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**The Role of ChatGPT in Academic Writing: An
Exploratory Study**

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Abstract

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The rapid growth of ChatGPT and other Large Language Models (LLMs) has revolutionized the writing process, significantly altering the landscape of text generation and composition across various domains. While offering considerable benefits, these advancements also introduce new challenges in academic writing. This study investigates the influence of ChatGPT on academic writing among faculty at Oslo Metropolitan (OsloMet) University in Norway and COMSATS University Islamabad (CUI) in Pakistan. Utilizing a survey-based methodology, it captures a wide range of perspectives on how ChatGPT is integrated into academic writing processes, its effects on research productivity, and its implications for the quality and integrity of scholarly work. The research aims to identify both the advantages and challenges of using ChatGPT in academic settings, shedding light on its potential as a tool for enhancing academic writing practices. Through quantitative analysis of survey responses, the thesis provides insights into the current adoption rates, usage patterns, and the perceived impact of ChatGPT on the academic writing landscape, proposing recommendations for the effective integration of AI technologies in scholarly work.

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Chapter 1

Introduction

1.1 Introduction

ChatGPT, a powerful AI tool, has gained popularity in various domains, including academic writing. Its ability to generate text-based responses has opened up new opportunities for faculty members in their writing process. By utilizing ChatGPT, faculty members can benefit from improved productivity, enhanced collaboration, and increased accuracy in their academic writing. However, integrating ChatGPT into academic writing raises concerns about potential ethical challenges such as plagiarism and cheating (Cotton, Cotton, & Shipway, 2024; Dwivedi et al., 2023).

To better understand the role of ChatGPT in academic writing among faculty members, this master's thesis presents an exploratory study that aims to investigate the impact of ChatGPT on the academic writing practices of faculty across diverse academic disciplines and institutions. The study will employ a comprehensive survey method to collect both quantitative and qualitative data, reflecting a wide range of faculty experiences and perceptions related to their use of ChatGPT. Participants from various departments and universities will provide insights into their familiarity with this technology, its influence on their writing efficiency, and the overall impact on their academic work.

The results are expected to highlight the significant advantages and potential drawbacks of using ChatGPT in academic settings. These insights will contribute to broader discussions about the role of technology in education, particularly its impact on academic integrity and the effectiveness of teaching, exploring its benefits, challenges, and ethical considerations.

Additionally, the study will shed light on the faculty members concerns regarding the ChatGPT's future and the negative consequences on their ability to write academically (Sayis & Gunes, 2024). When it comes to academic writing, the use of ChatGPT has been a topic of debate (Ghose & Barua, 2013). While a few scholars believe that ChatGPT can improve writing abilities and help in the completion of tasks efficiently, others express worries about potential risks to academic writing abilities and the need for proper ChatGPT usage in academic writing assignments.

1.2 Background

The digital world we live in today has transformed numerous aspects of our lives, and education is among them (Tan, 2023). With the emergence of artificial intelligence technologies like ChatGPT, there has been a significant impact on academic writing among faculty. These tools can enhance the writing process and support faculty and students in developing their academic writing skills (Fauzi, Tuhuteru, Sampe, Ausat, & Hatta, 2023). Moreover, faculty recognized the value of integrating AI-assisted tools like ChatGPT into their instructional practices. These tools provide an opportunity for students to receive instant feedback and guidance, especially in areas such as language usage, organization, and content. ChatGPT can successfully support professors in delivering feedback and support to their students, by taking advantage of the structural complexity inherent in writing activities. This integration of AI-assisted tools in academic writing positively impacts faculty and their instructional practices. However, faculty need to use ChatGPT sensibly and not rely solely on the tool. They should view ChatGPT as an addition rather than a substitute for their expertise and guidance. By utilizing ChatGPT in their academic writing courses, faculty can create a more interactive and engaging learning environment for their students.

Academic writing is one of the most challenging and time-consuming tasks and requires precision, clarity, and a considerable amount of effort to produce quality work, whether it is a thesis, journal article, or doctoral dissertation (thesis). It requires a huge quantity of information, synthesis, analysis, and investigation from many sources. (Zohery, 2023).

The global use of artificial intelligence (AI) and the rapid development of large language models (LLMs) have attracted a lot of interest from both academia and business as a result of their great success in performing most natural language processing (NLP) tasks, particularly human-like text generation (Wen et al., 2024). In the beginning, these NLP models primarily focused on rule-based systems. These rule-based models required clear and direct instructions for each task. However, with the emergence of machine learning and deep learning, AI systems gained the ability to learn from data, leading

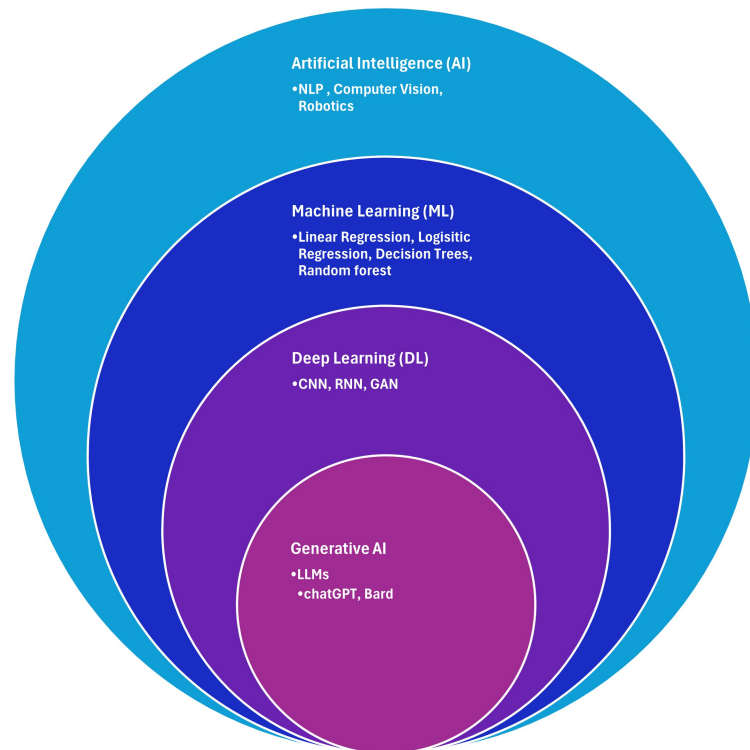


FIGURE 1.1: Evolution from AI to Generative AI and LLMs

to the development of LLMs. These models, such as GPT (Generative Pre-trained Transformer), use vast amounts of text data to learn language patterns and structures, enabling them to produce sensible, relevant text. Over time, LLMs have become more advanced, with improvements in natural language understanding and generation capabilities, making them integral tools in various applications, including academic writing (Bender & Koller, 2020; Brown et al., 2020). Figure 1.1 shows the evolution of AI to Generative-AI and LLM.

In November 2022, OpenAI released ChatGPT, an LLM that can generate code, perform machine translations, generate code, perform analysis and interpretations, etc. It had nearly 13 million subscribers within the first two months of its launch who were using it on a daily basis. ChatGPT is a variant of a generative pre-trained transformer that can learn patterns and the complexity of language and be able to create and understand human-like text, enabling it to produce coherent and contextually relevant responses. ChatGPT is being trained on large datasets to generate replies that are not only relevant but also creative and insightful. This makes it a powerful tool in the field of text, generation, and communication (Radford et al., 2019).

1.2.1 ChatGPT and its impact on academic writing

Exploring the impact of ChatGPT on academic writing is crucial, as this AI tool represents a significant shift in how texts can be produced and enhanced. ChatGPT's ability to produce text has diverse implications for academic writing processes. It has the potential to transform traditional writing methodologies, offering new ways to approach research, drafting, and revision. The need to understand this impact is driven first by the dual possibilities of ChatGPT enhancing academic productivity and efficiency. Secondly, it also raises questions about authorship, originality, and the potential for misuse in academic contexts. As academic institutions increasingly interact with AI technologies, it becomes essential to assess how these tools affect writing quality, research integrity, and the educational experience as a whole (Floridi & Chiriatti, 2020).

ChatGPT has raised interest among users and provoked conversations among educators, researchers, and educational institutions regarding its potential impact on education. The discussion revolves around how ChatGPT can be effectively integrated into education to support teaching and learning activities, displaying the benefits of digital technologies. It is seen as a tool that can act as an intelligent learning assistant, meeting the personalized and flexible learning needs of both students and teachers. However, concerns also exist about the potential misuse and ethical challenges associated with ChatGPT in education, leading to significant concerns among educators, institutions, and society as a whole. The attitudes and perspectives of educators towards the application, expectations, and ethical considerations of such technological advancements are crucial in shaping how these tools are introduced and utilized in education (Wu et al., 2023).

ChatGPT has become a widely discussed topic across diverse sectors. It became the fastest-growing application ever at the end of January 2023, surpassing 100 million monthly active users. As a result, we investigate ChatGPT's educational impact from multiple perspectives and analyze the main application-related problems.

While ChatGPT offers numerous benefits for academic writing, several concerns and challenges also arise. One of the primary concerns is the potential for academic dishonesty, as the ease of generating text with ChatGPT might tempt some users to pass off AI-generated content as their own, raising questions about plagiarism and originality. Additionally, over-reliance on ChatGPT could impact the development of critical thinking and analytical skills, as students and researchers might become dependent on AI for idea generation and problem-solving. There is also the issue of accuracy and reliability, as AI-generated content, even if it is advanced, may not always be correct or contextually appropriate. These challenges necessitate a careful and balanced approach

to integrating ChatGPT into the academic writing process, ensuring it serves as an aid rather than a replacement for human intellect and creativity.

1.3 Problem Statement

The integration of ChatGPT into academic writing practices has gathered significant attention and usage among faculty in educational institutions. Despite its growing adoption, there remains a significant gap in the comprehensive understanding of the actual impact of ChatGPT on academic writing processes, encompassing its benefits, potential challenges such as content reliability, and ethical considerations.

Given the rapid evolution of AI technologies and their increasing integration into educational settings, it is crucial to conduct a focused study to fill this gap. The purpose of this study is to investigate faculty members' opinions and practical experiences with using ChatGPT for academic writing and to provide timely insights and recommendations for its effective integration and utilization in educational contexts.

1.4 Research Objectives

This study's main objective is to investigate the scope to which ChatGPT is integrated into the academic writing process across various disciplines and to assess its impact on key performance indicators, including productivity, creativity, and the overall quality of scholarly work. Additionally, this research aims to explore the ethical concerns associated with using ChatGPT, focusing on originality and copyright issues. The objective extends to assessing the general inclination towards the use of ChatGPT in academic settings, exploring both the factors that encourage its adoption and the reservations or ethical concerns that may deter its use. This comprehensive analysis aims to highlight the varied implications of using ChatGPT in academic writing.

1.5 Research Questions

In order to address the research objectives outlined in Section 1.3, this study poses several key questions. These questions are designed to explore the extent of ChatGPT's integration into academic writing, its impacts on various performance indicators, the ethical considerations it raises, and the overall disposition of the academic community towards its use. Each question targets specific aspects of ChatGPT's application in academic settings to ensure a comprehensive understanding of its implications.

- How familiar are the faculty with ChatGPT and its capabilities?
- How does ChatGPT impact the productivity and quality of work in academic writing?
- What are the enhancements required for ChatGPT in academic writing?
- What are the perceived benefits and challenges of using ChatGPT in academic settings?
- What are the different mechanisms to prevent plagiarism?
- Are the faculty inclined to implement ChatGPT in teaching?

To illustrate the alignment between the posed research questions and the defined objectives of this study, Table 1.1 provides a summary. This table shows the direct connections and also highlights the comprehensive coverage of all key aspects of ChatGPT's application in academic environments.

