

# Ethics, Integrity, and Policy Concerns in using AI Technologies in Scholarly Works

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## Abstract

*The present study digs into the galaxy of Artificial Intelligence (AI) uses in education and learning, particularly scholarly writing. The conceptual approached study put forth concerns about using the AI-enabled technologies for scholarly work in the academic fraternity. Ethics, Integrity, and Policy concerns in using AI technologies by students, faculty members and researchers are presented in the study. AI being a game changer in the field of education and learning in general and scholarly writing in particular, has both positive and negative concerns. Boosting speed, efficiency, correctness in language and grammar, support to creativity and innovation are boon out of the AI enabled assistive technologies for the scholarly work. Whereas the concern of ethics, integrity, morality and ownership of intellectual properties are at stake where AI technologies are used for academic and research work. The reason being the dearth of standard policy documents in the legal and ethical uses of AI technologies in education and learning. Higher Educational Institutions (HEIs) around the world focus on AI research and education by establishing AI Centres, AI Labs, AI Courses, AI Policy initiatives, and Ethical policy formation. These initiatives of Higher Educational Institutions would pay off in framing successful and sustainable futuristic AI policies for mankind.*

**Keywords:** Artificial Intelligence, Scholarly Writing, AI Policies, Ethics in AI, Integrity in AI

## 1. Background

Academic communication refers to the process of producing research as well as other scholarly documents, analysing their quality, disseminating them to the world of academia, and keeping them archived for further study. Discovery, analysis, writing, publications, outreach, and assessment are the part of the process of scholarly communication.

Intellectual writing has come across from the early stand-alone word processor devices to today's Microsoft Word software and Google Docs online, from the personal computer keyboard to the iPad touchscreen, to Artificial Intelligence enabled (AI) assistive technology (Wen & Walters, 2022). Speed and accuracy have always been two major tenants of any kind of writing and technology with dynamic characteristics has helped authors in these aspects. Information communication technologies including software, online



platforms, data visualisation tools and other research tools have widened the process of research and writing.

Artificial Intelligence can be described as the technology that builds systems to think and act like humans with the ability of achieving goals (Selin Akgun & Christine greenhow, 2021). Artificial Intelligence refers to large-scale machines with varied levels of autonomy that may make predictions, recommendations, or decisions that impact real or virtual environments. Any setting where significant amounts of data and information are processed can benefit from AI. These days, AI is a strategic technology for every aspect of human life as long as it is ethical, human-centred, and respectful of fundamental rights and values. Educators, legislators, researchers, and developers must carefully analyze and solve the serious ethical issues that AI also raises (The Ethics of AI in Education: Why It Matters and How to Address It, 2020). While speed and handling voluminous data are the pros and the ethical concern like IPR, biasness are the serious concerns in AI enabled technologies.

The field of education is being completely revolutionized by Artificial Intelligence (AI), which presents new opportunities to improve evaluation, personalize instruction, increase access, and promote equity. Every academic study and writing are guided by ethical and legal considerations. These ethical standards are framed to achieve the goals of 1) making certain that scientific discoveries are accurate, 2) safeguarding the wellbeing and rights of study subjects and participants, and 3) upholding the rights to intellectual property (American Psychological Association, 2020).

Scholarly writing is an articulation of scholarly work by students, faculty members and researchers where the human touch and creativity can't be overdone by any technology. Though, to face the challenges of speed, accuracy and efficiency AI tool can be used as supportive tool in the process of scholarly writing. The announcement of ChatGPT Open AI in 2022, has compelled the academia to debate, research and study the Artificial Intelligence uses in the scholarly work. The concern of Integrity and policy matters in this regard also become futuristic topics of study by many researchers. The present paper is also an attempt to delve in to the concern of academic integrity in uses of Artificial Intelligence enabled technologies in scholarly writing.

