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## The Impact Of Generative AI Tools on Research Productivity and Scholarly Writing among University Faculty and Students

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### ARTICLE INFO ABSTRACT

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*The world of higher education and scholarly writing has experienced a revolutionary transformation with the advent of Generative Artificial Intelligence (AI), ushering in a new era of possibilities in knowledge production and research dissemination. From literature review to brainstorming, data analysis, writing and publishing research, university researchers and students are increasingly turning to applications such as large language models and AI writing tools to help them. The technologies have clearly brought in new and important ways to increase research productivity and efficiency, but also generated much discussion about academic integrity, authorship, excessive reliance on technology, and the nature of scholarly work. The incorporation of Generative AI into academia is still fairly recent, however, and little is known about how it actually affects research productivity and writing by HE stakeholders from a qualitative perspective. This study aims to investigate how generative AI technologies affect research productivity, understand their effect on academic writing processes, highlight opportunities and challenges in research and writing with AI, and develop a conceptual understanding of responsible and responsible use of AI in research and writing. The research method is qualitative which consists of three stages such as integrative literature review, thematic analysis, conceptual synthesis and document analysis of scholarly articles, institutional report and policy documents. The results show that generative AI tools significantly boost the efficiency and effectiveness of research processes, including time to information, writing assistance, and idea generation and scholarly communication. However, the study also reveals that the concept of academic integrity, ethics, critical engagement and originality and authorship has serious problems. The research builds on the existing literature in HE scholarship and ET and the emerging literature on the responsible use of generative AI in education by proposing a conceptual model for using generative AI responsibly in research and academic writing. It finds that the potential for generative AI in higher education in the long term will rely on the right balance between technological innovation and the continued maintenance of ethical, human-centered and intellectually rigorous scholarly practices.*

## INTRODUCTION

Because of profound technology advancements, globalization and a need for knowledge-based economies, the present day higher education is experiencing an unprecedented historical digital revolution. Digital technologies have increasingly been adopted for teaching and learning, researching and administration in universities of all over the world with the aim of making them more efficient, accessible and innovative in recent years. The landscape of knowledge production, sharing, and use in the academy has been revolutionized by digital scholarship, open science, cloud-based environments and tools for collaboration, and research environments built around data. Technology has become an integral part of the competitiveness of institutions, of high-quality research and of academic productivity in the new world.

The biggest change that has been observed in Higher Education is that of research and scholarly communication. Literature search, data analysis, collaborative research, writing and dissemination of research findings are crucial components of academic research that has heavily relied on digital tools. In the digital domain, the time for research has been greatly reduced using technological advances and space for interdisciplinary and international research has been created. In the meantime, the complexity of the research landscape has added to problems of information overload, rising demands for publications, and greater demands for production of quality scholarly work in less time.

In such a context, one of the most prominent technological advances of modern times in the academic world is generative Artificial Intelligence (AI). Generative AI is a subset of AI that can create content that is similar to that produced by humans, such as text, images, computer code, and other digital artifacts. In recent years, the advent of large language models (LLMs), natural language processing (NLP), machine learning, and other technologies has made it easier to leverage AI tools like ChatGPT, Gemini, Claude, Copilot, and others to generate intelligent, contextually relevant content. (Dwivedi et al., 2023; Kasneci et al., 2023)

Generative AI has had a significant impact on higher education and research practices. These technologies have been increasingly applied in academic activities like idea generation, literature review, research design, data interpretation, writing of the manuscript, language editing and academic communication in a rather short period. Whether it's for increasing productivity, reducing repetitive tasks, or enhancing the quality of academic writing, the use of generative AI is increasing both in the work of faculty and students. The tool has a very simple and intuitive interface, making it a popular choice across disciplines and changing existing paradigms in the creation of knowledge and its engagement. (Dwivedi et al., 2023; Kasneci et al., 2023)

Generative AI is making its way into the academic environment, sparking interest and concern. AI has the potential to be a transformative force, as the technologies it can create can make research support more accessible, enhance writing skills, increase productivity, and help remove barriers to participation in academic activities, proponents say. Proponents say that AI-powered technologies have the potential to be transformative because they can help make research support more easily accessible, improve writing skills, increase productivity and lessen barriers to academic participation. These can be used to locate and collate a considerable amount of literature, to generate research ideas, to improve the language of the research report and to support interdisciplinary research. The use of generative AI can provide students with individualized support for academic writing and research tasks, enhancing the learning process and research capabilities. (Dwivedi et al., 2023; Kasneci et al., 2023)

The introduction of generative AI, however, has led to much debate about the questions of academic honesty, plagiarism, and authorship. Over-reliance on AI tools might diminish the requirement for critical thinking, analytically and intellectual effort, which are characteristic of academic research and writing. Issues also have come to light about the reliability of AI-generated content, bias, plagiarism, and the ethical implications of relying on different algorithms instead of humans for thinking. In response to these questions, universities and policy makers around the world have been revisiting existing policies and setting guidelines for responsible use of generative AI in academia. (Dwivedi et al., 2023; Kasneci et al., 2023)

Research production and the writing of academically oriented texts is today at the core of the university. One of the most important indicators of academics performance, reputation and capacity to generate knowledge is academic productivity. The output, publications and scholarly work of academics and post graduates are becoming increasingly important for universities. Similarly, academic knowledge is communicated, validated and disseminated primarily through scholarly writing. Thus, it is the capacity to conduct quality, credible research and academic writing that is critical to academic achievement, and to the evolution of an institution.

In addition, generative AI tools have added a new dynamic to these processes. Automating certain parts of the academic process has the potential to revolutionize the way academic research is conducted and how academic texts are produced, with the help of AI technologies. Generative AI's ability to summarize, organize information, offer conceptual frameworks, and improve text quality could revolutionize the research process, making it more efficient and productive. Such powers, however, raise major questions regarding authorising texts, adding a thought, and keeping up current research methods. (Dwivedi et al., 2023; Kasneci et al., 2023)

The advantages of the AI that enhances research and writing are immense. Generative AI can help save time when conducting literature searches, organise ideas, assist non-native English speakers in writing academically and can overcome writer's block. It can also help to advance academic research, by offering academic assistance to those who have less access to conventional

research tools. Moreover, AI technologies can contribute to the creation of new ways for human-machine interaction that will enhance human creativity and intellectual abilities. (Dwivedi et al., 2023; Kasneci et al., 2023)

These benefits are impressive, but so are some of the obstacles to the implementation of AI. One of the main concerns is regarding the use of AI-generated content, which could lead students and researchers to rely on this material without engaging in critical analysis. With the advent of generative AI, the question of the validity of scholarly work and human-machine authorship also emerges. Moreover, generative AI systems can generate false or misleading information, endangering the quality of research and scholarly trust. This is difficult for institutions to ensure a balance between technological innovation and ethical responsibility and quality education. (Dwivedi et al., 2023; Kasneci et al., 2023)