TABLE 1.1: Alignment of Research Questions with Research Objectives

Research Questions	Objective Alignment
How familiar are the faculty with ChatGPT and its capabilities?	Supports understanding the extent of integration
How does ChatGPT impact productivity and quality in academic writing?	Directly assesses the impact on key performance indicators
What are the enhancements required for ChatGPT in academic writing?	Indirectly relates to integration and ethical concerns
What are the perceived benefits and challenges of using ChatGPT?	Directly addresses benefits, challenges, and ethical concerns
What mechanisms can prevent plagiarism?	Directly addresses ethical concerns regarding originality
Are faculty inclined to implement ChatGPT in teaching?	Explores general inclination towards use and adoption factors

1.6 Significance of the Study

This study provides important insights into how university faculty utilize ChatGPT, assessing its impacts on productivity, creativity, and scholarly quality. This research explores the practical uses and challenges of ChatGPT, providing a detailed look at the advantages and disadvantages of adopting AI, particularly ChatGPT, in academia. It also examines the ethical implications of integrating such technologies in educational settings, addressing concerns about originality and integrity. Ultimately, the findings

are expected to inform policy decisions and curriculum developments, benefiting educators, administrators, and policymakers engaged in shaping the future of educational technology.

1.7 Structure of the Thesis

This thesis has been organized into five chapters, as pictorially depicted in Figure 1.2, starting with an introduction, followed by a literature review, methodology, results, and discussion, and concluding with recommendations and future research directions.

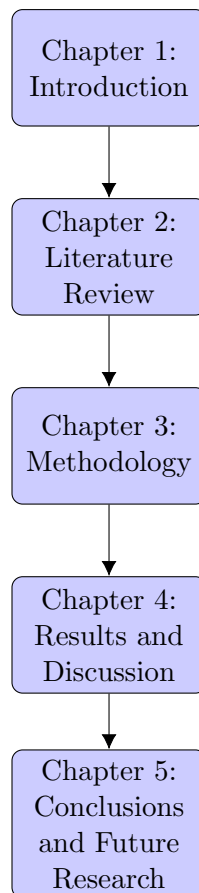


FIGURE 1.2: Organization of the Thesis

Chapter 2

Literature Review

This chapter provides a comprehensive review of the existing literature on the use of Artificial Intelligence (AI) in academic writing, highlighting significant advancements and identifying gaps that this study aims to address. Artificial intelligence has increasingly become a pivotal element in various academic practices, offering innovative solutions to longstanding challenges in writing, research, and publication processes. The following sections will trace the evolution of AI technologies, with a particular focus on how these tools, including sophisticated models like ChatGPT, have been integrated into the academic landscape. This exploration begins with a detailed examination of the historical development of AI applications in academic writing, assessing their evolutionary impacts and the shifting perceptions of educators and researchers towards these technologies.

2.1 Evolution of Artificial Intelligence in Academic Writing

Artificial Intelligence has roots that trace back to ancient times, where early concepts and ideas about creating artificial beings and machines that mimic human intelligence first emerged. The modern journey of AI, however, began to take shape prominently in the mid-20th century. During the 1950s and 1960s, scholars and researchers started to explore the potential of building devices capable of intelligent behavior. This period marked the onset of serious academic and practical attempts to create what we now know as AI ([Russell & Norvig, 2020](#); [Turing, 1950](#)).

By the 1970s and 1980s, AI research had entered a phase of expansion with the development of expert systems and machine learning. Expert systems, which use knowledge-based rules to solve specific problems, and machine learning algorithms, which learn

from data to improve performance over time, became popular. These developments allowed AI technologies to be integrated into various applications across multiple fields, including healthcare, finance, and education(Weizenbaum, 1966).

The relevance of AI in education began to emerge as these technologies matured. Early implementations were relatively simple, such as programmed instruction and computer-assisted learning systems, which set the stage for more sophisticated AI applications. These foundational tools paved the way for the integration of AI into more complex educational processes, including adaptive learning systems and, eventually, AI-driven tools for academic writing(Gligorea et al., 2023).

Building upon the foundational developments of AI in academic writing, which began with simple grammar-checking tools and evolved through significant advancements in natural language processing, different milestones that defined this journey are discussed. One pivotal milestone was the integration of machine learning techniques in the late 2000s, which transformed AI from basic text-editing software to dynamic systems (Fontenelle-Tereshchuk, 2024)capable of learning from user input and improving over time. This leap forward was crucial for the development of personalized feedback tools that are now integral to academic writing platforms.

The introduction of Grammarly in the late 2010s exemplifies a key milestone. Leveraging advanced machine learning algorithms, Grammarly offers more than simple corrections; it provides comprehensive feedback on style, tone, and clarity, which greatly enhances academic writing (Zinkevich & Ledeneva, 2021). This tool exemplifies how AI has transitioned from a mechanical aid to a sophisticated partner in the writing process, reflecting both the technological evolution and the growing needs of academic writers.

Figure 2.1 represents the timeline of key milestones in the evolution of AI in academic writing. Each key development not only marked a technological advance but also influenced academic practices and methodologies.

AI Coined at Dartmouth (1950s)

The term 'Artificial Intelligence' was officially coined at the Dartmouth Conference in 1956, marking a seminal moment in the field. This conference not only named the discipline but also gathered key thinkers who would shape its initial objectives and methodologies, setting the foundation for decades of AI research and development.

Early Language Processing (1960s)

In the 1960s, the development of ELIZA by Joseph Weizenbaum at MIT demonstrated early natural language processing capabilities. ELIZA was one of the first programs able to mimic human-like conversations, laying the critical groundwork for future AI-driven writing tools and showing the potential of computers to understand and generate human

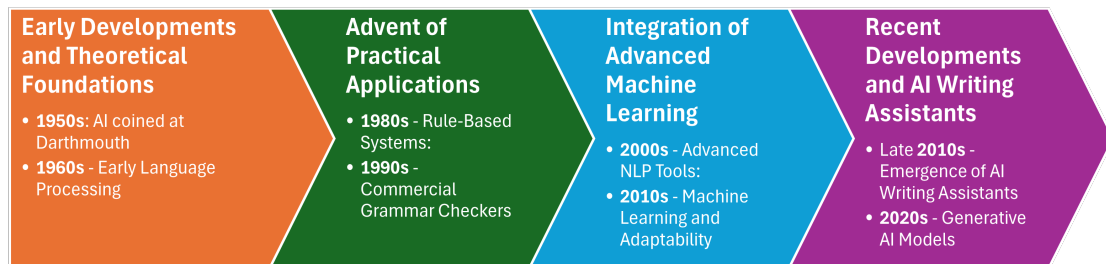


FIGURE 2.1: Evolution of AI in academic writing

language.

Rule-Based Systems (1980s)

The 1980s witnessed the rise of rule-based expert systems, which were designed to simulate the decision-making abilities of human experts. These systems were crucial in advancing early grammar-checking tools and educational software, as they could apply complex rules to text analysis, significantly improving the utility of AI in academic environments.

Commercial Grammar Checkers (1990s)

”By the 1990s, AI had become integral to commercial applications, with tools like Microsoft Word incorporating spell check and grammar correction features. These AI-powered tools became staples in academic writing, enhancing writing efficiency and accuracy by automatically detecting and suggesting corrections for common errors.

Advanced NLP Tools (2000s)

The integration of advanced natural language processing techniques during the 2000s significantly enhanced educational tools, enabling more sophisticated text analysis capabilities. These developments allowed for deeper style analysis and more accurate grammar suggestions, helping writers achieve greater clarity and stylistic precision in their work.

Machine Learning and Adaptability (2010s)

Breakthroughs in machine learning during the 2010s led to the creation of adaptive learning technologies capable of personalizing feedback based on individual writing styles. This period significantly impacted academic writing practices by providing tools that could learn from user interactions and improve their assistance over time.

Emergence of AI Writing Assistants (Late 2010s)

The late 2010s saw the emergence of sophisticated AI writing assistants like Grammarly, which leveraged deep learning to offer comprehensive writing enhancements. These tools moved beyond basic error correction to provide detailed feedback on tone, clarity, engagement, and overall writing quality, transforming AI into a critical partner in the writing process.

Generative AI Models (2020s)

The introduction of generative AI models, such as OpenAI's GPT-3, marked a revolutionary advancement in academic writing tools. These models are capable of generating text, summarizing research, and even drafting entire papers, thereby significantly expanding the capabilities and applications of AI in academic settings.

The advent of generative AI models like OpenAI's GPT-3 represents a turning point in the capabilities of AI tools in academic writing, enabling tasks that were once thought to be solely within the human domain, such as drafting complex research papers and generating insightful academic content. As we transition from the broader context of AI's evolution in academic settings to a focused analysis of specific tools, ChatGPT stands out as a prime example of these advancements in action. Developed by leveraging the power of generative AI, ChatGPT represents an innovative ability to support and enhance academic struggle. In the next section, we explore the specific functionalities and attributes of ChatGPT, exploring how this tool not only streamlines various academic tasks but also raises important considerations for its integration into educational practices.

2.2 ChatGPT: Capabilities and Features

ChatGPT 3.5, developed by OpenAI, is distinguished globally for its human-like responses and versatility. As an advanced tool in the domain of academic writing, ChatGPT enhances instructional practices by automating and optimizing a range of tasks (Javaid, Haleem, Singh, Khan, & Khan, 2023). This allows educators to focus on more critical educational goals, thereby enhancing both teaching efficiency and learning outcomes.

Specifically, ChatGPT is instrumental in creating academic materials such as tests, homework assignments, research papers, articles, and presentations. Its ability to summarize texts and generate content based on user inputs makes it a powerful tool for

developing instructional content and facilitating research. Moreover, ChatGPT's conversational capabilities allow it to serve as an interactive tool for students, providing clarification, tutoring, and language practice, thus enriching the learning experience. (Javaid et al., 2023)

Compared to traditional methods, which rely heavily on manual effort and are often limited to basic text correction, ChatGPT incorporates advanced natural language processing (NLP) capabilities. This technological integration allows ChatGPT to comprehend and generate contextually relevant content that closely mirrors natural human writing, far surpassing the traditional approach in terms of efficiency and depth of text analysis. Furthermore, ChatGPT extends beyond simple grammar checks, offering enhancements in style, tone, and overall textual coherence, which significantly refine the quality of academic writing.

Table 2.1 provides a comparative overview of how ChatGPT stands against traditional methods and highlights its advantages over earlier AI writing aids, which typically offered less dynamic interactions and simpler text processing tasks. It also shows ChatGPT's role in transforming academic environments, making complex writing and research tasks more accessible and manageable for both educators and students (Padmavati, n.d.).

TABLE 2.1: Comparison Between ChatGPT and Traditional Writing Methods

Aspect	Traditional Writing	ChatGPT
Creativity and Intuition	Excels in personal expression and storytelling.	Generates creative text but lacks human intuition.
Speed and Efficiency	Time-intensive; involves careful creation.	Rapid text generation and efficient information processing.
Contextual Understanding	Deep understanding, tailored communication.	Sometimes lacks depth in highly complex topics.
Human Connection	Engages readers with authenticity and emotional depth.	Struggles to replicate genuine emotional engagement.

2.3 ChatGPT: Strengths and Challenges

2.3.1 Strengths

Recent advancements in artificial intelligence, particularly in natural language processing, have led to significant developments such as the emergence of pre-trained language models like ChatGPT. This technology has profoundly impacted academic writing by enhancing both the efficiency and effectiveness of the writing process. For instance,

ChatGPT aids in streamlining formatting, referencing, and proofreading tasks, thereby saving researchers considerable time and effort (Dave, Athaluri, & Singh, 2023).

Furthermore, ChatGPT acts as a dynamic resource for information and idea generation in academic contexts. Its capability to produce coherent and contextually relevant responses allows researchers immediate access to appropriate information, reducing the need for extensive literature reviews. Additionally, it supports academic creativity by providing novel prompts and suggestions, drawing from its diverse training data to introduce unique perspectives and insights.