## **2. Objective of the Study**

The objective of the present study is to understand the nuances of evolving AI technologies in education and learning. It aims to put forth the concern of academic integrity, advantages and disadvantages of AI enabled technologies in scholarly writing and to explore the policy status of Higher Educational Institutions (HEIs) with regards to uses of Artificial Intelligence in academic and research communication.

## **3. Approach of the Study**

The study uses a conceptual approach, using informal and peer reviewed literature majorly published after 2022, the announcement year of ChatGPT Open AI. The literature includes peer reviewed articles, magazine articles, expert blogs, and website resources of Higher Educational Institutions (HEIs).

#### 4. The Artificial Intelligence

Though it has been there since the 1950s, industries of all kinds have just recently been able to benefit from Artificial Intelligence. With its initial day as a branch of computer science domain, Artificial Intelligence (AI) aims to build intelligent machines that are either as intelligent as or wiser than humans. Then it comes to machine learning in 1990s as subset of AI focusing on algorithms essentially learn from patterns and trends in data without explicitly programmed to do a particular task.

In 2020s Deep Learning evolved as a subset of machine learning that focuses on using neural networks with multiple layers (hence the term “deep”) to learn complex patterns and representations from data. Deep Learning has demonstrated remarkable effectiveness in a wide range of applications, including autonomous driving, medical diagnosis, audio recognition, image identification, and natural language processing. Simultaneously, Generative AI came into picture as a branch of Artificial Intelligence capable producing new instances of data that closely mimic input data. In contrast to Conventional Artificial Intelligence systems, which are mostly employed for tasks related to categorization, prediction, or optimization. Generative AI seeks to produce unique data samples, including text, photos, music, and even whole artworks. In several sectors, Generative AI has the potential to foster creativity, innovation, and automation.

#### 5. The Generative AI

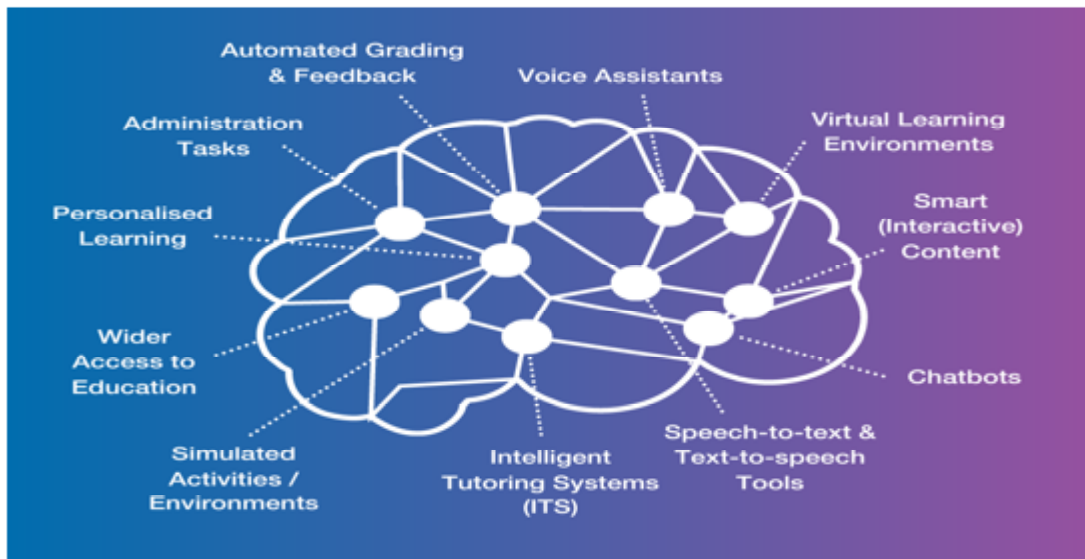
Generative AI, a subset of Artificial Intelligence has the ability to completely change the sectors.