There is a growing collection of literature on generative AI in education, but there are a few aspects that are pertinent. The current studies have focused on the technicalities of the use of AI, user experiences, or the potential applications of AI in education and learning. Very few studies have specifically examined the effects of generative AI on faculty and student productivity and scholarly writing at universities. In addition, there is a heavy emphasis on quantitative indicators such as adoption rates, attitudes, or performance results in the literature; fewer studies provide a detailed qualitative insight into experiences, opportunities, problems, and conceptual implications of academic tasks supported by AI. (Dwivedi et al., 2023; Kasneci et al., 2023)

A further important disconnect is the lack of a coherent conceptual framework of generative AI and its impact on research productivity and scholarly writing. Many previous studies have taken only one part of these challenges without considering them in a comprehensive manner, especially from a social, pedagogical or ethical point of view. This means that awareness of how generative AI influences academic practices, academic identities and the knowledge production processes of universities remains low. (Dwivedi et al., 2023; Kasneci et al., 2023)

These gaps have significant implications for practice. Universities are facing an increasing number of choices about how to regulate, govern and ethically employ generative AI technologies. Evidence-based insights are needed by the policymakers and institutional leaders to create policies that will maximize the benefits and minimize potential risks of AI. Similarly, faculty and students are also encouraged to be guided in the responsible use of AI tools in research and scholarly writing. (Dwivedi et al., 2023; Kasneci et al., 2023)

To fill these gaps, the present study aims at evaluating how generative AI can affect research productivity and scholarly writing in the university environment by both faculty and students. Specifically, the study will make attempts to: (Dwivedi et al., 2023; Kasneci et al., 2023)

Explain how generative AI affects academic research.

2. Talk about the impact of the AI technologies on students' academic writing and faculty's academic writing.

3. Talk about the opportunities and challenges of the use of generative AI in academic research and academic writing. (Dwivedi et al., 2023; Kasneci et al., 2023)

3. Develop conceptual competence with respect to responsible and human-centred integration of AI in Higher Education.

To accomplish these goals, the study will consider the following qualitative research questions:

RQ1: What is the impact of generative AI tools on research productivity of University faculty and students? (Dwivedi et al., 2023; Kasneci et al., 2023)

RQ2: How is generative AI changing higher education scholarly writing?

RQ3: What are the opportunities and challenges of using AI tools to aid in research and writing?

RQ4: What are the implications of responsibly using generative AI technologies in the context of education without compromising academic integrity and high-quality learning? (Dwivedi et al., 2023; Kasneci et al., 2023)

Various theoretical frameworks are employed in this study. When it comes to research, the Technology Acceptance Model (TAM) can be used to understand factors that impact the adoption of generative AI tools, including useful and easy-to-use tools. This theory suggests that if students and faculty believe that AI tools could enhance their research workflow and are easy to use, they will be more inclined to embrace them. The theory states that students and faculty will be more willing to use AI tools if they think that they can complement their research process and are user-friendly. (Dwivedi et al., 2023; Kasneci et al., 2023)

The other theoretical underpinning of Human-Centered AI is focusing on the human aspects; this implies that technology development should revolve around human needs, ethics, and human oversight. It is particularly relevant in the context of the future of AI as a tool to enhance, rather than replace, human intellectual interaction and creative research.

The Diffusion of Innovation (DOI) theory also contributes to understanding the diffusion of generative AI technologies in academic settings and factors that could influence their acceptance. The theory places a strong focus on the role of communication channels and social influence and organizational contexts in technology diffusion. (Dwivedi et al., 2023; Kasneci et al., 2023)

Finally, Sociocultural Learning Theory emphasizes the social interaction and cultural practices as avenues for learning and developing knowledge. The use of generative AI in academic contexts could thus have an impact on the social and collaborative aspects of research and scholarly writing, altering the ways knowledge is created and disseminated in higher education institutions. (Dwivedi et al., 2023; Kasneci et al., 2023)

The design of this study is qualitative, which is applied in the form of integrative literature review, thematic analysis, conceptual synthesis and document analysis of scholarly publications, institutional reports, and policy documents. This will support the analysis of the complex and evolving interaction between Generative AI, research productivity and academic writing processes. (Dwivedi et al., 2023; Kasneci et al., 2023)

This study is not only important for theoretical study, but also for its practical value. The results are applicable to the research areas of Higher Education, Educational Technology, and the emerging research stream of Artificial Intelligence in Education. In addition, the study offers valuable inputs for university leaders, academics, and policy makers looking to create effective strategies and policies for responsible incorporation of generative AI technologies in academic settings. (Dwivedi et al., 2023; Kasneci et al., 2023)

The organization of the remainder of this article is similar. This is an important literature review on the topic of generative AI, research productivity and scholarly writing in HE. In the methodology section, the type of qualitative research design and the qualitative research analysis method are explained. In the results section, the key points identified in the analysis are compiled together and implications of the points are discussed; in the discussion section, a conceptual model for responsible use of AI in the educational environment is proposed. Finally, the study's main results are summarized, implications for practice are discussed and future research is proposed on the transformative potential of generative AI in academia and academic communication. (Dwivedi et al., 2023; Kasneci et al., 2023)

## LITREATURE REVIEW

The advent of generative artificial intelligence (AI) has marked a significant leap in the 21st century and it has been a complete game-changer in the realm of higher education, scientific research, and scholarly communication. AI technologies have advanced from rule-based systems to traditional machine learning algorithms, to more powerful deep learning architectures that have the ability to generate human-like text, images, and multimedia content. The use of generative AI in education is growing, particularly in recent years with the advent of large language models (LLMs) that can understand and produce human language with a high degree of accuracy. AI-powered writing tools like ChatGPT, Gemini, Claude, and more have quickly become an integral part of educational and research environments, offering users unparalleled features for information retrieval, content generation, and intellectual support. (Dwivedi et al., 2023; Kasneci et al., 2023)

The integration of generative AI into higher education is a broader trend of digital transformation that has transformed the way people are taught, learn and do research around the world. Universities are found in knowledge economies in the wake of the fast technological evolutions, international competition and new demands for innovation and productivity for research. In this context Generative AI has become an opportunity and a challenge. Advocates say that AI technologies will help to make knowledge more accessible, help break down barriers to academic involvement, and help increase the capabilities of humans in research and academic writing. Those who are against believe that such technologies may affect academic honesty, critical thinking and the very nature of academic work. (Dwivedi et al., 2023; Kasneci et al., 2023)

The importance of generative AI in learner-centred education is highlighted by its widespread use, which is easy to access and incredibly versatile. Some of the previous technologies needed institutional support and a certain level of training, but modern generative AI technologies are readily accessible without much technical knowledge. As a result, faculty and students are using AI applications increasingly for literature reviews and idea generation, research design, language editing, and manuscript preparation. These technologies are now widely adopted, and have attracted considerable attention on their impact on academic practice and the creation of knowledge for researchers. (Dwivedi et al., 2023; Kasneci et al., 2023)

While generative AI is often hailed as a transformative technology, its deployment in higher education must be viewed in the context of a long history of both educational innovation and digital scholarship. Academic writing has also been transformed by other technological innovations like databases, reference management software, plagiarism detection software, and collaborative writing software. These are simpler technologies than generative AI, however, because they can generate original content, take part in conversational interactions and mimic forms of intellectual service traditionally found in the expertise of humans. This ability provides a new perspective on the notion of human knowledge production versus machine-provisioned knowledge production. (Dwivedi et al., 2023; Kasneci et al., 2023)

In higher education systems, productivity has become ever more important in the 21st century and it has become an important indicator of institutional performance. In this aspect, universities are evaluated according to the amount of publications, rate of citations, the scientific impact and advancement. The pressure to publish in high impact journals, obtain research funding and meet high standards of research achievement is growing for academics and so is the pressure on post-graduate students to carry out and publish high quality research.