The tool also facilitates collaboration and iterative feedback within academic communities. By generating drafts or suggesting alternative phrasings, ChatGPT functions as a collaborative assistant, enabling scholars to refine their writings effectively. Moreover, its interaction enhances language fluency and vocabulary, significantly improving the quality of academic texts.

Beyond individual writing tasks, ChatGPT enhances research productivity by efficiently handling large datasets, performing document analysis, and preparing comprehensive reports. Its ability to process extensive amounts of information swiftly and accurately positions it as an invaluable tool in academic settings, particularly where large-scale data analysis is required (M Alshater, 2022).

In summary, ChatGPT's integration into academic writing not only streamlines various aspects of the research process but also enriches the academic discourse by fostering innovation, enhancing language skills, and facilitating a collaborative environment. The ongoing evolution of this technology continues to open new avenues for academic exploration and efficiency.

2.3.2 Challenges

The integration of advanced language models like ChatGPT into academic writing, while innovative, introduces several challenges that must be carefully managed. A primary concern is ChatGPT's lack of deep comprehension, which may lead to content that, despite being coherent, lacks the necessary depth of analysis or contains inaccuracies (Gabashvili, 2023; Tan, 2023). This superficial understanding can result in responses that do not fully grasp the complexities of academic subjects.

Furthermore, the effectiveness of ChatGPT is highly dependent on the quality and diversity of its training data. In cases where the data is not sufficiently comprehensive or is biased, the model might produce misleading or incorrect content (M Alshater,

2022). This is particularly problematic in academic settings where precision and factual correctness are essential.

Another significant limitation is ChatGPT's inability to generate original insights. While capable of synthesizing information based on its training, it cannot create truly innovative ideas or complex arguments, potentially hindering creativity and intellectual exploration (Fauzi et al., 2023).

Ethical concerns also play a critical role in the discourse surrounding the use of AI in academic writing. Issues such as plagiarism, proper attribution of authorship, and the potential for generating biased content need careful examination (Haq, Naeem, Naeem, Iqbal, & Zaeem, 2023). These ethical challenges necessitate a cautious approach to using ChatGPT, ensuring that it complements rather than compromises academic integrity.

To mitigate these challenges, it is crucial to combine ChatGPT's capabilities with human oversight. Scholars should critically assess and verify the model's outputs, integrating rigorous checks to maintain the academic standards required for scholarly work. Furthermore, an ongoing evaluation of the tool's outputs helps safeguard against the erosion of critical thinking skills and ensures that the incorporation of AI into academic practices remains both innovative and ethical.

To provide a clear overview of the strengths and challenges associated with the use of ChatGPT in academic settings, Table 2.2 summarizes the main strengths and challenges identified in our discussion. The strengths highlight how ChatGPT enhances various aspects of academic writing, from increasing efficiency to improving language skills. Conversely, the challenges address critical issues such as the tool's lack of deep comprehension, dependency on data quality, and potential ethical concerns.

2.4 Related Work

Previous research has extensively explored the role of AI, particularly ChatGPT, in academic writing, providing valuable insights into its implications for both faculty members and language learners. These studies offer a broad range of perspectives on integrating AI tools into academic writing processes, highlighting both benefits and potential risks.

The study by (Limna et.al, 2023) presents an insightful exploration into the deployment of ChatGPT within academic settings, highlighting both the technology's potential and its limitations. Notably, the research underscores a generally positive reception among educators and students, particularly praising ChatGPT's capability to alleviate educators' workloads and enhance student access to immediate academic support. However,

TABLE 2.2: Summary of Strengths and Challenges of Using ChatGPT in Academic Writing

Strengths	Challenges
Enhances efficiency and effectiveness in tasks such as formatting, referencing, and proofreading.	Lacks deep comprehension, which may lead to inaccuracies in content generation.
Provides instant access to information, reducing the need for extensive searches.	Relies heavily on the quality and diversity of its training data, which can affect output relevance and accuracy.
Offers creative prompts and suggestions, enhancing creativity in academic writing.	Struggles to generate original insights or complex arguments, affecting innovation in academic content.
Facilitates collaboration and feedback among peers, enhancing peer review processes.	Raises ethical concerns, including plagiarism and the integrity of academic work.
Improves language fluency and vocabulary through interaction.	Potential to decrease critical thinking and reliance on original thought due to automation.

critical concerns regarding the accuracy of ChatGPT's responses and the potential erosion of personal interaction between teachers and students were prominent, suggesting areas for cautious integration. This study also pinpoints significant gaps, such as the need for a deeper understanding of the long-term implications of ChatGPT's use in education. These findings contribute valuable perspectives to the ongoing discourse on the impact of AI technologies like ChatGPT on enhancing or possibly disrupting traditional academic writing practices.

The authors in (Yu, 2024) discuss ChatGPT's potential to transform education and outline significant challenges, such as reshaping traditional educational roles. While highlighting opportunities for educational enhancement, they also acknowledge major challenges that could compromise established educational frameworks. The paper emphasizes the need for more empirical research to prove the qualitative insights on integrating AI technologies like ChatGPT into educational settings.

(Kiryakova & Angelova, 2023) assesses the utilization and perception of AI applications, specifically ChatGPT, among university professors. Their findings highlight a broad familiarity and selective adoption of AI tools related to academic tasks like translation and grammar correction. The study reveals a cautious but growing interest in using ChatGPT for crafting educational materials and generating assessments, although concerns about accuracy and reliability temper enthusiasm. The key concerns revolve around the potential for propagating misinformation and academic dishonesty. This paper underscores the necessity for more structured research to explore the practical integration of ChatGPT in educational settings, focusing on developing guidelines to mitigate its risks.

(Prentzas & Sidiropoulou, 2023) explore the integration of Chat-GPT within a university's Department of Education, focusing on its impact on teaching, learning, and administrative functions. Their initial findings, derived from a preliminary assessment involving senior pre-service teachers in a 'Creative Writing' course, suggest that Chat-GPT can add value by enhancing conversational interactions and generating tailored text responses. This study is positioned as a work-in-progress, indicating ongoing research that aims to further quantify and elucidate the tool's educational benefits and challenges. The paper highlights the potential of AI tools like Chat-GPT to improve educational outcomes but also notes the need for more comprehensive studies to fully understand its impact.

(Amani et al., 2023) conducted a thorough survey at Texas A&M University to gauge the perceptions of faculty, staff, and students regarding generative AI tools like ChatGPT. The findings illuminate diverse attitudes toward AI's potential to enhance academic integrity and learning efficiency, along with comparable concerns about academic dishonesty and dependency on AI for critical thinking tasks. The methodology is robust, involving both qualitative and quantitative elements and capturing a wide range of opinions across different academic roles. However, the study's limitation lies in its sample, concentrated in the engineering department, which may not represent the broader university community's sentiments. This specificity suggests the need for broader, cross-disciplinary studies to better understand generative AI's impact across various fields of study.

The authors in (Petricini, Wu, & Zipf, 2023) explore the perceptions of generative AI tools like ChatGPT among faculty and students at a major university. Their study highlights a mix of inevitability and reluctance regarding the adoption of AI in academic settings. While there is a recognized potential for AI to enhance educational practices, there are prominent concerns about academic integrity and the potential for misuse of AI tools. The methodology, consisting of extensive survey analysis, effectively captures a wide range of opinions but may suffer from biases due to self-selection and the concentration of responses from certain demographic groups. This gap suggests a need for further, more controlled studies to assess the impacts of AI across diverse academic communities.

The study demonstrated the positive impact of AI on writing efficiency and accuracy, especially in collaborative writing projects. It suggested that tools like ChatGPT could enhance collaboration and increase accuracy in academic compositions.

Moreover, the impact of ChatGPT on learners writing performance was explored by Davis et al., who analyzed language learners reactions to using ChatGPT in writing courses. Their examination of the reactions and reflections of language learners using

ChatGPT in writing courses underlined the potential benefits and risks in educational settings. This study shed light on the importance of understanding how AI tools, like ChatGPT, can influence writing skills and learning outcomes among language learners.

In (Wang et al., 2022) authors introduce Hammer PDF, an advanced PDF reader tailored for scientific papers, aiming to enhance academic reading by integrating features like information extraction and academic content links. While promising, the tool's effectiveness and user experience improvements lack empirical validation, highlighting the need for further user-based research to substantiate its benefits in academic settings.

The authors in (He, Yang, Zuo, & Lin, 2023) outline how ChatGPT can expedite the scientific writing process by aiding in organization, data analysis, and even the initial drafting of papers. It also addresses concerns like the potential for plagiarism and the importance of ensuring rigorous, effortful research. While the tool enhances productivity and aids in tasks like proofreading and formatting, the authors warn against over-reliance on AI, emphasizing the irreplaceable value of critical thinking and originality in academic writing.

(Fauzi et al., 2023) suggests that ChatGPT can act as a tool for improving student productivity by providing information and improving language skills, among other benefits, while also noting that it cannot replace human interaction and learning experiences. The qualitative research approach, while thorough in capturing the diverse utilities of ChatGPT, lacks empirical evidence to quantify these benefits, suggesting a potential area for further quantitative research.

The authors in (Dave et al., 2023) extensively cover the utilization of ChatGPT within healthcare, highlighting both its novel applications and the ethical dilemmas it presents. The model's ability to enhance medical education, assist in patient management, and streamline research is exceptional. However, they also address significant concerns such as potential biases, the risk of misinformation, and ethical issues regarding authorship and plagiarism in scientific publications. Despite these challenges, it is suggested that, with careful oversight and ethical considerations, ChatGPT could revolutionize various aspects of healthcare.

Authors in (Tan, 2023) analyze the role and impact of ChatGPT in education and discuss its future applications, highlighting its potential and the breakthroughs in natural language processing that have facilitated its development. It also cautions against the potential for educational inequity and the undermining of traditional educational values. The analysis is based on existing literature and Tan's observations, aiming to balance the narrative on AI's educational impact by advocating for responsible integration into educational practices.

([Amani et al., 2023](#)) analyzes how technology integration improves the effectiveness of educators and its influence on the learning capabilities of faculty and staff across various learning environments. In this study, two surveys were conducted to gather responses from faculty, staff, and students on how generative AI impacts their teaching skills and benefits students. The surveys were sent to their email addresses. The survey topics primarily include the Uses of ChatGPT, the comfortability of using ChatGPT in academia, academic dishonesty, and a few more. The survey comprises both quantitative and qualitative questions aimed at faculty, staff, and students.

According to the study, ChatGPT can improve learning, but teachers are still crucial, and efforts should be directed toward helping educators better integrate technology into the classroom and strengthen their capacity to oversee digitally enhanced learning settings ([Ausat, Massang, Efendi, Nofirman, & Riady, 2023](#)).

([Iqbal, Ahmed, & Azhar, 2022](#)) explores faculty attitudes toward using ChatGPT in higher education, revealing general caution and a mainly negative perception due to fears of cheating and plagiarism. These concerns are contrasted by recognized benefits like aiding in lesson planning and assessments. The qualitative research, centered around semi-structured interviews with 20 faculty members, highlights the need for more extensive education about ChatGPT to enhance acceptance and integration into teaching. This study suggests a broader resistance to AI tools in academia, primarily due to ethical concerns and potential misuse.

These studies highlight the growing role of ChatGPT in aiding academic writing while also pointing out the ethical considerations and the need for balanced usage to ensure that it supports and does not replace human effort and creativity. These previous studies have contributed to the existing literature on AI in academic writing, providing comprehensive insights into the benefits and challenges associated with integrating ChatGPT. Building upon this research, the current exploratory study seeks to further enhance the understanding of faculty members' perceptions and experiences with ChatGPT in academic writing practices.

Also, the findings from these previous studies serve as a foundation for the current study, which aims to investigate the role of ChatGPT in academic writing and its effects on faculty performance and efficiency.

