affecting research outcomes	26.1%	21.7%	21.7%	23.9%	6.5%
Data privacy and security when using AI	41.3%	23.9%	10.9%	19.6%	4.3%
Over-reliance on AI reduces critical thinking	43.5%	19.6%	17.4%	15.2%	4.3%
Ownership and authorship of AI-generated content	28.3%	23.9%	15.2%	19.6%	13.0%

Table 15 reveals important ethical concerns that scholars have about the use of AI in academic research. A notable 41.3% of those surveyed shared deep worries about the potential for AI-generated content to lack originality, while another 10.9% felt moderately concerned. In a similar way, research scholars expressed significant concerns about data privacy and security, with 41.3% expressing extreme concern and 23.9% expressing moderate concern. Furthermore, 43.5% of research scholars express strong concerns about the potential for dependence on AI to weaken critical thinking abilities, while 19.6% express moderate concerns. Furthermore, 26.1% of research scholars expressed extreme concern about bias in AI

algorithms, while 21.7% expressed moderate concern about this issue. Also, 28.3% of research scholars felt extremely worried, and 23.9% of research scholars were moderately worried about the ownership and authorship of AI-generated content. Researchers show a strong understanding of the ethical challenges associated with AI, especially concerning plagiarism, data privacy, and dependence on technology. There is a growing recognition of the importance for institutions to offer clearer guidance and training on ethical practices when it comes to using AI tools. Moreover, tackling bias in AI algorithms is crucial for promoting transparency and fairness in research results. Ultimately, educational programs ought to prioritise nurturing critical thinking skills by highlighting the significance of preserving analytical abilities rather than depending exclusively on AI for research tasks.

Table 16: Responses on Ethical Guidelines of AI Used in Research

Statements	Yes (%)	No (%)
Are you aware of any formal ethical guidelines or policies from any institution or journal regarding AI usage in research?	47.8	52.2
Have you received any formal training or guidance from your institution on the ethical use of AI tools in research?	82.6	17.4

Table 17: Responses on Ethical Guidelines and Training of AI in Research

Statements	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Do you feel your institution should provide more guidance or training on ethical AI usage in research?	60.9	28.3	8.7	0.0	2.2

Table 16 provides insights into how research scholars perceive and receive training on ethical guidelines for using AI in research. Interestingly, just 47.8% of those surveyed reported being aware of any formal ethical guidelines or policies from institutions or journals concerning the use of AI. On the other hand, a significant 82.6% indicated that they had received formal training or guidance regarding the ethical use of AI tools. Institutions should enhance their

communication regarding AI ethical guidelines. Even 89.2% of research scholars agree that there should be more guidelines or training on ethical AI in research (Table 17). It's vital to share information and connect training with awareness. Bringing conversations about current policies into training sessions and making resources easily accessible can really help this process. It's important to keep scholars updated on the latest ethical considerations.

Major Finding

This study revealed that 61% of scholars are familiar with AI tools, yet their confidence in assessing their reliability isn't as strong, with just 63.1% feeling assured about it. This gap highlights the importance of well-organised training programs that not only familiarise scholars with AI technologies but also strengthen their ability to critically assess them. Only 8.7% of respondents reported having formal exposure to AI tools in their academic curricula, highlighting a significant need for educational institutions to fully incorporate AI training into their programs. Moreover, the fact that 58.7% of respondents expressed interest in workshops and online courses highlights a genuine desire for engaging and interactive learning experiences. It demonstrates an understanding of how essential practical skills are for navigating the changing world of research technologies. Yet, the low percentage of individuals seeking mentorship suggests there may be obstacles in place, like the lack of accessible and knowledgeable mentors. It's important for institutions to tackle these issues to create a more nurturing academic atmosphere.