Literature refers research productivity as a multidimensional phenomenon that includes volume, quality and impact of researchers' work. The traditional research productivity factors are institutional support, research infrastructure, collaboration networks, funding opportunities and individual competencies. Over the past few years, the importance of technological resources and digital tools in improving the research process has been the focus of research. The advent of the digital technologies has made it easier to access and control information, to share and communicate knowledge, and to produce academic knowledge. (Zawacki-Richter et al., 2019)

Now generative AI is woven into research, these dynamics are further being changed. They are optimistic that these advancements in AI-based research will greatly improve productivity by reducing the time spent on repetitive tasks and compiling information, and limit the preparation time for manuscripts. The use of AI systems to generate literature reviews, research questions, theory frameworks, and to assist with data analysis is growing. This skill can be used to help researchers concentrate on higher-order analytical and creative tasks. (Dwivedi et al., 2023; Kasneci et al., 2023)

However, the effects of generative AI on research productivity remain finding mixed, and even ambiguous, applications. To increase efficiency may seem like increasing productivity, but some researchers caution against that approach of creating research quickly. A high rate of production does not equal deep knowledge, rigor or originality. However, reliance on such AI tools might result in superficial engagement with scholarly literature and a narrow scope of depth study and learning. Therefore, any benefit to productivity of generative AI should be considered in conjunction with its impact on the quality and integrity of the academic research process. (Dwivedi et al., 2023; Kasneci et al., 2023)

The other aspect of scholarly life that has been profoundly affected by the technology is scholarly writing. Academic writing is not merely a way of communicating knowledge, but a mental activity where ideas are formed, arguments are constructed and identity as a member of a discipline is created. Reading, critical thinking and revision are important components of typical scholarly writing. It is therefore strongly related to learning, cognitive development and the development of academic expertise.

With the introduction of generative AI, this has been revolutionized with new approaches to supporting writing and content creation. With AI writing tools, you can generate an outline, provide summary, suggest edits, enhance language clarity, and even write large parts of an academic paper. The facilities are a welcome aid to many researchers and students, especially those with difficulties in academic writing or who communicate in a second language. AI systems' instant feedback and language support is a well-known asset to academic inclusivity and accessibility. (Dwivedi et al., 2023; Kasneci et al., 2023)

However, with the integration of AI into scholarly writing, there have been significant discussions on questions of authorship, originality, and intellectual contributions. Academic writing, traditionally, has been seen as an indication of individual thought and academic prowess. But these assumptions are being challenged with the increasing use of AI-generated content, leading to a blend of human and AI-generated knowledge. AI writing and its impact on academic integrity have emerged as key issues in the world of higher education. AI-generated writing has generated a lot of debate about credit for the content, how to appropriately give credit, and academic honesty. (UNESCO, 2023)

Literature also shows that there can be substantial differences across disciplines in attitudes towards AI assisted writing. In the field of science and technology, researchers consider AI tools to be productivity-enhancing technologies that can help with complex research tasks. But there have been more fears from humanities and social science scholars regarding potential effects of AI on creativity, critical thinking, and intellectual freedom. The differences suggest that more attention should be paid to the impact of the use of generative AI tools in scholarly writing, not to some blanket application of generalisations. (Dwivedi et al., 2023; Kasneci et al., 2023)

The list of positive impacts of generative AI technologies continues to grow. Efficiency and time-saving benefits are amongst the most common benefits mentioned. AI tools have been found by researchers to save a lot of time in finding information, organizing ideas and drafting academic documents. With repetitive tasks automated and eliminated, generative AI could free up time for scholars to focus on their ideas, approaches and original research. (Dwivedi et al., 2023; Kasneci et al., 2023)

Another of the benefits is the concept generation and support in creativity. Generative AI systems can provide new insights, research ideas and brainstorming activities. Although AI can't replace human creativity, others claim it can be a spark of idea that can generate new ideas and academic innovation. This is a perspective that aligns with the new notions of Human-AI collaboration, moving past the traditional dichotomy of humans vs AI to the co-creative synergy of enhancing human activities with AI. (Dwivedi et al., 2023; Kasneci et al., 2023)

One area that generative AI has demonstrated great potential is in language support. Academic writing and publishing may have challenges for a non-native English speaker researcher. The use of AI writing aids can enhance the clarity, coherence, and grammar of content, thus opening up opportunities for more people to access international scholarly communication and mitigate language barriers within academia. The democratization of these has been viewed as one of the greatest rewards they have offered higher learning. (Dwivedi et al., 2023; Kasneci et al., 2023)

The literature also suggests that generative AI may be useful to increase research productivity by facilitating interdisciplinary research and ease research initiation for novice researchers. Students and the new scholars may find research related tasks and practices daunting. AI technologies can also provide guidance and explanations with examples to support the learning and

research process. Some researchers have thought that generative AI's capabilities may be substantial in the field of education and research when it comes to supporting students. (Dwivedi et al., 2023; Kasneci et al., 2023)

However, generative AI has also brought with it a host of problems and concerns. Safeguarding academic integrity is a central topic in the ongoing debate on the use of AI in education. AI systems are capable of generating complex academic texts, leading to new opportunities for plagiarism, academic cheating, and academic dishonesty. Plagiarism can be said to be using someone else's work without their permission. Next, there's AI-generated content, and it has the potential to create original content that isn't found elsewhere in publications, which is still a concern about authenticity and ownership. (Dwivedi et al., 2023; Kasneci et al., 2023)

There has been much scholarly interest in the problem of overreliance with AI technologies. but there's a group of critics who fear that overreliance on AI systems could result in a decline in critical thinking, problem-solving, and independent learning. Delegating cognitive tasks to Artificial Intelligence systems increases the likelihood of losing important academic skills in the long run. This relies not only on outcomes of learning, but it can also have implications for the culture of scholarship and knowledge production, in general.