To provide a clear overview of the diverse perspectives and findings from previous research on the use of ChatGPT in academic writing, [Table 2.3](#) summarizes the key studies along with their principal findings, methodologies employed, and identified gaps in the current literature.

To achieve these objectives, the study will follow a quantitative approach, conducting a survey questionnaire with faculty members and conducting quantitative analysis of writing samples and survey data.

TABLE 2.3: Summary of Key Studies on the Use of ChatGPT in Academic Writing

Study	Findings	Methodologies	Gaps
Limna et.al (2023)	Positive reception, workload reduction, concerns about accuracy and interaction.	Qualitative research, in-depth interviews, and content analysis.	Depth of interaction, long-term impact, broader application.
Yu (2024)	Transformative potential, teacher roles.	Qualitative review, case studies.	Lack of empirical data, need for further research.
Kiryakova and Angelova (2023)	Familiarity with AI, selective adoption, and concerns about misinformation.	Survey, Statistical analysis (SPSS).	Need for structured guidelines, risk mitigation.
Prentzas and Sidiropoulou (2023)	Preliminary positive impact on education.	Preliminary assessment, Ongoing study.	Need for comprehensive evaluation.
Amani et al. (2023)	Diverse perceptions, concerns about academic integrity and critical thinking.	Surveys, quantitative and qualitative analysis.	Sample limited to engineering, need for cross-disciplinary analysis.
Petricini et al. (2023)	Inevitability of AI, concerns about integrity.	Surveys, exploratory analysis.	Potential response bias, demographic concentration.
Wang et al. (2022)	Advanced features in PDF reading, academic integration.	Development of PDF reader tool.	Lack of empirical validation, and user feedback.
He et al. (2023)	Streamlines writing, aids non-native speakers	Review of ChatGPT application	Ethical concerns, risk of dependency

Table 2.3 continued from previous page

Study	Findings	Methodologies	Gaps
Fauzi et al. (2023)	Enhances productivity, collaboration, and information access.	Qualitative analysis, desk research.	Lack of empirical data, over-reliance risk.
Dave et al. (2023)	Enhances medical education, patient management, and streamlines research.	Review of applications in healthcare.	Ethical concerns, bias, misinformation risk.
Tan (2023)	Enhances accessibility, raises ethical concerns.	Literature review, observational analysis.	Over-reliance risks, potential for educational inequity.
Iqbal et al. (2022)	Negative perception, risk of cheating, recognize benefits in planning.	Qualitative research, semi-structured interviews.	Need for more education on ChatGPT and broader acceptance.

2.5 Applications of AI in Academic Writing

AI technologies have revolutionized academic writing through a variety of applications that enhance both the writing process and the instructional environment. This section explores several key areas where AI, particularly ChatGPT, is making significant contributions to academia.

2.5.1 Automated Proofreading and Editing

AI-powered tools provide automated proofreading and editing assistance to learners and faculty members, identifying grammatical errors, improving sentence structure, and offering suggestions for enhanced clarity and coherence in academic writing ([Al Sawi & Alaa, 2024](#)). By leveraging AI, the revision process is streamlined, ensuring high-quality written work. ([Zohery, 2023](#))

2.5.2 Plagiarism Detection and Prevention

AI plays a crucial role in detecting and preventing plagiarism in academic writing. By analyzing extensive databases and text repositories, AI tools identify instances of copied content and offer insights into originality, helping educators maintain academic integrity (Hutson, 2024).

2.5.3 Language Enhancement and Vocabulary Expansion

AI-powered language enhancement tools assist in strengthening academic writing skills by offering vocabulary suggestions, synonym recommendations, and language refinement techniques, enabling the effective expression of complex ideas. (Yufeia, Salehb, Jiahuic, & Syed, 2020)

2.5.4 Efficient Research Assistance

AI technologies streamline the research process by providing personalized recommendations for relevant scholarly articles and resources, significantly reducing the time needed for literature searches and data gathering.

2.5.5 Personalized Writing Guidance

AI tools like ChatGPT offer tailored writing guidance, adapting to individual learning needs and styles. These tools provide immediate feedback on structure, tone, and content organization, empowering writers to produce high-quality academic work (Atlas, 2023).

Emerging technologies and software tools like ChatGPT have paved the way for significant advancements in academic writing, benefiting students and faculty by enhancing writing processes and improving learning outcomes.

In addition to ChatGPT, several tools have been developed to support academic writing:

- Grammarly: Enhances grammar and style.
- ProWritingAid: Provides comprehensive writing feedback.
- Hemingway Editor: Improves readability.
- Zotero: Manages and cites research effectively.
- Quillbot: Offers advanced paraphrasing tools.

- Casper AI: Provides contextual writing assistance.

Educators are encouraged to explore these tools to find solutions that align with their educational goals. By integrating AI into academic practices, faculty can enhance learning experiences and contribute to AI advancements in academia.

The integration of AI-powered tools in academic writing holds immense promise for enhancing teaching and learning processes. Responsible use and ongoing exploration are essential for maximizing the benefits of AI while maintaining academic integrity and authenticity. As AI in academic writing evolves, continuous research and collaboration among educators, researchers, and developers are crucial to fully utilize these technologies (Nazari, Shabbir, & Setiawan, 2021).

2.6 Ethical Considerations of Implementing ChatGPT in Education

Ethical considerations have emerged as significant concerns with the use of AI tools like ChatGPT in academic writing. One primary ethical issue is the risk of plagiarism, where students might use ChatGPT-generated content without proper understanding or acknowledgment of its origins. This not only questions the educational value of such assignments but also the credibility of academic institutions (Fontenelle-Tereshchuk, 2024).

Another concern is the potential for AI to deliver biased or inaccurate information due to its training on vast yet sometimes flawed data sets (Ntoutsis et al., 2020). These inaccuracies raise doubts about the reliability of AI-generated content and the educational integrity of relying on such tools.

Moreover, there is an apprehension that excessive reliance on AI might impair students' ability to develop independent writing and critical thinking skills. This underscores the need for educators to balance the use of AI tools with traditional learning methods to foster genuine intellectual growth.

A study by (Grieve, Woodley, Hunt, & McKay, 2021) highlights these issues and suggests proactive measures to mitigate ethical risks. The research advocates for explicit strategies to address plagiarism and maintain academic integrity, suggesting that educators incorporate transparent guidelines on AI tool usage within academic writing.

To counter the decline in writing skills, educators must emphasize the importance of transparently acknowledging AI assistance in academic submissions. It is crucial to

educate students on the ethical integration of AI tools into their writing process, ensuring they understand the significance of maintaining academic integrity and the potential consequences of unethical practices.

Faculty members are encouraged to engage in ongoing discussions and develop best practices for the responsible integration of AI tools ([Chan, 2023](#)). By establishing clear guidelines and ethical standards, academic institutions can utilize the benefits of AI while mitigating associated risks.

In conclusion, while ChatGPT offers significant advantages for academic writing, it is imperative to maintain a balance that promotes students independent critical thinking and upholds scholarly integrity. Ensuring responsible usage of AI tools is essential to preserving academic authenticity and fostering an environment where technology enhances educational outcomes without compromising ethical standards ([Mijwil et al., 2023](#)).

Chapter 3

Methodology

This chapter describes the research methodology used in this study, which consists of the following key phases: research design, data collection, data analysis, and report writing.

3.1 Research Design

This study utilizes a mixed-methods research design to thoroughly investigate the role of ChatGPT in academic writing among faculty members. This comprehensive approach allows for both quantitative analysis to measure trends and impacts, and qualitative inquiry to explore deeper insights and contextual understandings.

3.1.1 Quantitative Research Component

The quantitative part of this study involves a structured survey distributed across various academic departments. This approach is essential for quantifying the extent to which faculty members are familiar with ChatGPT, as well as the tool's impact on their productivity and the quality of their academic writing. This method directly corresponds to the first and second research questions, providing solid, measurable data to assess:

1. How familiar are the faculty with ChatGPT and its capabilities?
2. How does ChatGPT impact productivity and quality in academic writing?

3.1.2 Qualitative Research Component

To complement the quantitative data, the qualitative segment consists of semi-structured interviews with selected survey participants who have used ChatGPT extensively. This

method is chosen to investigate implications academic writing enhancements required by ChatGPT and to understand the personal experiences of faculty members with the tool. This approach addresses the more exploratory aspects of the research questions, particularly:

1. What enhancements are required for ChatGPT in academic writing?
2. What are the perceived benefits and challenges of using ChatGPT in academic settings?

TABLE 3.1: Summary of Research Design

Research Component	Rationale	Objective Alignment
Quantitative Survey	To statistically assess the familiarity and impact of ChatGPT among faculty.	Directly measures impacts on productivity and quality; assesses familiarity with AI tools.
Qualitative Interviews	To obtain detailed insights into individual experiences, needs for enhancements, and perceptions of benefits/challenges.	Explores in-depth views on enhancements needed and the ethical dimensions of AI use in academia.

Table 3.1 categorizes and summarizes the reasoning and objective alignment of the quantitative surveys and qualitative interviews employed in this study.

The mixed-methods design supports the overall objectives of the study by providing a dual perspective: quantitative data helps quantify the use and impact of ChatGPT, while qualitative insights offer depth and context to these findings.

3.2 Data Collection

This section describes the method used to collect data for this research work.

The primary tool for data collection was an online survey, which was designed to gather quantitative and qualitative data from faculty members across various disciplines at OsloMet University, Norway and COMSATS University Islamabad, Pakistan. This approach was chosen to efficiently assess a broad spectrum of experiences and opinions concerning the use of ChatGPT in academic writing.

3.2.1 Survey Structure

The survey was hosted on Nettskjema, a platform renowned for its robust data protection and user privacy capabilities. This ensured that all participant responses were collected

in a secure and confidential manner. The survey itself was structured to include a variety of question types:

- **Likert Scale Questions:** To measure the degree of agreement or disagreement with various statements about ChatGPT's impact on academic writing.
- **Multiple-Choice Questions (MCQs):** To identify common patterns in the use and perception of ChatGPT among the faculty.
- **Open-Ended Questions:** To allow respondents to provide more detailed insights and personal experiences regarding their use of ChatGPT.

3.2.2 Ensuring Data Accuracy and Reliability

To ensure the reliability and accuracy of the survey data, the following measures were implemented:

- **Pilot Testing:** Before the full rollout, the survey was pilot-tested with a small sample of family, friends and few faculty members to refine the questions based on their feedback and to ensure clarity and understanding.
- **Consistent Administration:** The survey was distributed uniformly via email and faculty newsletters, ensuring that all participants received the same instructions and background information, which helped in maintaining consistency in responses.

Figure 3.1 visually represents the sequential steps undertaken during the data collection phase, starting with the survey design, followed by distribution, response collection, and concluding with data analysis.

3.3 Data Analysis

This section outlines the methods and tools utilized for analyzing the data collected through the surveys. The approach was designed to handle both quantitative and qualitative data effectively, ensuring a thorough examination of the study's findings.

The data analysis primarily employed two tools:

- **Microsoft Excel:** It is Utilized for data cleaning, preliminary analysis, and computing descriptive statistics such as means, medians, standard deviations, and



FIGURE 3.1: Data Collection Process Flow Diagram

range. Excel was also used to generate histograms to visually represent the distribution of data.

- **JASP (Just Another Statistical Program):** Utilized for advanced statistical analysis, JASP facilitated the identification of patterns, relationships, and significant differences in the survey responses. It is also used in generating heatmaps, enhancing the presentation of complex data. It supports a clear presentation of statistical findings and supports advanced statistical techniques .

Chapter 4

Results and Discussion

This chapter examines the results derived from a survey investigating faculty use of ChatGPT in academic writing. It outlines faculty member's experiences, highlighting their familiarity with the tool, the frequency of its use, and the perceived impacts on their academic work. Through quantitative and qualitative data gathered from various departments and universities, this analysis aims to offer a comprehensive overview of the academic community's adaptation to and reception of AI technologies in educational contexts.