**Table 1: The difference between Traditional AI and Generative AI**

<b>Traditional AI</b>	<b>Generative AI</b>
Often called Weak or Narrow AI	<b>NextGen AI</b> (sometimes known as Strong AI or Creative AI)
Concentrates on carrying out an identified activity in an intelligent way	A subset of AI capable of generating something new.
Capable of learning from data and using that data to inform judgements or forecasts.	Using the piece of information, you gave it, the AI produces something new.
The main functions of traditional AI systems are data analysis and prediction.	However, Generative AI goes one step further by producing fresh data that is comparable to its training set.
Pattern recognition is a strong feature for traditional AI.	While creating patterns is where generative AI shines.
Conventional AI is able to interpret data and report on its observations.	However, the same data can be used by Generative AI to produce completely new stuff.
In task-specific applications, traditional AI still performs admirably. Predictive analytics, recommendation engines, chatbots, and many more applications are powered by it.	Wide-ranging generative AI implications open up new possibilities for creativity and innovation. In the field of design, Generative AI can help shorten the ideation process by producing a large number of prototypes in a matter of minutes.
Example: Alexa, recommendation engines on Netflix or Amazon, or Google’s search algorithm.	Example: ChatGPT, Google Gemini, and DALL-E OpenAI

## 6. Importance of AI in Education and Learning

A growing number of machine learning systems and algorithms are being used to power personalized learning systems, automated assessments, facial recognition software, chatbots (social media websites), and predictive analytics devices in educational environments. Spell checkers, voice assistants, and maps are examples of artificial intelligence-based products that have expedited, simplified, and eased daily tasks.



**Figure 1: AI in Education and Learning**

(Source: <https://www.monash.edu/student-academic-success/build-digital-capabilities/create-online/using-artificial-intelligence>)

## 7. AI Tools for Scholarly Writing

AI tools improve and expedite the research process through the application of AI and ML algorithms. Researchers now have unmatched automation and precision because of these technologies. With the help of AI, researchers may use data to make well-informed conclusions. Researchers can handle enormous datasets and accelerate the rate of discovery with the help of these AI tools. They are fast at locating pertinent data pieces and deriving insightful conclusions. Researchers might potentially profit from AI technologies by using them to get improved insights and prediction capabilities through strong algorithms, extract useful information from unstructured data, and to collaborate with other researchers seamlessly.

Some useful AI tools for scholarly communication.

### Literature Search

- ❖ RESEARCHRABBIT - <https://www.researchrabbit.ai/>
- ❖ CHATPDF - <https://www.chatpdf.com/>
- ❖ SEMANTIC SCHOLAR - <https://www.semanticscholar.org/>
- ❖ IRIS.AI - <https://iris.ai/>
- ❖ SCISPACE - <https://typeset.io/>

### Writing Assistants

- ❖ GOOGLE GEMINI - <https://gemini.google.com/app>
- ❖ COPYAI - <https://www.copy.ai/>
- ❖ CONTENTBOT - <https://contentbot.ai/>
- ❖ JASPER - <https://www.jasper.ai/>
- ❖ RYTR - <https://rytr.me/>

### Grammar and Paraphrasing

- ❖ GRAMMARLY - <https://app.grammarly.com/>
- ❖ QUILLBOT - <https://quillbot.com/paraphrasing-tool>
- ❖ PAPERPAL - <https://paperpal.com/>
- ❖ SCRIBBR - <https://www.scribbr.com/paraphrasing-tool/>
- ❖ WORDTUNE - <https://www.wordtune.com/>

### Citations

- ❖ SCITE - <https://scite.ai/home>
- ❖ JABREF - <https://www.jabref.org/>
- ❖ JENNI - <https://jenni.ai/>
- ❖ Zotero - <https://www.zotero.org/>
- ❖ Endnote - <https://web.endnote.com/>

### Illustrations

- ❖ MIDJOURNEY - <https://www.midjourney.com/>
- ❖ DALL-E 2 - <https://openai.com/dall-e-2>
- ❖ CANAVA - [https://www.canva.com/en\\_in/](https://www.canva.com/en_in/)
- ❖ DEEPDREAM GENERATOR - <https://deepdreamgenerator.com/>
- ❖ ADOBE FIREFLY - <https://www.adobe.com/products/firefly.html>