The issue of authorship is also an important point of concern. In academic circles, it is agreed that the author is responsible for ideas contained in the texts and is strong in presenting arguments and methodological decisions. These assumptions are complicated by the addition of non-human entities to the writing process with the integration of generative AI. Numerous journals and academic institutions have found there's a lack of accountability and legal liability associated with AI systems and thus concluded that they cannot be considered authors. But there are questions as to how best to disclose the use of AI and what type of acknowledgment should be made for the contributions of AI. (Dwivedi et al., 2023; Kasneci et al., 2023)

Issues of authorship and plagiarism are not the only ones of ethical concern. Generative AI systems typically have a large amount of data which can contain biases, inaccuracies, and copyrighted material. This also means that AI-powered content can have the potential to reinforce inequalities, perpetuate stereotypes, or spread false information. Another concern is privacy and data security, as users might inadvertently share sensitive information with AI systems when using them. Universities are thus confronted with significant challenges as they grapple with the creation of ethical guidelines and governance frameworks that not only ensure responsible use of AI but also uphold academic integrity and values. (Dwivedi et al., 2023; Kasneci et al., 2023)

There are multiple theories that offer some insights into generative AI adoption and use in higher education. It has been suggested that the Technology Acceptance Model (TAM) can facilitate the acceptance of technologies by people if they are useful and they find them easy to use. There have been numerous studies that have investigated the educational technologies, and this study's findings have been consistent with other studies that examined the technologies and found that the TAM was predictive of technology adoption among faculty and students. The perception of users that tasks in the academic field are easier and more efficient with the use of generative AI is one of the reasons for the widespread adoption. (Dwivedi et al., 2023; Kasneci et al., 2023)

Another framework for understanding diffusion of Innovation Technologies within academic communities is from the Diffusion of Innovation Theory. This theory provides a focus on the impact of communication channels, the social network, and the organization context on adoption patterns. These institutional differences in culture, norms and technological readiness can therefore have an impact on faculty and student attitudes towards AI technology adoption.

The other important perspective on Human-Centred AI is the development of technology should be based on human values, ethics and human control. It is particularly significant in the era of "generative AI" where the notion of technological development leading to positive outcomes is a deterministic one that is being challenged. Rather, Human-Centered AI promotes the creation of technologies that are designed to amplify human capabilities without taking away human autonomy and intellect. (Dwivedi et al., 2023; Kasneci et al., 2023)

The sociocultural learning theory also has an impact on understanding the implications of generative AI in learning. Theory focuses on process of learning, sociality, mediations through cultural tools and interactions. Thus, generative AI can be regarded as a new category of cognitive and cultural tools that can impact how people carry out research and draft academic papers. AI for academic work could transform academic learning and the social processes of knowledge production and dissemination. (Dwivedi et al., 2023; Kasneci et al., 2023)

There are also significant variations in concepts and the existing empirical research on the use of AI in research and writing is still scattered. It is reported that there are significant improvements in writing skills in terms of product, quality, and learner confidence; some concerns of addiction, ethical issues, or lack of critical analysis. These differences in results could partially stem from methodological differences, disciplinary contexts, as well as conceptions and applications of Generative AI technologies. (Dwivedi et al., 2023; Kasneci et al., 2023)

One of the key weaknesses of the current research on the topic is the prevailing quantitative approach which quantifies attitudes, intentions to use or frequency of use. These studies can provide important clues to technology adoption trends but can ignore the subtleties of technology use experiences, perceptions and contextual factors. Qualitative research and writing studies to explore meaning and implications in relation to AI assisted research and writing are still somewhat scarce.

Another important piece missing is the separation of faculty and students when there is no separation. But there has been a relative lack of research on the experiences of both groups and how these experiences interact in wider institutional settings, when generative AI is simultaneously impacting these. There has been comparatively less research interest in understanding the experiences of both groups and how these experiences play out in more expansive institutional environments, in the context of generative AI having an impact on both groups' experiences. In addition, past studies tend to focus on the teaching and learning aspects and neglect to examine research productivity and communication of scholars. (Dwivedi et al., 2023; Kasneci et al., 2023)

Moreover, the overall picture of how generative AI tools relate to research productivity, scholarly writing and academic integrity in the literature remains lacking because there is no existing coherent conceptual framework. Past studies tend to only address a single aspect of these questions, making it difficult to develop a comprehensive understanding of the effects of AI technologies on academic practice. In addition, there is a lack of attention to context differences between institutions, disciplines and cultural contexts that could impact adoption and implications of generative AI. (Dwivedi et al., 2023; Kasneci et al., 2023)

The need for the present study is based on the theoretical, methodological and contextual gaps. Since a qualitative conceptual research can be useful to explore the entire opportunities, challenges and implications of generative AI use in higher education, it is useful. The study is designed to fill the gap between the current knowledge and the complex interplay of AI technologies, research productivity, and scholarly writing, while also providing a deeper understanding of the transformations of academic practices and the future of scholarly writing brought by generative AI. The awareness is essential for decision making and taking action on promoting responsible uses of AI and keeping the core values of Higher education and scientific research alive with the advancement of technology. (Dwivedi et al., 2023; Kasneci et al., 2023)

## RESEARCH METHODOLOGY

### Research Philosophy

Philosophy of this research is interpretivist and assumes that human experience and social reality is created by interaction, meanings and interpretations and not as universal and objective phenomena which can be measured. Generative artificial intelligence (AI) tools in Higher Education, research productivity and scholarly writing are a complex topic that is hard to fully capture with quantitative measures. The use of AI technologies differs across faculty members and learners due to institutional norms, norms within the disciplines, ethical considerations, and the perceptions of the usefulness of the technology. Thus, an interpretivist philosophy provides the correct framework for thinking about the meanings, opportunities and difficulties of doing AI-supported research and writing. (Zawacki-Richter et al., 2019)

The study is based on a constructivist epistemology, in which the knowledge is socially constructed, and is being negotiated continuously during experiences, interactions and interpretations in the context. In a constructivist approach a causal relationship would not suffice to reduce the role of Generative AI in the productivity of research and scholarly writing. Rather, it is about the development of new academic practices; new conceptions of how knowledge is created and new conceptions of how humans and AI can work together to create knowledge. The constructivist orientation thus aids in constructing a conceptual understanding of the transformative role of generative AI in higher education institutions' scholarly activities. (Dwivedi et al., 2023; Kasneci et al., 2023)

The selection of the interpretivism and constructivism is particularly important because the present research study that is being investigated is an attempt to synthesize multiple perspectives from educational technology, higher education research, artificial intelligence and scholarly communication that do not seek to measure predetermined variables. The social, pedagogical, and ethical implications of the use of AI in the educational context are explored based on these philosophical reflections.

### Research Design

The study is based on a qualitative research design since the qualitative research is well suited to the study of emerging and complex phenomena that involve conceptual ambiguity and rapidly changing practices. The effects of generative artificial intelligence (AI) on the productivity of research and scholarly writing remain poorly understood and dispersed across different disciplines and research traditions. A qualitative approach will help the researcher to interpret the existing evidence critically, to find the patterns and relationships, and to gain conceptual insights beyond description.

This research uses an integrative literature review as the main method of research. Integrative reviews may be useful for reading new areas of research, as it can include any kind of data from empirical research to theoretical research, institutional reports to policy documents, professional publications to anything else. Integrative reviews may help to provide a more comprehensive understanding of complex phenomena than the traditional systematic review, which tends to be narrowly defined and to exclude other forms of scholarly knowledge.