4.1 Demographic Analysis

This section provides an in-depth overview of the demographic characteristics of the participants in our survey, aimed at exploring the usage and perceptions of ChatGPT in academic settings. Understanding who participated in the survey is crucial, as it sheds light on the diverse perspectives and backgrounds that contribute to the varied responses and insights gathered. By examining attributes such as subject area, gender, age, academic position, and length of service in higher education, we can appreciate how these factors might influence respondent's views and interactions with AI technologies. This demographic overview not only enriches the interpretation of the survey results but also underscores the breadth of academic engagement with ChatGPT.

4.1.1 Gender Distribution

The survey included participants of various gender identities, mainly consisting of male and female respondents. Of the total participants, 23 were male and 15 were female. This distribution highlights a higher representation of male respondents in the survey.

Understanding gender distribution is essential as it may influence how academic professionals interact with AI technologies like ChatGPT. Figure 4.1 shows the percentage

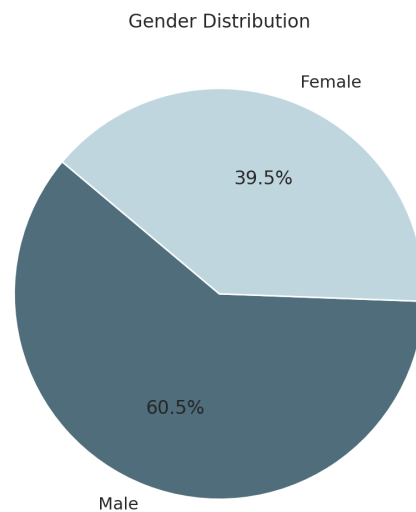


FIGURE 4.1: Gender Distribution of Survey Respondents

distribution of gender among the survey respondents, using a unified color scheme of gray-blue tones. The majority is Male (60.5%), followed by Female (39.5%). This visualization aids in understanding the gender dynamics among participants, which could influence their views on AI usage.

4.1.2 Age Groups

Respondents were distributed across several age groups, with a notable concentration in the 35-44 age range. Specifically, the distribution is as follows:

- 25-34 years: 5 respondents
- 35-44 years: 22 respondents
- 45-54 years: 10 respondents
- 55-64 years: 1 respondent

This suggests that mid-career academics were the most engaged with the survey, which may reflect a greater interest or reliance on AI tools within this demographic. The bar chart in Figure 4.2 shows the distribution of age groups among survey respondents, highlighting the large number of mid-career academics.

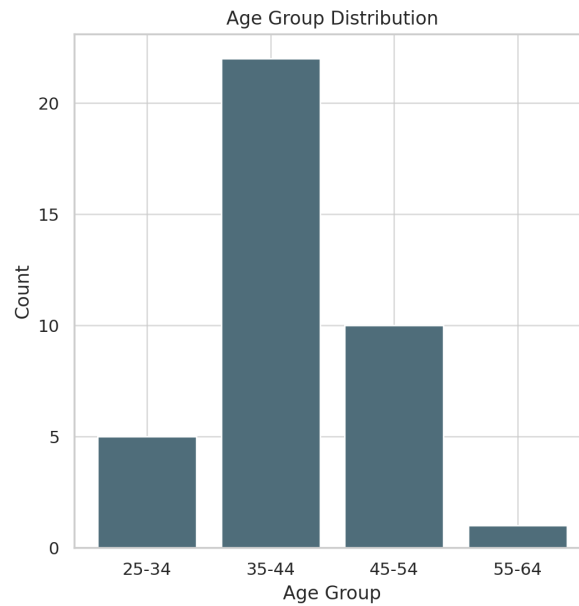


FIGURE 4.2: Age Group Distribution of Survey Respondents

4.1.3 Academic Position

The survey captured responses from a range of academic positions, including:

- Assistant Professors: 11 respondents
- Associate Professors: 9 respondents
- Lecturers: 9 respondents
- Researchers: 8 respondents
- Professors: 1 respondent

Figure 4.3 illustrates the distribution of academic positions among the survey participants, showing a diverse range of roles from Assistant Professors to Researchers.

4.1.4 Subject Area Distribution

Figure 4.4 presents the distribution of subject areas among the survey respondents, from Robotics to Artificial Intelligence, showing varied interdisciplinary interests. However, to simplify the survey analysis, subject areas were grouped into six broader categories to streamline the evaluation and ensure a clear understanding of the patterns in the data. This integration aids in reducing the complexity of the analysis while still capturing the

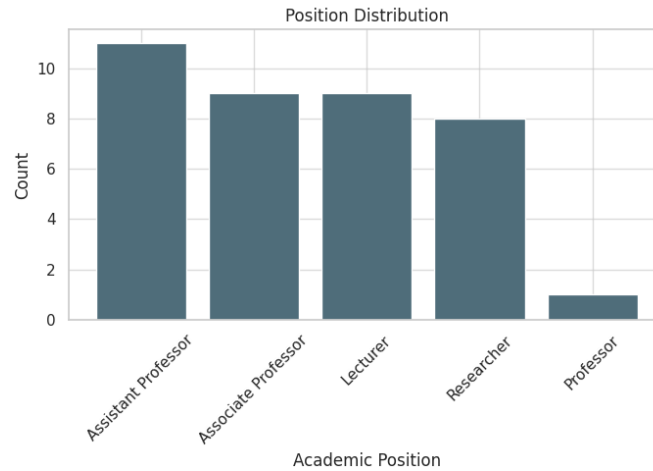


FIGURE 4.3: Position Distribution of Survey Respondents

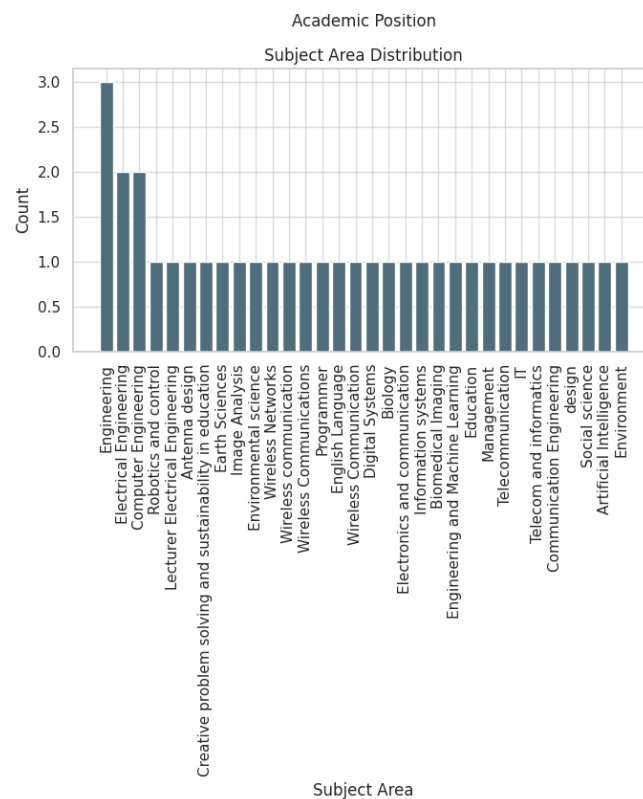


FIGURE 4.4: Subject Area Distribution of Survey Respondents

diversity of disciplines represented by the respondents. Here's how the grouping was defined:

IT and Telecommunications:

This group encompasses subjects related to digital communication and information technology, reflecting the convergence of technological advancements in these fields. It includes subjects such as Wireless Communications, Information Systems, and IT, which are pivotal in today's digitally-driven academic and research environments.

Engineering and Technology:

This category groups a wide range of engineering disciplines, acknowledging the interdisciplinary nature of modern engineering research. It includes fields from Robotics and Artificial Intelligence to Electrical and Computer Engineering, highlighting the technological backbone of these disciplines.

Arts and Design:

The Arts and Design category was created to highlight the creative aspects of academic work, containing subjects like Design which focuses on the visual and functional aspects of creation.

Social Sciences and Humanities:

This group merges subjects that explore various aspects of human society and culture, from Education and English Language to Management and Social Sciences. It emphasizes the role of ChatGPT in supporting disciplines that deal with complex human and societal dynamics.

Sciences:

The Sciences group includes both life and physical sciences, such as Biology and Environmental Science, reflecting the use of ChatGPT in data-driven and research-intensive fields.

Others:

Any subject areas that do not neatly fit into the above categories or missing subjects are placed in 'Others', ensuring that all participant responses are accounted for without altering the analytical focus of the survey.

Figure 4.5 illustrates the pie chart for the grouped subject areas, showing the distribution of fields of study among respondents.

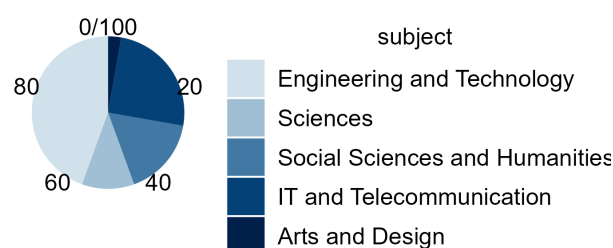


FIGURE 4.5: Subject Area Distribution of Survey Respondents with consolidated groups

4.1.5 Length of Service in Higher Education

The histogram in Figure 4.6 illustrates the years respondents have spent in higher education. A significant number of respondents have more than ten years of experience, which can provide insights into the adaptation and views on AI across varying levels of experience.

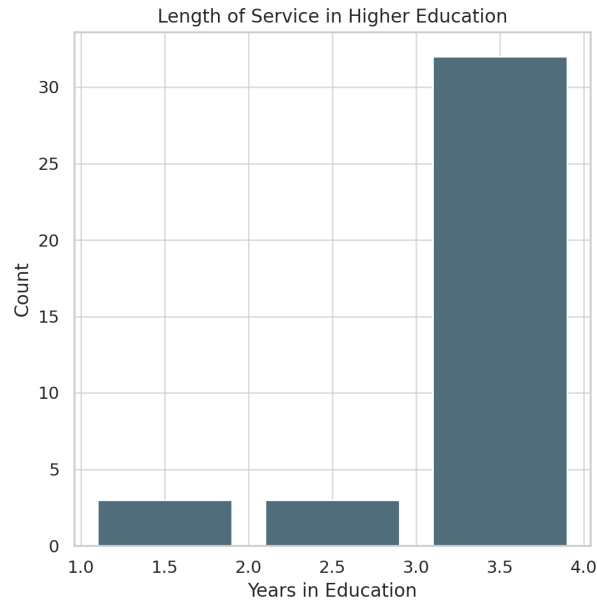


FIGURE 4.6: Length of Service in Higher Education of Survey Respondents

4.1.6 Summary of Demographic Analysis

The table 4.1 aggregates the demographic and professional attributes of the survey participants. It represents the distribution across various categories, offering insights into the predominant demographic profiles within the study. The majority of participants are males aged between 35 and 44 years, primarily holding positions as assistant professors, and most have over 10 years of professional experience in higher education. The largest subject area represented is Engineering and Technology, highlighting a strong technological orientation among the respondents.

4.2 Familiarity and Usage of ChatGPT

This section explores the faculty member's familiarity with and usage of ChatGPT for academic writing and related tasks. The survey assessed both the general awareness

TABLE 4.1: Summary of demographic information (N = 38).

Demographic Characteristics	Options	Frequency	Relative Frequency (%)
Gender	Female	15	39.47
	Male	23	60.53
Age	Below 25	0	0.00
	25–34	5	13.16
	35–44	22	57.89
	45–54	10	26.32
	55–64	1	2.63
	Over 65	0	0
Position	Professor	1	2.63
	Associate Professor	9	23.68
	Lecturer	9	23.68
	Researcher	8	21.05
Professional Experience	Less than 1 year	3	7.89
	1 - 5 years	3	7.89
	6 - 10 years	7	18.42
	More than 10 years	25	65.79
Subject Area	Engineering and Technology	16	42.11
	IT and Telecommunications	8	21.05
	Social Sciences and Humanities	6	15.79
	Sciences	4	10.53
	Others	3	7.89
	Arts and Design	1	2.63

of ChatGPT and how frequently it is utilized for various academic activities. Understanding these metrics is vital for evaluating the integration of AI tools like ChatGPT in academic environments.