## 8. Artificial Intelligence (AI) and Academic Integrity

Dishonesty in academia is against the fundamental values of academic integrity, which relies on accountability, transparency, honesty, and trust (Rodrigues et al., 2024). Plagiarism, improper collaboration, exam cheating, copyright infringement, data fabrication, and falsification of bibliographic references are only a few examples of the various ways that academic dishonesty can appear (Kampa et al., 2020). In most of the cases the academic integrity comes into stake in the reporting part in academic research. Scholarly writing like dissertations, theses, project reports, and research manuscripts are chased with ethics and integrity.

The uses of AI and the ethics of using AI in academic work have become an issue of debate among academic stakeholders till then. Questions like, in what ways might AI foster inclusivity, diversity, equity, and accessibility and what benefits and drawbacks might AI have for democratising education (Eaton, 2023) are surrounding academia around the world.

Despite its remarkable potential, Generative AI has been tainted by ethical disputes. Specifically, there has been an ongoing dispute over who owns the vast amounts of data that are made available online for the purpose of training generative AI models (Ibrahim et al., 2023). The difficulty of distinguishing between content produced by algorithms and content made by humans increases with advances of these technologies. In an environment when technology, specifically AI is an essential element of education and learning, ethics and integrity are crucial (Eaton, 2023).

## 9. AI as new normal in Academic Writing

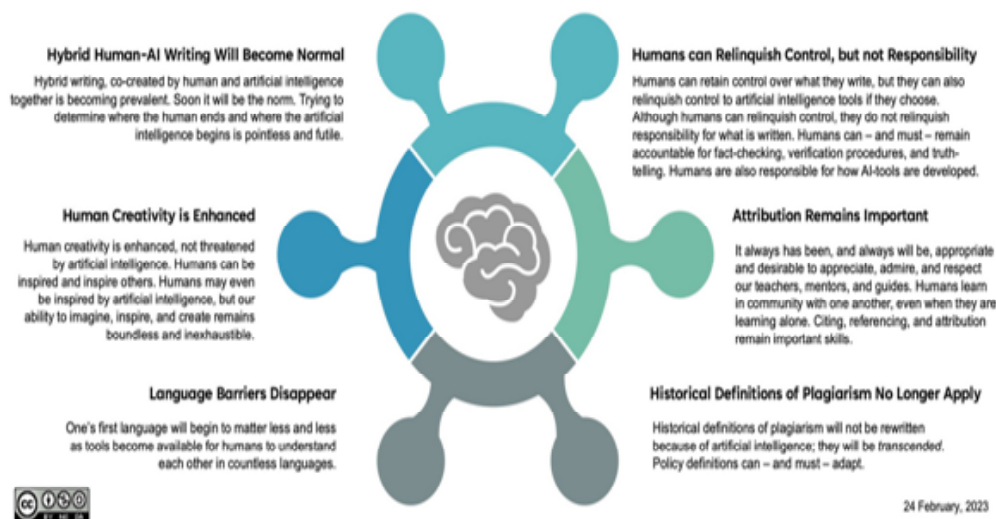


Figure-2: AI and Academic Writing

(Source: <https://edintegrity.biomedcentral.com/articles/10.1007/s40979-023-00144-1/figures/1>)

Concerns with Generative AI are mentioned below:

### **9.1 Accuracy**

Applications that use generative artificial intelligence are not primary sources of information, and it does not care about accuracy, ethics, or ramifications; instead, they use algorithms to find relevant material. However, Generative AI technologies “make up” and “spit out” what they believe to be the correct sequence of words to fill in the blanks; they do not interact with information as humans do.

### **9.2 Bias**

Large volumes of current data are processed by machine learning algorithms in Generative AI, irrespective of the original work’s purpose or initial context. These algorithms’ may favour a particular cultural norms and experiences over others resulting from their training to display the “average” reaction to a prompt. As a result, critical viewpoints on a subject may be ignored or silenced.