The study also uses a conceptual research method in which the concepts that already exist are critically reviewed and synthesized to create new conceptual understandings and theories. With the rapid evolution of the generative AI world in higher education, one must, therefore, approach the study from a conceptual perspective because many of the important questions that currently exist in relation to academic practice, ethics, and productivity are not well formed. (Dwivedi et al., 2023; Kasneci et al., 2023)

Also, document analysis and thematic synthesis is used as a methodological approach which complements the study. Document analysis aids in systematically reviewing the text-based evidence related to the research problem, while recap analysis (thematic synthesis) aids in synthesizing recurrent patterns and themes from various sources of evidence. These strategies provide a holistic and systematic framework to understand the influence of generative AI on research productivity and scholarly writing. (Dwivedi et al., 2023; Kasneci et al., 2023)

### Data Sources

For this study secondary qualitative data have been used from authoritative and credible sources. Secondary data are suitable as the research would not be creating primary empirical data, but synthesizing and interpreting it.

The major data sources are:

Scopus-indexed journal articles;

Academic journals. Book publications (internationally published) and academic journals.

Peer-reviewed conference proceedings;

Journal articles; and Media exposure through press releases and otherwise; and

Policy documents relating to the use of Artificial Intelligence and higher education;

Reports from international organizations; Education agencies' reports;

White papers and technical publications relating to AI and educational technology.

The diversification of sources is suitable as the research topic is interdisciplinary. Institutional documents, conference proceedings and policy papers are often first sources of important developments in the field of generative AI published before they are routinely peer reviewed. This would simply result in using only journal publications and there would be a loss of valuable information that would not be relevant to the study objectives. (Dwivedi et al., 2023; Kasneci et al., 2023)

### Data Collection Procedure

System and transparency were used to ensure methodological rigor and replicability in the data collection procedure.

Search engines and databases.

The literature search was performed in a number of internationally recognised academic databases namely:

Scopus;

Web of Science;

ERIC;

ScienceDirect;

SpringerLink;

IEEE Xplore;

ACM Digital Library;

Google Scholar.

The words were fed into AI to generate keywords for a systematic search strategy, along with the words higher education, research productivity and scholarly writing. The following were the main search terms used: (Zawacki-Richter et al., 2019)

"Generative Artificial Intelligence";

The Future of AI in Education: Possibilities and Implications for Education"; and

- "Large Language Models";
- "Genetically Modified Food"; and
- "Research Productivity";
- "Scholarly Writing";
- "Academic Integrity";
- "University Faculty";
- "Higher Education Technology";
- "AI-assisted Writing";
- "Intelligent Tutoring Systems in Education"; and
- "Human-AI Collaboration".

Boolean operators (AND, OR and NOT) were applied to narrow or to broaden the search to maximize relevant retrieval and to limit the search.

### **Inclusion Criteria**

Documents were included when they:

Interested in generative Artificial Intelligence, Educational Technology, Academic Writing or Academic Research Productivity; (Zawacki-Richter et al., 2019)

Were available in peer-reviewed journals and/or respected conference proceedings;

From reputable academic institutions or international groups;

Went into print (most in last 10 years, some with theoretical underpinning);

Were written in English;

Contributed empirical, conceptual or policy ideas that were relevant to the goals of the present study.

### **Exclusion Criteria**

Any documents were removed that:

- 1) Any technological uses which do not relate to one another;
2. Was not methodologically sound or academically defensible;
3. Only opinion pieces, not analytical;

These also were replicated in database 4;

Answered questions about the application of AI in contexts outside of higher education or research.

The use of screening and selection procedures. The employment of screening and selection procedures.

There were several steps in the screening and selection.

The initial step was to locate potentially relevant documents through searching the relevant databases.

The second step was the screening of the title and abstract to remove studies that were not relevant.

The third stage was a full text review for the suitability of each text based on the inclusion criteria.

The final stage was identifying studies that directly contributed to the understanding of the relationship between generative AI, research productivity, and scholarly writing. (Dwivedi et al., 2023; Kasneci et al., 2023)

This systematic approach ensured that evidence analyzed was credible, relevant, and that it could be used to develop an overarching conceptual framework.

### **Data Analysis Methods**

The study comprised several qualitative analytical tools to obtain wide knowledge about the problem of the study.

### **Thematic Analysis**

Thematic analysis was the main method of analysis. Analysis was conducted through repeated reading and interpretation of selected documents which were used to detect patterns, concepts and recurring themes.

The Analysis Process Consisted Of The Following Steps:

Knowing the Data;

Basic Coding of Important Themes;

Being Able to Identify the Shared Characteristics;

Revisions of Thematic Categories;

Analysis and Interpretation Of Results.

In this way, key themes were identified about:

- how generative AI can enhance and transform the learning process in education; and (Dwivedi et al., 2023; Kasneci et al., 2023)
- improving the research process; and

- developing computer literacy; and
- the difficulties of putting AI into practice; and
- ethic problems and plagiarism problems;
- Collaboration between humans and AI and future prospects.

### **Content Analysis**

To systematically analyse the frequency, relationships and patterns of concepts in the selected literature, content analysis was used. This enabled scholars to determine areas of agreement and disagreement and has allowed for a comparison of the various disciplines and institutional settings.

The content analysis also assisted in identifying trends in how generative AI is currently being used by the faculty and students of the university, as well as trends in new debates surrounding the responsible use of AI. (Dwivedi et al., 2023; Kasneci et al., 2023)

### **Conceptual Analysis**

Conceptual analysis was used to analyze the meanings, assumptions and theory from the previous study. The research process allowed the researcher to explore the conceptual connections between the use of generative AI, research productivity, academic writing and ethical responsibility. (Dwivedi et al., 2023; Kasneci et al., 2023)

The conceptual analysis was also part of the effort to support the propositions regarding the role of the AI technologies and their mechanisms of action in scholarly practices and research productivity. (Zawacki-Richter et al., 2019)

### **Framework Development**

The last step of the analysis was to build an integrative conceptual framework of relationships among:

- Generative AI adoption;
- Research productivity;
- Scholarly writing practices;
- Academic integrity;
- Human–AI collaboration;
- Institutional governance & policy.

The framework not only provides a theoretical framework for future empirical studies but also assists in understanding the potential roles of universities in the responsible use of AI technologies for research and scholarly communication.

### **Ensuring Trustworthiness**

The standards of credibility, dependability, confirmability and transferability are often used to assess the rigour and the quality in qualitative research.

#### **Credibility**

Multiple data sources and methodological triangulation were used to enhance credibility. It was possible to interpret the phenomenon in a comprehensive and holistic way through the scholarly publications and institutional reports, policy documents, conference proceedings.

#### **Dependability**

Independability was assisted by offering a well documented description of all research methods employed, which included search methods, selection criteria, analysis methods and interpretations. This enhances the study's repeatability.