4.2.1 Familiarity with ChatGPT

In assessing the extent to which faculty members are familiar with ChatGPT, our analysis revealed a diverse range of familiarity levels. As shown in Figure 4.7, a significant proportion of respondents reported moderate to high levels of familiarity with ChatGPT, which underscores its increasing adoption and awareness in academic settings. The survey indicates that only a small fraction of the faculty are not at all familiar with the technology, highlighting the growing penetration of AI tools in educational environments.

This widespread familiarity is indicative of the potential readiness of faculty to integrate such technologies into their academic and research workflows. The implications of this familiarity are profound, suggesting that as educators become more familiar with AI capabilities, they could be more inclined to explore and adopt these technologies for various academic purposes.

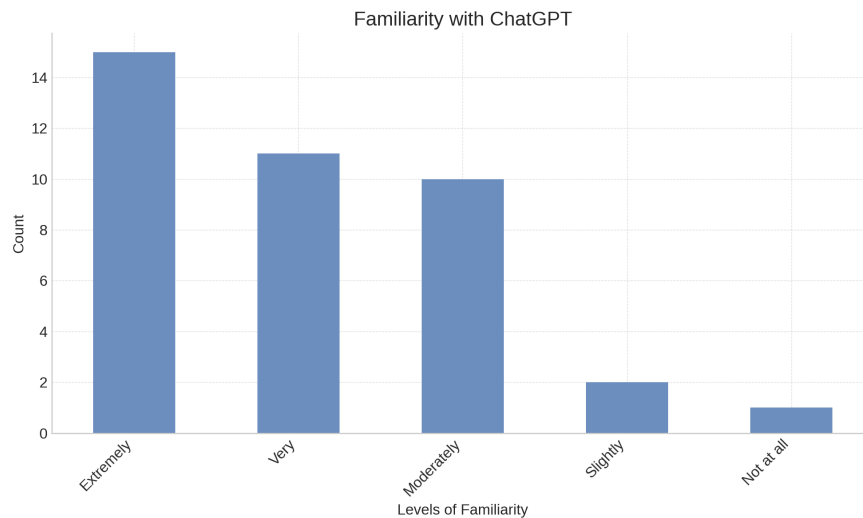


FIGURE 4.7: Distribution of familiarity levels with ChatGPT among faculty members.

4.2.2 Usage Frequency of ChatGPT

Parallel to familiarity, the frequency of using ChatGPT for academic writing and related tasks was also surveyed. The results, depicted in Figure 4.8, illustrate that while a subset of faculty frequently utilizes ChatGPT for academic writing, there exists a considerable segment that rarely or never uses it. This division in usage patterns suggests that while familiarity with ChatGPT is relatively high, its actual integration into daily academic practices may face barriers or a lack of compelling use cases among some faculty members.

The graph clearly shows that the number of faculty members who occasionally to frequently use ChatGPT forms a substantial group, indicating an openness to integrating this AI technology into their academic toolkit. However, the significant number of faculty members reporting rare or no use highlights opportunities for further training and exploration into the benefits of using AI for academic purposes.

This subsection investigates how ChatGPT has influenced the quality of academic writing, according to the survey responses. The frequency distribution and average scores reflect the degree to which ChatGPT is seen as contributing to higher standards of clarity, coherence, and complexity in written academic work.

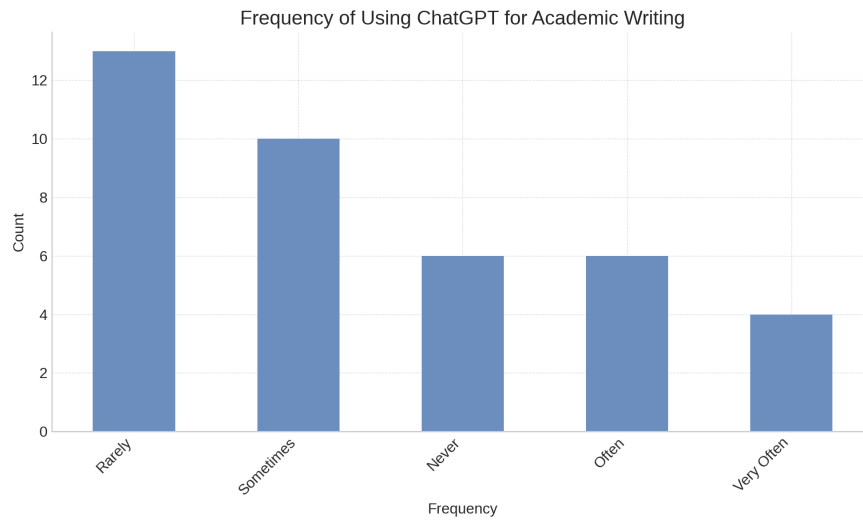


FIGURE 4.8: Frequency of using ChatGPT for academic writing among faculty members.

4.2.3 Familiarity and Usage of ChatGPT by Discipline

This subsection explores how familiarity and usage frequency of ChatGPT vary among faculty members across different academic disciplines. The analysis reveals distinct patterns that may inform targeted interventions and supports to enhance the integration of AI tools like ChatGPT in academic practices.

Familiarity with ChatGPT by Discipline Figure 4.9 indicates varied levels of familiarity with ChatGPT across disciplines, suggesting differential exposure or interest in AI technologies. Faculty in the Engineering and Technology and IT and Telecommunica-

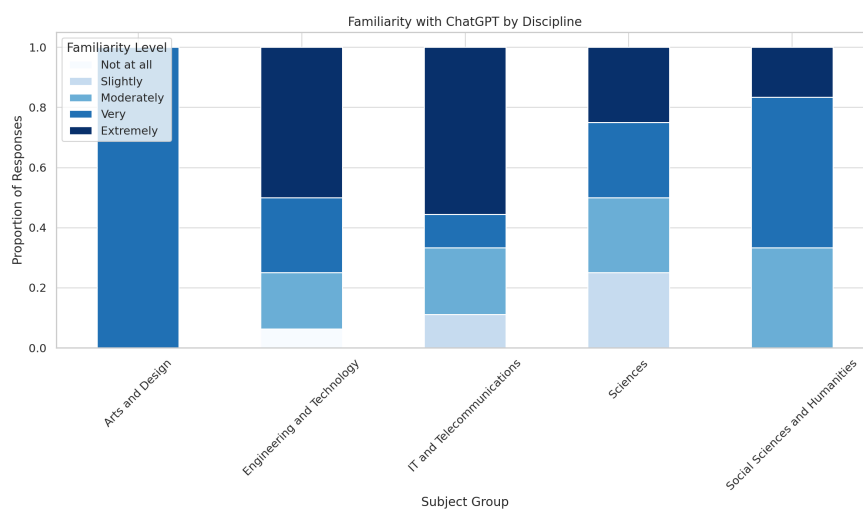


FIGURE 4.9: Familiarity levels with ChatGPT among faculty members across different academic disciplines.

tions disciplines show higher levels of familiarity, potentially due to the closer alignment

of their fields with technology. In contrast, disciplines such as the Arts and Design, and Sciences show a more varied spread of familiarity, which could reflect diverse needs and interests related to AI technologies.

Usage Frequency of ChatGPT for Academic Writing by Discipline: Similarly, the frequency of ChatGPT usage for academic writing varies significantly among disciplines. As visualized in figure 4.10, some disciplines like Engineering and Technology and IT and Telecommunications exhibit a higher frequency of use, suggesting greater integration of AI in their academic tasks; others, like Sciences and Social Sciences and Humanities display an irregular usage pattern. This variability could be attributed to the specific demands of the disciplines or the perceived relevance of AI tools in achieving academic objectives.

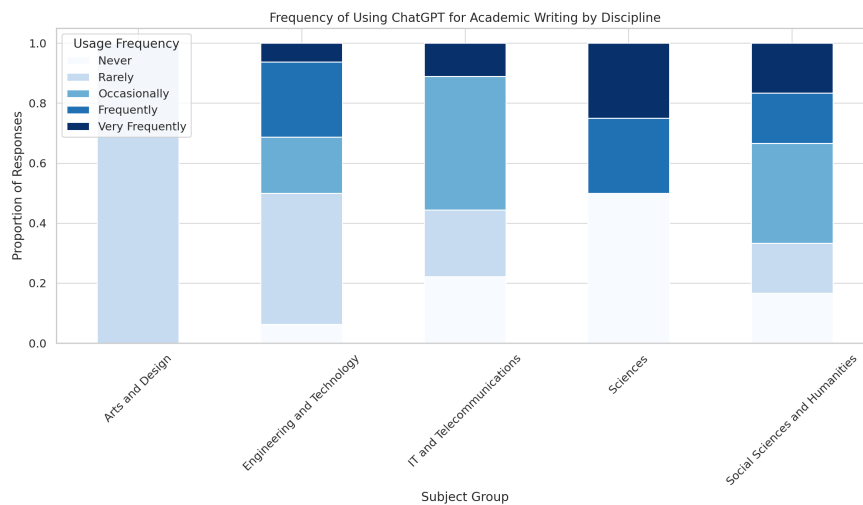


FIGURE 4.10: Normalized usage frequency of ChatGPT for academic writing among faculty members across different academic disciplines.

4.2.4 Familiarity with ChatGPT by Academic Position

The differences in familiarity and usage frequency of ChatGPT across various academic positions. This analysis helps in understanding how different roles within academia engage with AI tools for academic writing and other scholarly activities.

Familiarity with ChatGPT by Academic Position: The analysis of familiarity levels across different academic positions shows a progression of awareness and comfort with ChatGPT as visualize in figure 4.11. Professors and those in senior academic roles tend to exhibit higher levels of familiarity, which might be due to their greater exposure to emerging technologies or initiatives at their institutions to incorporate such tools in higher-level academic activities.

Usage Frequency of ChatGPT for Academic Writing by Academic Position:

Usage frequency varies significantly, with more senior academic roles like professors and associate professors occasionally using ChatGPT, possibly for more exploratory or creative academic tasks, as shown in figure 4.12. In contrast, lecturers and researchers show a more varied usage pattern, indicating different needs or opportunities in their specific roles.

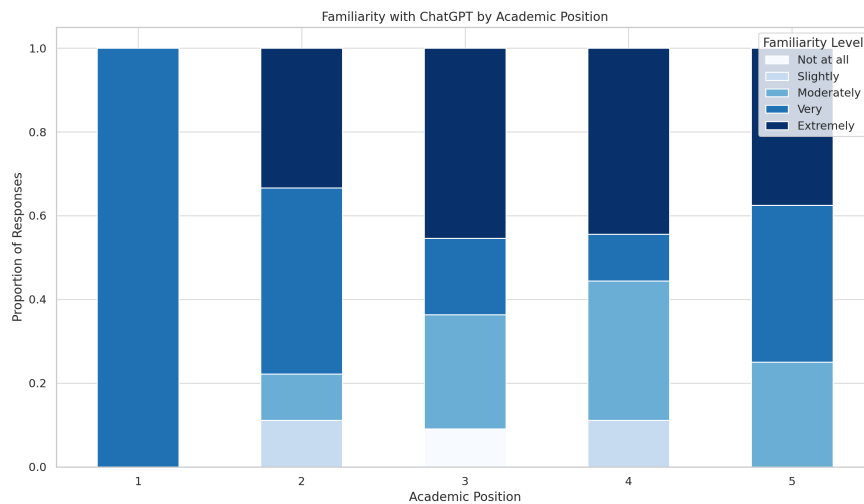


FIGURE 4.11: Normalized distribution of familiarity levels with ChatGPT among faculty members by academic position.