### **9.3 Privacy**

The post is used as machine learning material by ChatGPT and other Generative AI technologies which isn’t secure or confidential. User should be careful about providing information to tools like ChatGPT since the proprietors of artificial intelligence generators will keep and use whatever it learns from user and anything user tell it.

### **9.4 Intellectual Property**

Due to its ability to access content from across the internet, AI has raised questions about whether these technologies are plagiarising and stealing copyright. Uncredited sources are used in the “curation” of most of the AI-generated information, which is essentially “curated” from Internet sources.

## **10. Advantages and Disadvantages of AI enabled Technologies in Academic Writing**

Using Artificial Intelligence (AI) in scholarly writing offers several advantages, but it also comes with its own set of disadvantages. Here’s a breakdown:

### **10.1 Advantages**

#### **10.1.1 Efficiency**

Researchers can save time and effort by using artificial intelligence (AI) tools to automate writing process tasks including data analysis, summarization, and citation management.

#### **10.1.2 Data Analysis**

AI systems are capable of quickly and efficiently analysing huge datasets to find patterns, correlations, and trends that human researchers might not be able to see immediately.

### **10.1.3 Language Assistance**

Through grammar, style, and structure recommendations, AI-powered writing aids can support researchers in producing work that is more coherent, clear, and accurate.

### **10.1.4 Content Generation**

AI systems can assist academics jumpstart their writing processes by producing content, including abstracts, summaries, and even first drafts, based on input data and specific requirements.

### **10.1.5 Research Discovery**

AI tools can assist researchers in discovering relevant literature, articles, and papers by analyzing keywords, citations, and content, thus streamlining the literature review process.

### **10.1.6 Collaboration**

AI platforms can facilitate collaboration among researchers by providing shared workspaces, version control, and real-time collaboration features, enabling more seamless teamwork.

### **10.1.7 Accessibility**

AI-enabled tools can make scholarly writing more accessible to individuals with disabilities by providing features such as text-to-speech, screen readers, and language translation.

### **10.1.8 Personalization**

AI algorithms can personalize recommendations and suggestions based on researchers' preferences, writing style, and past behaviour, enhancing the overall writing experience.

### **10.1.9 Quality Control**

AI tools can help maintain quality standards in scholarly writing by detecting errors, inconsistencies, and plagiarism, ensuring that research output meets scholarly integrity requirements.

### **10.1.10 Cross-disciplinary Insights**

AI-powered analysis has the ability to combine knowledge from several academic domains, promoting interdisciplinary study and creativity where various fields collide.

Overall, AI-enabled tools have the potential to revolutionize scholarly writing by enhancing efficiency, improving quality, facilitating collaboration, and enabling new forms of research discovery and innovation.

## **10.2 Disadvantages**

**10.2.1 Quality Concerns:** AI-generated content may lack the depth, critical thinking, and domain expertise that human researchers bring to their work, potentially compromising the quality and integrity of scholarly writing.



### **10.2.2 Bias and Ethics**

AI algorithms may reflect biases present in the data used to train them, leading to biased analysis, recommendations, or content generation. Additionally, ethical concerns arise regarding issues such as privacy, consent, and data security in the use of AI in scholarly research.

### **10.2.3 Over-Reliance**

There's a risk that researchers may become overly reliant on AI tools, potentially overlooking important nuances or insights that can only be discerned through human intelligence and intuition.

### **10.2.4 Technical Challenges**

AI systems require technical expertise to set up, configure, and maintain. Researchers who lack technical skills may face challenges in effectively using AI tools for scholarly writing.

### **10.2.5 Cost and Access**

Access to advanced AI tools and platforms may be limited due to cost constraints, especially for researchers in developing countries or institutions with limited resources. This could exacerbate existing disparities in access to research resources.