#### **Confirmability**

Ensuring a systematic and evidence-based analytical process helped to support confirmability. No assumptions or opinions were presented, only based on what was found in the literature that was selected.

#### **Transferability**

Elaborate descriptions of the context of the research, the analytical processes, and the conceptual interpretations facilitated transferability by giving future researchers and practitioners a basis for assessing other contexts of the research or other analytical processes to determine the applicability of the results in other contexts of education.

### **Ethical Considerations**

The study is not human or primary study but the following principles of ethics were incorporated.

The first one was that there was no inappropriate or incorrect use of secondary sources.

Secondly, the study has been undertaken in a way that is consistent with scholarly integrity, including no plagiarism, selective reporting and evidence misrepresentation.

Thirdly, the researcher was transparent throughout the analytical process, and recognized the need to address the boundaries of the available literature and interpretations.

Finally, the ethical considerations of generative AI's use in higher education were explored due to the insights gained that can feed into institutional policies and practices related to responsible generative AI. (Dwivedi et al., 2023; Kasneci et al., 2023)

### **Methodological Limitations**

There are, however, some things to be taken into consideration.

Qualitative data used in the study are secondary data, so that there is no experience or perception of faculty and students.

Second, because the generative AI tools are rapidly developing, new tools could be released after the study was conducted affecting the relevance of the study's findings. (Dwivedi et al., 2023; Kasneci et al., 2023)

Third, there are important differences in the different HE systems of countries and institutions. So, experiences and implications from the literature may not be applicable in all situations.

Fourth, the written content will be interdisciplinary study, and it is difficult to include different concepts and terminologies.

However, the qualitative conceptual approach is very suitable due to its ability to give a comprehensive and theoretically grounded view of the effect of generative AI tools on research productivity and scholarly writing practices. (Dwivedi et al., 2023; Kasneci et al., 2023)

### **Methodological Justification**

The choice of a conceptual methodology, which is interpretivist, constructivist and qualitative is supported by the complexity and novelty of generative AI in higher education. In addition to the measurable contribution, the cognitive, social, ethical and institutional dimension of the impact of AI technologies on research productivity and scholarly writing calls for interpretive and contextual understanding. (Dwivedi et al., 2023; Kasneci et al., 2023)

The literature review, document analysis, thematic synthesis, and conceptual framework development all contribute to this methodology, which offers a rigorous way to explore the impact of generative AI on academic research and scholarly communication. The approach therefore has the potential to contribute to the growing understanding of responsible collaboration between humans and AI and provides insights to researchers, educators, university managers and policy makers who want to prepare for opportunities and challenges of generative artificial intelligence in higher education. (Dwivedi et al., 2023; Kasneci et al., 2023)

## **FINDINGS AND DISCUSSION**

Five main themes emerged from the literature analysis: Academic research and publishing in the era of generative AI, AI in research as a tool for enhancing productivity, Generative AI in academic writing, AI's role in student learning, and AI and the ethical guidelines for research and writing. The themes identified in the literature analysis were thematic in nature and interrelated with each other to account for the impact of generative artificial intelligence (AI) on the productivity of university research and writing. The results show that generative AI is not a technology that is only destructive or just a productivity tool. On the contrary, it is a complex socio-technical innovation which is reshaping academic work, redefining human-technology interaction and challenging traditional knowledge-producing, authorship and scholarly communication. Below you will find a discussion of the themes and implications. (Dwivedi et al., 2023; Kasneci et al., 2023)

### **Theme 1 is generative AI as a research productivity and efficiency catalyst**

The first theme shows how generative AI can be beneficial to research productivity and efficiency in higher education. In all literature reviewed, it is noted that use of AI tools help faculty members and students in retrieving information, synthesizing literature, planning research and saving time for writing manuscripts and administrative work associated with academic research. (Dwivedi et al., 2023; Kasneci et al., 2023)

The ability of generative AI systems to automate repetitive and time-consuming tasks is one of the most notable discoveries. AI instruments are being utilized by researchers more and more to abstract articles, arrange references, build research queries, formulate conceptual maps, and structure documents. The features reduce the mental or time load in early stages of research. In this way the researchers can concentrate more on critical thinking, interpretation and theory building. (Dwivedi et al., 2023; Kasneci et al., 2023)

The findings also indicated that the potential for participation in research may arise from generative AI, which could help to reduce barriers to research. Researchers in their early career, postgraduate students, and those from institutions with limited resources will clearly benefit the most from the potential benefits of AI research assistance. Generative AI can alleviate inequities around access to knowledge and contribute to the capacity to research and to participate in academic discourse through instant access to information and writing assistance. (Dwivedi et al., 2023; Kasneci et al., 2023)

The results align with past research, which has highlighted AI technologies as tools for boosting productivity and enhancing knowledge management in the realm of research. The present analysis, however, extends beyond previous studies as it recognizes that value added improvements are not necessarily quantifiable. More publications or less time on tasks does not necessarily equate to high quality research or intellectual input.

The results from this study indicate that, according to the Technology Acceptance Model (TAM), the perception of usefulness and ease of use are important factors in the acceptance of generative AI in academic environments. As AI tools become more prevalent in faculty and student use, their potential benefits of efficiency and workload reduction are driving their growth. Students and faculty use AI tools, as their benefits in making processes easier and less burdensome on them are believed. (Dwivedi et al., 2023; Kasneci et al., 2023)

These findings have important implications in the field of education. AI for Research and AI Literacy can be incorporated into the programs for graduate students and professional development at universities. AI for Research programs and AI Literacy programs can be incorporated into the graduate curricula and professional development programs of universities. There is a need for institutional change to enable structures that promote responsible AI usage and ensure high quality research. Policymakers should also acknowledge the promise of AI technologies of improving the productivity of research and create policies and guidelines that foster innovation in research while upholding academic rigor.

Theme 2: How Generative AI affects the quality of scholarly writing and scholarly communication (Dwivedi et al., 2023; Kasneci et al., 2023)

The second theme is related to the effects of Generative AI on academic communication and writing. In the literature, AI tools are reported for the improvement of various writing aspects, such as the quality, linguistic clarity, organisation of ideas, and academic communication in a range of fields. (Dwivedi et al., 2023; Kasneci et al., 2023)

The results are particularly promising in the context of the role of AI technologies in assisting non-native speakers of English researchers. Generative AI tools enable users to improve the grammatical, sentence-level, coherence and academic style to reduce language barriers to participation in academic communication across borders. The discovery indicates that AI technologies have a great deal of potential to help foster more inclusivity and democratization at the international level in Higher Education. (Dwivedi et al., 2023; Kasneci et al., 2023)

It was also found that, generative AI can support the writers and researchers to develop outlines, edit their writing, and overcome writer's block. The use of AI tools in writing can seem helpful for students and novice researchers, as they offer guidance on academic conventions and scholarly expression. (Dwivedi et al., 2023; Kasneci et al., 2023)

However, the results also highlight the issues of originality and intellectual involvement with AI-assisted writing. Producing academic content using AI may be difficult for students to differentiate from original ideas, which could lessen the demand for critical thinking and independent work. AI-generated academic content may be of a high quality and may not require more critical thinking or independent thinking. Using AI for writing too much can lead to a complacency with the skills which are essential for academic writing and of course, may cause the loss of opportunity for any type of cognitive development.