Even though many people are using AI tools such as Grammarly and ChatGPT, there is still a noticeable gap when it comes to using more advanced tools for data analysis and literature review, which points to a promising opportunity for growth, as better training and resources could greatly improve the research methods used by scholars. The ethical aspects of using AI add another layer of complexity to the conversation. Although a significant 69.6% of respondents acknowledge the value of following ethical guidelines, just 26.1% make use of anonymised data, and only 21.7% turn to ethics committees for support. The numbers show a gap between what people know and what they do, highlighting the importance of sharing ethical standards more effectively and creating a stronger framework for applying ethical AI in research.

Conclusion

The data reveals a basic understanding and involvement of research scholars with AI tools, yet it also highlights significant shortcomings in training, ethical practices, and the integration of

these technologies across various fields. The widespread adoption of writing assistance tools indicates a rising openness to AI, but the lack of familiarity with more advanced options implies that scholars might not be tapping into the full potential of AI to improve their research methods. Institutions should focus on creating well-rounded training programs that not only familiarise individuals with AI technologies but also tackle ethical issues and encourage critical thinking. When universities nurture a more knowledgeable and skilled academic community, they can improve the quality and efficiency of research, which in turn enhances the entire scholarly environment. Additionally, focusing more on ethical AI practices is crucial for addressing the challenges of data privacy, bias, and authorship. This approach helps ensure that using AI in research maintains the integrity and rigour that academia requires.

References

Abbadia, J. (2023, July 5). Exploring the role of AI in academic research. *Mind the Graph Blog*. Retrieved October 21, 2024, from https://mindthegraph.com/blog/ai-in-academic-research/

Ardem, S. (2024, May 8). *10 Powerful AI tools for academic Research*. Maestra AI. Retrieved October 21, 2024, from https://maestra.ai/blogs/10-powerful-ai-tools-for-academic-research

Chaturvedi, A. (2024, April 29). *10 Best AI Tools for Academic Research in 2024 (Free and Paid)*. Elephas. Retrieved October 21, 2024, from https://elephas.app/blog/best-ai-tools-for-research

Chubb, J., Cowling, P., & Reed, D. (2021). Speeding up to keep up: exploring the use of AI in the research process. *AI & Society*, *37*(4), 1439–1457. https://doi.org/10.1007/s00146-021-01259-0

Copeland, B. (2024, September 13). *History of artificial intelligence | Dates, Advances, Alan Turing, ELIZA, & Facts*. Encyclopedia Britannica. Retrieved October 21, 2024, from https://www.britannica.com/science/history-of-artificial-intelligence

History of Artificial Intelligence - JavatPoint. (n.d.). www.javatpoint.com. Retrieved October 21, 2024, from https://www.javatpoint.com/history-of-artificial-intelligence

Lund, B., Lamba, M., & Oh, S. H. (2024). The impact of AI on academic research and publishing. *arXiv (Cornell University)*. https://doi.org/10.48550/arxiv.2406.06009

Russell, S., & Norvig, P. (2021). *Artificial intelligence: A modern approach* (4th ed.). Pearson.

Schintler, L. A., McNeely, C. L., & Witte, J. (2023). A Critical Examination of the ethics of AI-Mediated Peer Review. *arXiv (Cornell University)*. https://doi.org/10.48550/arxiv.2309.12356

Slimi, Z. (2023). The Impact of Artificial intelligence on Higher Education: an Empirical study. *European Journal of Educational Sciences*, *10*(1). https://doi.org/10.19044/ejes.v10no1a17

Tang, X., Li, X., Ding, Y., Song, M., & Bu, Y. (2020). The pace of artificial intelligence innovations: Speed, talent, and trial-and-error. *Journal of Informetrics*, *14*(4), 101094. https://doi.org/10.1016/j.joi.2020.101094

Unriddle. (2024). *12 Best AI For Academic Research*. Retrieved October 21, 2024, from https://www.unriddle.ai/blog/ai-for-academic-research

Zhang, H. (2020). Value and development ideas of the application of artificial intelligence in sports training. *Journal of Physics Conference Series*, *1533*(3), 032049. https://doi.org/10.1088/1742-6596/1533/3/032049