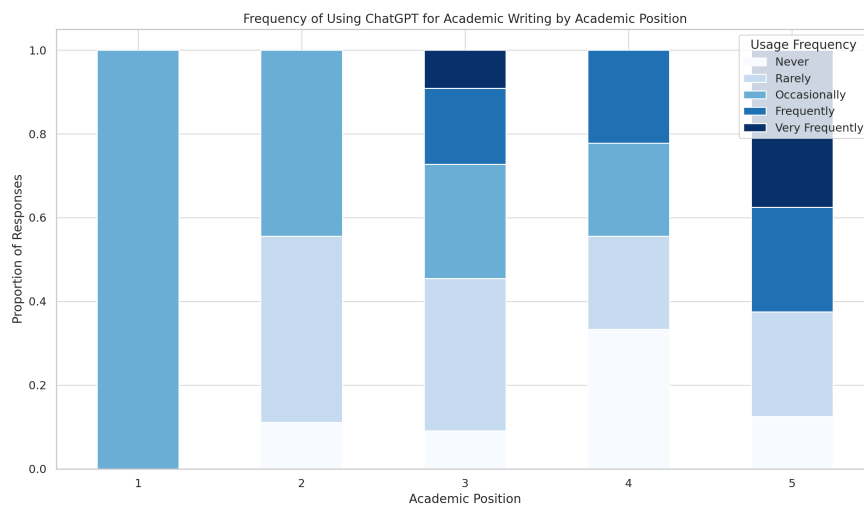


FIGURE 4.12: Normalized distribution of usage frequency of ChatGPT for academic writing among faculty members by academic position.

4.3 Impact of ChatGPT on Academic Writing Tasks

This section looks into the specific impacts of ChatGPT on various academic writing tasks, examining its role in developing teaching materials, editing texts, creating exams,

and other scholarly activities. By analyzing the frequency of ChatGPT's usage for these tasks and assessing its perceived effects on productivity and output quality, we aim to provide a comprehensive overview of how this technology is reshaping academic practices. The following subsections explore the ways in which ChatGPT contributes to academic writing, highlighting areas where it has been particularly dominant.

4.3.1 Usage of ChatGPT for Specific Academic Writing Tasks

The utilization of ChatGPT across various academic writing tasks illustrates its versatility and adaptability to different academic needs. The stacked bar graph, as shown in figure 4.13, highlights that tasks such as developing teaching materials and editing texts are particularly prone to enhancement by ChatGPT. This trend may reflect the substantial demand for efficiency in these areas, where repetitive and time-consuming activities can be significantly optimized through AI assistance. The frequency of using ChatGPT for creating examinations and writing reports also suggests an emerging reliance on AI for more complex and critical tasks, underscoring the growing trust in AI's capabilities within the academic community.

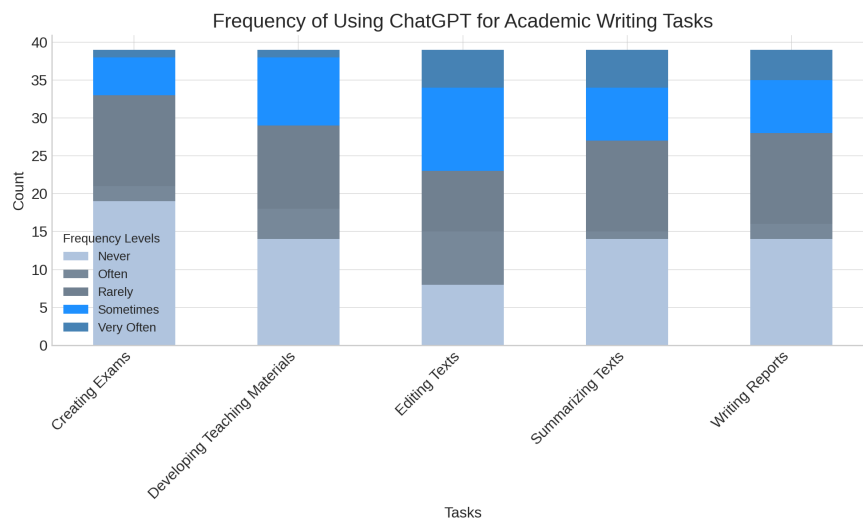


FIGURE 4.13: Frequency of using ChatGPT for various academic writing tasks.

4.3.2 Impact on Productivity and Quality

The integration of AI tools such as ChatGPT in academic settings has shown varied impacts on the productivity and quality of academic writing. To quantitatively assess these impacts, respondents were asked to evaluate how ChatGPT has affected their productivity and the quality of their academic writing tasks.

Productivity Improvement The survey results indicate that a significant number of faculty members perceive a positive impact of ChatGPT on their productivity. Specifically, the majority of responses fall into the categories of 'Moderately' and 'Significantly' improved productivity. This suggests that ChatGPT serves as an effective tool in enhancing the efficiency of academic writing tasks, potentially by aiding in faster information processing and draft creation.

Quality Enhancement Similarly, the responses regarding the quality of academic writing reveal that ChatGPT has a beneficial impact. Many respondents report that the use of ChatGPT has 'significantly' and 'Extremely' enhanced the quality of their academic outputs. This enhancement in quality could be attributed to ChatGPT's capabilities in generating coherent text, providing grammatical suggestions, and refining the overall structure of academic documents.

The comparative analysis of the improvements in productivity and quality, as shown in figure 4.14 illustrates that while both dimensions have been positively impacted, the enhancement in quality is perceived to be slightly greater than the increase in productivity.

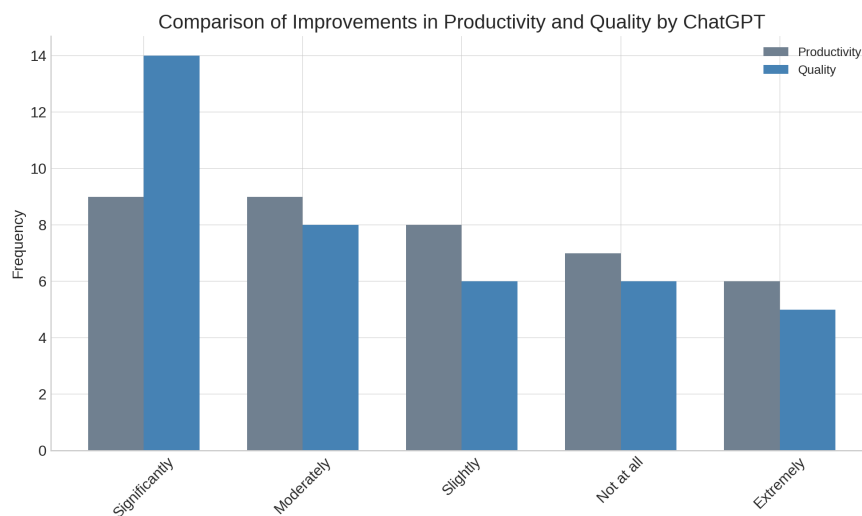


FIGURE 4.14: Comparative Analysis of Productivity and Quality Improvements by ChatGPT.

This difference might be due to the direct assistance that ChatGPT provides in improving text quality as opposed to the broader concept of productivity, which may include various other factors.

These findings suggest that ChatGPT not only accelerates the writing process but also contributes to the refinement of academic content, leading to higher-quality outcomes. The positive feedback across different academic positions highlights the potential of

ChatGPT as a supportive tool for a wide range of academic functions, from developing teaching materials to drafting complex research papers.

Comparative Analysis of Productivity and Quality by Academic Position

The utilization of AI-driven tools like ChatGPT has varied impacts across different academic positions, reflecting diverse needs and adoption rates in academia. To examine these effects, faculty members were asked to rate the improvement in their productivity and the enhancement of quality in their academic writing due to ChatGPT.

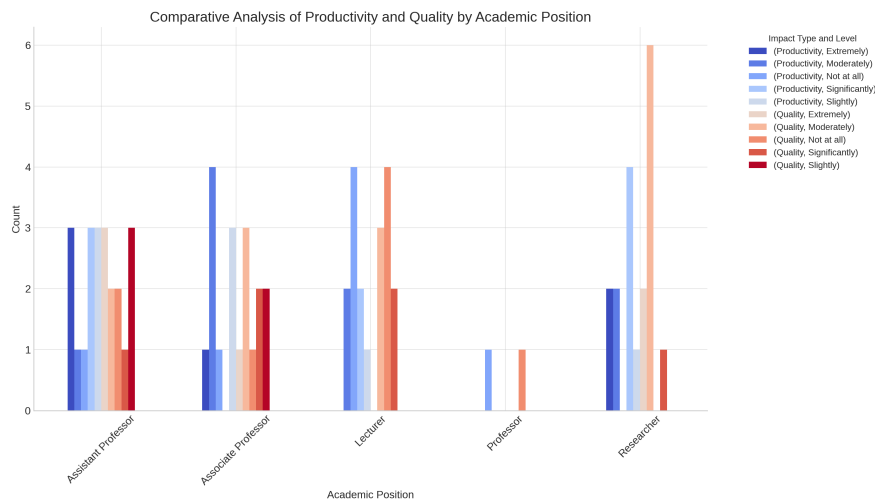


FIGURE 4.15: Comparative Analysis of Productivity and Quality Improvements by Academic Position.

The results, as depicted in figure 4.15, indicate distinct patterns in perceived productivity and quality improvements across various academic roles. Assistant Professors and Researchers, for instance, reported higher levels of significant improvement in both productivity and quality. This might suggest a greater engagement with ChatGPT technologies among early-career academics or those involved in intensive research activities.

Conversely, more senior positions, such as Professors and Associate Professors demonstrated a more conservative assessment. While improvements were acknowledged, the levels of significant enhancements were less pronounced. This could be attributed to established writing habits or differing expectations from AI tools.

The comparative analysis highlights the need for customized approaches in integrating AI tools into academic practices, considering the specific demands and openness of various academic roles.

4.4 Perceived Benefits and Challenges

This section explores the perceived benefits and challenges associated with using ChatGPT for academic writing and teaching, providing a detailed understanding of its influence. By analyzing survey data and faculty feedback, we explore how these technologies are reshaping academic practices, highlighting areas where they excel and where they fall short. Through this analysis, we aim to equip academic stakeholders with the knowledge needed to maximize benefits while effectively managing the challenges posed by AI integration in educational settings.

4.4.1 Perceived Benefits of Using ChatGPT

The perceived benefits of employing ChatGPT in academic tasks are quantitatively illustrated through the effectiveness ratings provided by faculty members across several key writing tasks. As shown in the bar chart in figure 4.16, faculty members rated the effectiveness of ChatGPT highly in tasks such as paraphrasing, cross-referencing, and integrating content, with notable scores in revising documents and detecting plagiarism. The effectiveness ratings highlight areas where ChatGPT significantly supports academic

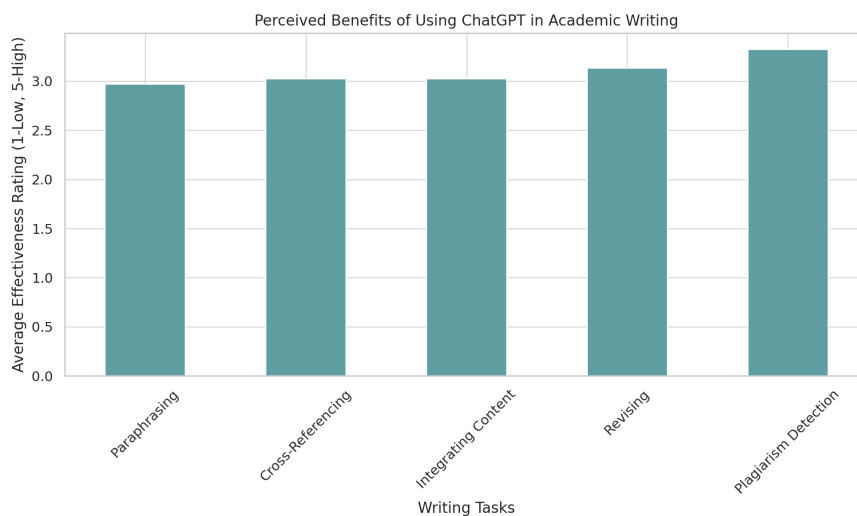


FIGURE 4.16: Bar chart illustrating the perceived benefits of using ChatGPT across various academic writing tasks.

work, enhancing both efficiency and content quality. These ratings reflect the positive impact that ChatGPT has on enhancing the quality and efficiency of academic writing. The utilization of AI tools like ChatGPT not only aids in reducing the time spent on these tasks but also improves the accuracy and richness of academic content, which are essential aspects of scholarly work.