The results of the current study corroborate and contradict earlier studies. Previous research has focused on the ability of AI to enhance the quality and efficiency of communication and writing. The present analysis, however, indicates that the quality of writing cannot be assessed by the grammatical correctness or the logical development of it. But the scholar's writing also requires critical analysis, argument, originality of the mind—and this always involves some engagement that is human.

The results have implications for the Sociocultural Learning Theory perspective on the process of writing as a process of building knowledge socially and culturally. In the academic landscape, generative AI has become a novel intermediary in the process of knowledge creation, transmission, and development, impacting scholars' processes of production, communication, and improvement. The academic community is witnessing the emergence of generative AI as a new middle ground technology that is reshaping the creation, communication and development of knowledge among scholars. (Dwivedi et al., 2023; Kasneci et al., 2023)

In the field of education, universities should incorporate the use of AI tools in writing within a comprehensive educational approach that focuses on critical thinking and responsible writing practices. The guidelines from institutions should clarify what is permitted and what is not permitted to say when using AI to produce an item. When creating policies, the possibilities for the impact AI technologies may have on the norms of academic publishing and scholarly communication should also be considered.

Theme 3 is about human-AI collaboration in research, learning and knowledge creation (Luckin, 2018)

The third theme provides insights on how generative AI is becoming a sort of assistant that is not just a technology tool but a collaborator. The literature indicates that AI supported research and writing can be an iterative process in which human intelligence and AI capabilities engage in dynamic interaction, resulting in new forms of knowledge production and scholarly interaction. (Dwivedi et al., 2023; Kasneci et al., 2023)

The results show that AI tools are being used as intellectual partners for researchers and students in the development of ideas, offering alternative viewpoints and helping with problem-solving. Generative AI is not a cure-all that will eliminate the need for human skills, but rather a cognitive tool to complement and enhance human creativity and analytical ability. (Dwivedi et al., 2023; Kasneci et al., 2023)

Yet another finding is that the nature of learning and knowledge production is a dynamic one. AI tools are increasingly being used in brainstorming sessions, research of literature, conceptualization, and collaborative writing. The developments indicate that the production of knowledge is increasingly diffused along various human and technological actors.

The results, however, also highlight some challenges to human-AI partnerships. Overuse of AI could lead to a decrease in self-directed investigation and foster dependency, which can hinder the cultivation of critical research skills. Additionally, there is still an issue of the right amount of human oversight and algorithmic support when it comes to the academic task.

The results are in line with Human-Centered AI principles, which promote technologies that complement human capabilities. The results further validate the Diffusion of Innovation Theory, showing that social relations, institutional norms, and perceptions of usefulness influence the adoption of AI technologies.

In the educational context, the results indicate that universities should equip students and academics with the ability to collaborate effectively with AI systems through building AI literacy and critical digital skills. Institutionally, spaces should be created that promote responsible experimentation of the use of AI technologies without limiting the scope of human agency and intellectual independence.

On a policy level, universities and educational institutions need to create policies that ensure AI tools are used in conjunction with, not in place of, human reasoning and expertise.

Theme 4 focuses on ethical issues, academic integrity, and the challenges of AI integration (UNESCO, 2023)

The fourth theme highlights ethical issues and academic integrity as some of the biggest challenges of generative AI use in higher education. The results indicate that the plagiarism, authorship, and dependence on AI are common concerns while misinformation, privacy, and the future of academic values are also of critical importance. (Dwivedi et al., 2023; Kasneci et al., 2023)

Academic integrity was the most common concern that was discussed in the research articles reviewed. This has led to a shift in the traditional definition of originality and plagiarism with the advent of AI systems creating high-quality academic content. With the emergence of advanced AI systems creating high-quality academic content, the traditional concept of plagiarism and originality has been challenged. As AI becomes more prevalent in education, institutions are increasingly facing challenges in setting and adhering to clear limits on acceptable uses of AI, as well as in providing processes that enable them to identify AI-generated content. (UNESCO, 2023)

The results also show issues with authorship and intellectual ownership. Since AI systems can generate ideas and produce text, questions arise about the extent to which work done with the help of AI is authentic human scholarship. The literature constantly stress that accountability and intellectual responsibility should be the key responsibilities of the human person.

An additional key discovery is about the danger of relying excessively on AI technologies. Overreliance on AI-generated content can make it harder to think critically, improve analytical abilities, and foster self-directed learning. This may have implications beyond the current project that could impact the quality of research and development of scholarly expertise.

There are also ethical considerations related to privacy and bias. Generative AI systems can replicate inaccuracies and society's pre-conceptions in the data they learn from and can reveal sensitive information with misuses. (Dwivedi et al., 2023; Kasneci et al., 2023)

This is consistent with earlier research highlighting the ethical issues facing AI in education and research. In fact, the current analysis indicates that these concerns are not only technical issues, but institutional and cultural issues that must be addressed by a more comprehensive governance framework.

In the context of Human-Centered AI, the results highlight the need for transparency, accountability, and human oversight in AI-driven academic tasks.

Educational implications include the need to integrate ethics education and AI literacy into higher education curricula. Policies should be established by institutions, such as universities, defining the use of AI, disclosure of its use, and academic integrity. Policymakers should put in place regulatory measures that foster innovation and preserve the credibility and integrity of higher education. (UNESCO, 2023)

Theme:5 focuses on the development of a Conceptual Framework for the Responsible and Effective Use of Generative AI in Higher Education (Dwivedi et al., 2023; Kasneci et al., 2023)

The final theme brings together the findings and draws them into a conceptual framework for the responsible incorporation of generative AI in higher education. The analysis shows that the implementation of AI technologies must be balanced and consider the innovation potential, safeguarding academic integrity, and values related to humans. (Dwivedi et al., 2023; Kasneci et al., 2023)

The suggested framework is comprised of five interrelated components:

Responsible use of AI and technological readiness;

Research productivity enhancement;

Scholarly writing and communication with the help of AI;

Ethical governance and academic integrity;

Collaboration and lifelong learning—with humans.

The framework suggests that responsible AI adoption is the key to success in integrating AI. Institutions need to create technological infrastructures, policies, and training activities that allow faculty and students to be effective and ethical users of AI.

The second part highlights the ways in which AI can enhance the productivity of research, such as by generating efficiencies, managing information, and providing cognitive support. But as productivity gains go, considerations of research quality and scholarly rigor have to be taken into account.

The third component focuses on the possibilities of AI technologies to assist academic writing and scholarly communication and the need to keep originality and critical engagement.

The fourth component is on ethical governance and academic integrity. Maintaining trust in academic scholarship requires transparency, accountability and responsible authorship. (UNESCO, 2023)

The last part focuses on collaboration with a human element and lifelong learning. AI technologies should complement and enhance human abilities, not supplant them.