### **10.2.6 Algorithmic Opacity**

It could be challenging for academics to comprehend how decisions are made or to identify and fix faults due to the dubious inner workings of AI algorithms employed in scholarly writing tools.

### **10.2.7 Legal and Copyright Issues**

AI-generated content may raise legal and copyright issues, particularly when it comes to issues of ownership, attribution, and intellectual property rights.

### **10.2.8 Loss of Human Touch**

AI-enabled tools may lack the human touch and creativity that are essential aspects of scholarly writing. The personal insights, perspectives, and experiences of human researchers may be difficult to replicate or replace with AI.

### **10.2.9 Validation and Verification**

AI-generated results or recommendations may be challenging to validate or verify independently, raising concerns about the reliability and reproducibility of research findings.

### **10.2.10 Resistance to Change**

Doubting the usefulness of AI in academic research may make some academics reluctant to use AI-enabled tools in scholarly research.

## 11. Policy Matters in Ethical uses of AI Tools in Scholarly Work

In conclusion, a policy on ethically responsible use of AI in academic research is crucial for maintaining ethical standards, safeguarding participants, avoiding prejudice and discrimination, encouraging accountability and openness, and building trust both inside and outside of the academic community. Educational institutions can leverage the advantages of AI technology while maintaining ethical values, encouraging accountability, and protecting the interests of anyone involved in the process of education by developing and carrying out an extensive AI policy.

After the announcement of ChatGPT OpenAI, academic establishments around the world started digging into the integrity concerns of AI-enabled tools in scholarly work. There was a mixed response from the academia towards uses of AI in education and learning in the beginning. Gradually, academic establishments started thinking over the legalisation of the use of AI-enabled technology in academic setups. Below are the initial policy details of world-renowned universities on the use of AI tools in academic business.

**Table 2: AI policies in top 30 QS Ranked HEIs (2024)**

SN	Name of the Institution	AI policy availability	Name of the AI policy	Date of Policy Update	URL
1	MIT, US	NO			
2	Cambridge Univ., UK	YES	Artificial Intelligence, assessment integrity, and implications for education	27.4.2024	<a href="https://blendedlearning.cam.ac.uk/guidance-support/ai-and-education">https://blendedlearning.cam.ac.uk/guidance-support/ai-and-education</a>
3	Unv. Of Oxford, UK	YES	New guidance for safely using Artificial Intelligence	27.11.2023	<a href="https://academic.admin.ox.ac.uk/article/new-guidance-for-safely-using-artificial-intelligence">https://academic.admin.ox.ac.uk/article/new-guidance-for-safely-using-artificial-intelligence</a>
4	Harvard University, US	YES	Guidelines for Using ChatGPT and other Generative AI tools at Harvard		<a href="https://provost.harvard.edu/guidelines-using-chatgpt-and-other-generative-ai-tools-harvard">https://provost.harvard.edu/guidelines-using-chatgpt-and-other-generative-ai-tools-harvard</a>
5	Stanford University, US	YES	Generative AI Policy Guidance	16.2.2023	<a href="https://communitystandards.stanford.edu/generative-ai-policy-guidance">https://communitystandards.stanford.edu/generative-ai-policy-guidance</a>
6	Imperial College London, UK	YES	AI & Education Guidance Hub	21.3.2024	<a href="https://www.imperial.ac.uk/about/education/resources/ai-education-hub/">https://www.imperial.ac.uk/about/education/resources/ai-education-hub/</a>
7	ETH Zurich, Switzerland	YES	The ETH Guidelines on Science-Policy Engagement	1.2.2024	<a href="https://aiethicspolicy.ethz.ch/bite/the-eth-guidelines-on-science-policy-engagement">https://aiethicspolicy.ethz.ch/bite/the-eth-guidelines-on-science-policy-engagement</a>

ETHICS, INTEGRITY, AND POLICY CONCERNS IN USING AI TECHNOLOGIES IN SCHOLARLY WORKS

8	National University of Singapore (NUS), Singapore	YES	A General Message to Our Students on the Use of AI Tools		<a href="https://libguides.nus.edu.sg/new2nus/acadintegrity">https://libguides.nus.edu.sg/new2nus/acadintegrity</a>
9	UCL Bloomsbury, UK	YES	Engaging with AI in your education and assessment		<a href="https://www.ucl.ac.uk/students/exams-and-assessments/assessment-success-guide/engaging-ai-your-education-and-assessment">https://www.ucl.ac.uk/students/exams-and-assessments/assessment-success-guide/engaging-ai-your-education-and-assessment</a>
10	University of California, Berkeley (UCB), US	NO			
11	University of Chicago, US	YES	Generative Artificial Intelligence (AI) Guidance		<a href="https://its.uchicago.edu/generative-ai-guidance/">https://its.uchicago.edu/generative-ai-guidance/</a>
12	University of Pennsylvania, US		Statement on Guidance for the University of Pennsylvania Community on Use of Generative Artificial Intelligence		<a href="https://www.isc.upenn.edu/security/AI-guidance">https://www.isc.upenn.edu/security/AI-guidance</a>
13	Cornell University, US	YES	Cornell's AI Strategy		<a href="https://it.cornell.edu/ai">https://it.cornell.edu/ai</a>
14	The University of Melbourne, Australia	YES	University policy and actions		<a href="https://academicintegrity.unimelb.edu.au/staff-resources/artificial-intelligence/university-policy-and-actions">https://academicintegrity.unimelb.edu.au/staff-resources/artificial-intelligence/university-policy-and-actions</a>
15	California Institute of Technology (Caltech), US	YES	Ethical Use of AI: Guidelines for Fall 2024 Applicants	1.1.2024	<a href="https://www.admissions.caltech.edu/apply/first-year-applicants/supplemental-application-essays/ethical-use-of-ai-guidelines-for-fall-2024-applicants">https://www.admissions.caltech.edu/apply/first-year-applicants/supplemental-application-essays/ethical-use-of-ai-guidelines-for-fall-2024-applicants</a>
16	Yale University, US	YES	Guidelines for the Use of Generative AI Tools	20.9.2023	<a href="https://provost.yale.edu/news/guidelines-use-generative-ai-tools">https://provost.yale.edu/news/guidelines-use-generative-ai-tools</a>
17	Peking University, China				
18	Princeton University, US	YES	Guidance on AI/ChatGPT	25.1.2023	<a href="https://mcgraw.princeton.edu/guidance-aichatgpt">https://mcgraw.princeton.edu/guidance-aichatgpt</a>
19	The University of New South Wales (UNSW Sydney), Australia	YES	Chat GPT & Generative AI at UNSW	7.6.2023	<a href="https://www.student.unsw.edu.au/skills/ai">https://www.student.unsw.edu.au/skills/ai</a>