### Summary of Findings

| Theme                               | Major Findings                                                 | Implications for Research Productivity                   | Implications for Scholarly Writing                           |
|-------------------------------------|----------------------------------------------------------------|----------------------------------------------------------|--------------------------------------------------------------|
| Generative AI and Productivity      | Increased efficiency and automation of research tasks          | Accelerates information retrieval and research processes | Supports drafting and organization of academic texts         |
| Scholarly Writing and Communication | Improved writing quality and language support                  | Facilitates knowledge dissemination                      | Enhances clarity, coherence, and accessibility               |
| Human-AI Collaboration              | AI acts as a cognitive and intellectual partner                | Supports creativity and idea generation                  | Encourages collaborative knowledge production                |
| Ethical Concerns and Challenges     | Issues of plagiarism, authorship, and dependency               | Requires governance and ethical oversight                | Necessitates responsible authorship practices                |
| Conceptual Framework                | Integration of productivity, ethics, and human-centered values | Promotes sustainable research innovation                 | Encourages responsible and effective scholarly communication |

### Discussion, Conceptual Framework

Overall, the results show that generative AI is revolutionizing higher education research productivity and writing. But its future is reliant on building a balance between technologically innovative and ethically responsible approaches, and learning that is centered around students. (Dwivedi et al., 2023; Kasneci et al., 2023)

The conceptual framework proposed here indicates that the successful integration of AI should involve productivity enhancement, writing support, ethical governance, and the human-AI collaboration. The framework also makes a theoretical contribution by bringing together disparate research and developing a comprehensive model to explain the impact of generative AI on academic practices. (Dwivedi et al., 2023; Kasneci et al., 2023)

The framework offers a practical approach for institutions to adopt and implement AI tools while maintaining the rigor and integrity of academic research. On a practical level, the framework offers guidance to universities, researchers, and policy makers on how to leverage the potential of AI while also keeping the standard of academic rigor and integrity. In conclusion, generative AI can be a powerful tool for augmenting research, improving scholarly communication, and advancing the future of knowledge creation in the ever-changing landscape of higher education, but it should not be seen as a substitute for human expertise and creativity. (Dwivedi et al., 2023; Kasneci et al., 2023)

## CONCLUSION

Generative AI (GAI) is an innovation with one of the greatest impacts in the field of higher education and academic research in today's world. As universities are increasingly embracing digital technologies to improve the way they teach and learn, and impact the generation of knowledge, generative AI tools have emerged as formidable tools to enable increased research productivity and improve scholarly writing. They have the ability to produce content, search for information, engage in academic communication and enhance intellectual efforts, which has opened up unparalleled opportunities for faculty members and students. At the same time as these technologies rapidly proliferate, they bring forth deep and searching inquiries into academic honesty, authorship, ethical accountability, and humanity's future. (Dwivedi et al., 2023; Kasneci et al., 2023)

The purpose of this study was to develop a conceptual, qualitative understanding of the impact of GAs applications on research productivity and scholarly writing in the university environment. The results show that generative AI can dramatically improve the efficiency of research, through repetitive task automation, swift literature synthesis, idea generation, and scholarly work organization. The study also suggests that AI tools can enhance academic writing by offering linguistic support, improving clarity and coherence, and assisting researchers facing challenges when communicating in academic writing, particularly those who are non-native English speakers. (Dwivedi et al., 2023; Kasneci et al., 2023)

The results also show that generative AI use in academia comes with a complex set of challenges, though. There are major issues, such as plagiarism, over-reliance on automation, authorship attribution, misinformation, and algorithmic bias and data privacy, that merit careful consideration. In addition to highlighting the need to keep technological efficiency separate from the cultivation of intellectual abilities in research and writing, the research provides attention to the potential pitfalls of current and future use of AI in research and writing, including implications for the development of critical thinking and independent research skills as well as the development of scholarly expertise. This means a careful balance that incorporates innovation and upholds the core principles of higher education. (Dwivedi et al., 2023; Kasneci et al., 2023)

There are several important theoretical implications for the field of higher education, educational technology, and scholarly communication in this study. First, it helps to explain generative AI as a socio-technical phenomenon that is not about the use of technology only, but affecting academic processes and academic practice. Second, it integrates the Technology Acceptance Model, the Human-Centered AI, the Diffusion of Innovation Theory and the Sociocultural Learning Theory, thus providing a large-scale conceptual framework for human-AI collaboration in research and scholarly writing. Finally, the study contributes to the growing body of research on AI in educational work, emphasizing the relationships between productivity, ethics, and intellectual liberty. (Dwivedi et al., 2023; Kasneci et al., 2023)

The results also have important policy, practice/working and faculty/student implications. It is essential for universities to create comprehensive institutional strategies that foster an understanding of AI literacy, offer training on responsible use of AI and set guidelines on authorship, disclosure, and academic integrity. The integration of AI tools into education and research should empower students and researchers to think critically and not rely on AI. Students should be able to engage with and apply AI technology responsibly, ethically, and critically, and use it to enhance their learning, while not replacing the need for them to put in effort. Governance mechanisms and systems that foster innovation and uphold the credibility and integrity of higher education should be created by policymakers and educational leaders. (UNESCO, 2023)

From the results, some recommendations can be suggested. The first step is to have clear policies by higher education institutions regarding the correct uses of generative AI in research and academic writing. Secondly, partnerships between teachers and AI developers need to be more robust, aiming to incorporate AI literacy and digital ethics into education systems and professional development. Thirdly, universities need to promote ways of using AI that embrace the human touch, emphasizing creativity, critical thinking and academic freedom. Finally, agreement should be reached between academic publishers and research institutions on how to disclose and recognize contributions made with the help of AI. Finally, care needs to be taken in establishing ethical governance structures that are responsible, transparent and equitable in the application of AI technologies. (Dwivedi et al., 2023; Kasneci et al., 2023)

The future research directions that are important to the research are also included in the research. Empirical studies with faculty and students from various discipline and culture settings are required to gain a deeper understanding of the patterns of AI adoption and their consequences for academic practices. Changes in research skills, writing and academic identity over time would be explored through the use of longitudinal research when students are using generative AI. Additional research is necessary, taking into account the distinctive nature of disciplinary use of AI, the impact of institutional policies, and developing pedagogical models for the responsible partnership between humans and AI in higher education. (Dwivedi et al., 2023; Kasneci et al., 2023)

Last but not least, it is worth noting that generative AI does not pose a threat to academic scholarship, and cannot be a single solution for research and scholarly communication. If used responsibly and ethically, it is of value only in the ability to enhance and enhance human capabilities. The future of higher education is not about replacing human intelligence with AI, it's about fostering creative collaboration with AI that leads to more productive research and thoughtful, engaging work that enhances the quality of scholarly communication without compromising on the critical thinking, intellectual honesty and academic rigor that continues to define knowledge creation and scientific advancement. (Dwivedi et al., 2023; Kasneci et al., 2023)

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