LIBRARIES IN AI ERA: APPLICATIONS AND PERSPECTIVES

20	University of Sydney, Australia	YES	Academic policy updates in 2023	2023	<a href="https://www.sydney.edu.au/students/academic-integrity/new-policy.html">https://www.sydney.edu.au/students/academic-integrity/new-policy.html</a>
21	University of Toronto, Canada	YES	Use artificial intelligence intelligently	2023	<a href="https://security.utoronto.ca/framework/guidelines/use-ai-intelligently/">https://security.utoronto.ca/framework/guidelines/use-ai-intelligently/</a>
22	Unv. Of Edinburgh, UK	YES	AI Guidance for Staff and Students		<a href="https://www.ed.ac.uk/bayes/ai-guidance-for-staff-and-students">https://www.ed.ac.uk/bayes/ai-guidance-for-staff-and-students</a>
23	Columbia University, US	YES	Generative AI Policy		<a href="https://provost.columbia.edu/content/office-senior-vice-provost/ai-policy">https://provost.columbia.edu/content/office-senior-vice-provost/ai-policy</a>
24	Université PSL, France	NO			
25	Tsinghua University, China	NO			
26	Nanyang Technological University (NTU), Singapore	NO			
27	The University of HongKong, Hongkong	YES	Policy on Use of Generative Artificial Intelligence for Teaching and Learning	4.10.2023	<a href="https://tl.hku.hk/2023/10/policy-on-use-of-generative-artificial-intelligence-for-teaching-and-learning/">https://tl.hku.hk/2023/10/policy-on-use-of-generative-artificial-intelligence-for-teaching-and-learning/</a>
28	Johns Hopkins University, US	YES	Johns Hopkins University AI policy		<a href="https://teaching.jhu.edu/university-teaching-policies/generative-ai/">https://teaching.jhu.edu/university-teaching-policies/generative-ai/</a>
29	The University of Tokyo, Japan	YES	Guidelines for Instructors Regarding AI in University Education at Tokyo University of Foreign Studies	23.3.2023	<a href="https://www.tufs.ac.jp/documents/education/guideline/ai_guideline_en.pdf">https://www.tufs.ac.jp/documents/education/guideline/ai_guideline_en.pdf</a>
30	University of California, Los Angeles (UCLA), US	YES	Guidance for the Use Of Generative AI	3.3.2023	<a href="https://teaching.ucla.edu/resources/ai_guidance/">https://teaching.ucla.edu/resources/ai_guidance/</a>

(Source: Author's own work)

Table 2 above shows that the world's top universities have started framing AI policy for academic uses by faculty, students, and scholars, and more than 80% of the institutions have already circulated the initial policy details. The basic level policy by most of the institutions focused on instructors' acceptability and

accountability on AI-enabled tools for students' work. For other academic work like procurements or subscriptions of the generative AI tools have been amended in academic integrity policy documents of many universities. Most of the establishments have yet to have the details of step-by-step guidelines for the use of AI-enabled technologies in academic writing. Some are aligned and waiting for the government's interfering policy on AI use in the concerned country. The positive part is many dedicated cells, centres, labs, and policy initiative centres have been established in the last two years on the concern of AI-enabled tools in education and learning.

## **12. Conclusion**

AI-enabled technologies are evolving, impacting every aspect of human life, be it business, health, education, defence, social upliftment, and policy making. The whole world is looking ahead to the uncountable potentials of AI technologies in addressing the present world issues by automating and accelerating technologies with ethically and morally correct means. Many developed and developing nations are already working on framing national policies in AI uses in education and other sectors.

AI being a game changer in the field of education and learning in general and scholarly writing in particular, has both positive and negative concerns. Boosting speed, efficiency, correctness in language and grammar, support to creativity and innovation are boon out of the AI enabled assistive technologies for the scholarly work. Whereas the concern of ethics, integrity, morality and ownership of intellectual properties are at stake where AI technologies are used for academic and research work. The dearth of standard policy documents on the legal and ethical uses of AI technologies has a paramount impact on harnessing its potential in education and learning. Higher Educational Institutions around the world are focusing on AI research and education by establishing AI Centres, AI Labs, AI Courses, AI Policy initiatives, and Ethical policy formation like courses. AI ethics, policy, and governance by ETH Zurich, Switzerland, Artificial Intelligence Society of Students Union, University College of London, Peking University Law Artificial Intelligence Laboratory and Peking University Law and Artificial Intelligence Research Centre, China, Artificial Intelligence Group (AI@IISc) at Indian Institute of Science, Bengaluru and Centre for Responsible AI (CeRAI), IIT Madras, India and informal group like OECD AI Policy Observatory (OECD.AI) are some frontbencher initiative with ethical uses of AI in education and learning.

Ultimately, even if AI has a lot of promise to improve academic writing, academics must approach its application wisely, considering both its benefits and drawbacks. Effective use of AI in academic pursuits requires striking a balance between the advantages of efficiency and automation and the requirement for human creativity, critical thinking, and ethical issues.

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