4.4.2 Challenges in Using ChatGPT

While ChatGPT offers significant benefits, it also presents certain challenges that are crucial for academic users to consider. The bar chart in figure 4.17 visualizes these challenges, providing insight into the areas where faculty members experience difficulties. It highlights areas that need attention to maximize the effectiveness of AI tools in academic settings, such as enhancing understanding of complex inputs and improving information accuracy. Common issues include the tool's difficulty in understanding complex academic requirements, limited capability in providing adequately detailed or accurate information, and the cognitive effort required to effectively integrate AI-generated content. These challenges underscore the need for ongoing improvements in AI technologies and better training for users to effectively utilize the potential of these tools in academic environments.

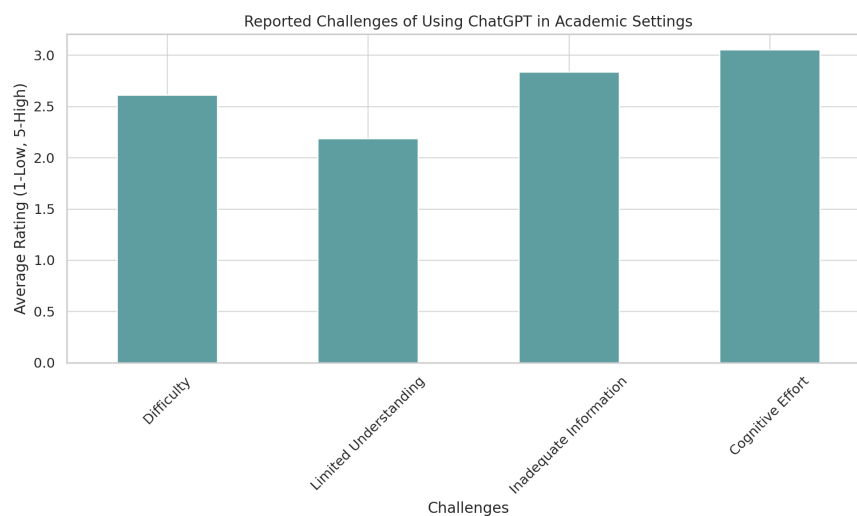


FIGURE 4.17: Bar chart depicting the challenges faced by faculty when using ChatGPT.

In conclusion, while ChatGPT offers substantial benefits that enhance the efficiency and quality of academic writing and teaching, it also presents challenges that must be carefully managed. By understanding these dynamics, academic institutions can better prepare to integrate AI technologies like ChatGPT into their curricula and research activities. The insights gathered from this analysis provide a foundation for informed decision-making and strategic planning aimed at leveraging AI to foster educational innovation and excellence.

4.5 Ethical Considerations

In the domain of academic writing and teaching, the integration of artificial intelligence technologies such as ChatGPT introduces a spectrum of ethical considerations that must be addressed. These concerns range from the risk of plagiarism and the spread of misinformation to the potential for over-reliance on technology, which could impact the development of critical academic skills. Additionally, issues regarding the accuracy and reliability of information, the potential decrease in personal writing style and creativity, and concerns about data privacy and security are pivotal. As depicted in the comprehensive bar graph (Figure 4.18). The graph highlights significant concerns over plagiarism, misinformation, AI dependence, information reliability, personal writing impact, and data security.

This section discusses each of these ethical concerns, exploring their implications for academic integrity, the authenticity of scholarly work, and the broader educational environment. It is crucial for educational institutions to consider these concerns seriously, developing strategies and policies that mitigate risks while utilizing the potential benefits of AI tools.

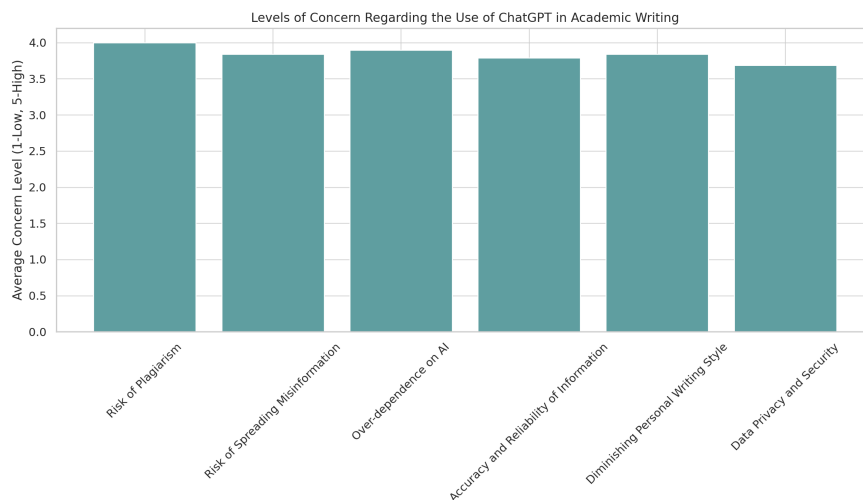


FIGURE 4.18: Bar graph illustrating faculty concerns regarding ethical issues associated with using ChatGPT in academic settings.

4.5.1 Impact of Familiarity on Ethical Concerns

This subsection examines the interplay between familiarity with ChatGPT and faculty concerns over various ethical issues. Understanding this relationship is crucial for developing targeted educational and policy measures that address these concerns effectively.

Plagiarism

The heatmap depicting the concern about plagiarism as shown in figure 4.19 shows that higher levels of familiarity with ChatGPT tend to correlate with a little understanding of its implications for plagiarism. This insight suggests that as faculty become more familiar with ChatGPT’s functionalities, they may develop better strategies to mitigate plagiarism risks, indicating the importance of training and awareness programs. Higher familiarity appears to moderate concerns, possibly due to better understanding and mitigation strategies.

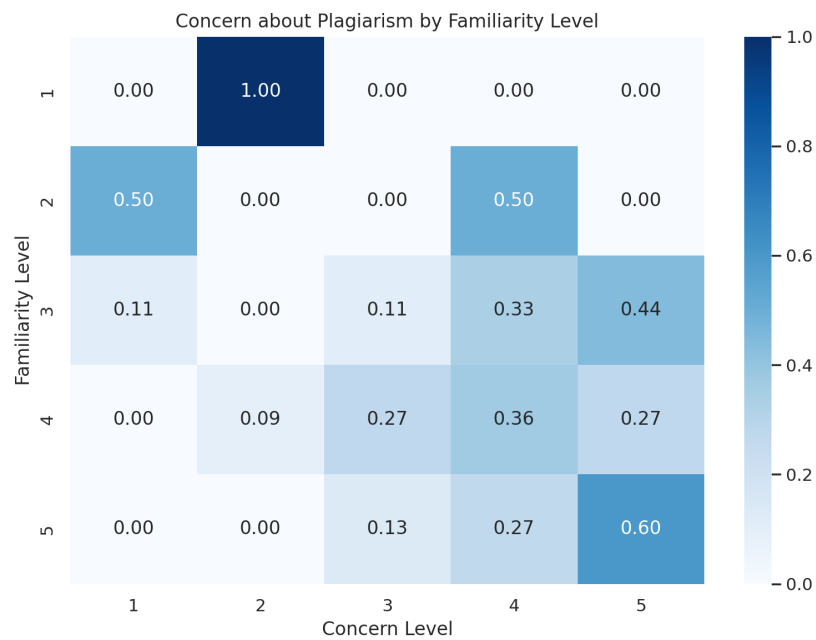


FIGURE 4.19: Heatmap illustrating the relationship between faculty familiarity with ChatGPT and their concern about plagiarism.

4.5.2 Data Privacy and Security

Concerns about data privacy and security, as illustrated by the heatmap in Figure 4.20, remain consistently high across all levels of familiarity. This consistent concern highlights the critical need for strict data security measures and privacy policies in the use of AI technologies like ChatGPT in academic environments.

4.6 Strategies to Enhance Academic Integrity

This section explores various strategies employed by faculty members to address challenges such as plagiarism, misinformation, and the maintenance of academic integrity

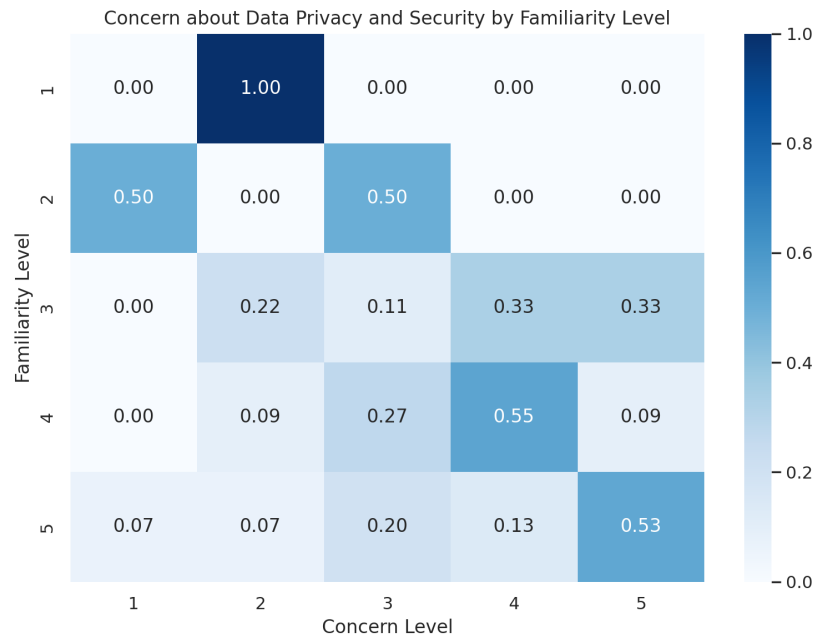


FIGURE 4.20: Heatmap reflecting persistent concerns about data privacy and security related to the use of ChatGPT

when utilizing AI technologies. Through an analysis of effectiveness ratings provided by faculty, we aim to highlight the most successful approaches for integrating these tools in a manner that upholds and enhances academic standards. By examining these strategies, the section provides insights into how educators can leverage AI to support educational objectives while mitigating potential risks associated with its use.

4.6.1 Evaluating Strategies to Enhance Academic Integrity

In the context of integrating AI tools like ChatGPT into academic workflows, it is crucial to employ effective strategies that not only enhance the accuracy and integrity of the content but also ensure the academic development of students. This subsection explores the effectiveness of various strategies, as perceived by faculty, to maintain academic integrity and enhance content accuracy.

The effectiveness ratings, as depicted by the bar graph in figure 4.21, show that plagiarism detection tools are highly valued, indicating their critical role in safeguarding academic integrity. Strategies such as paraphrasing and cross-referencing also receive high effectiveness ratings, suggesting that these are essential skills that faculty focus on when using AI to aid academic writing and research. As AI technologies continue to integrate into academic settings, understanding and implementing effective strategies to enhance academic integrity is crucial. The insights provided by the faculty in this

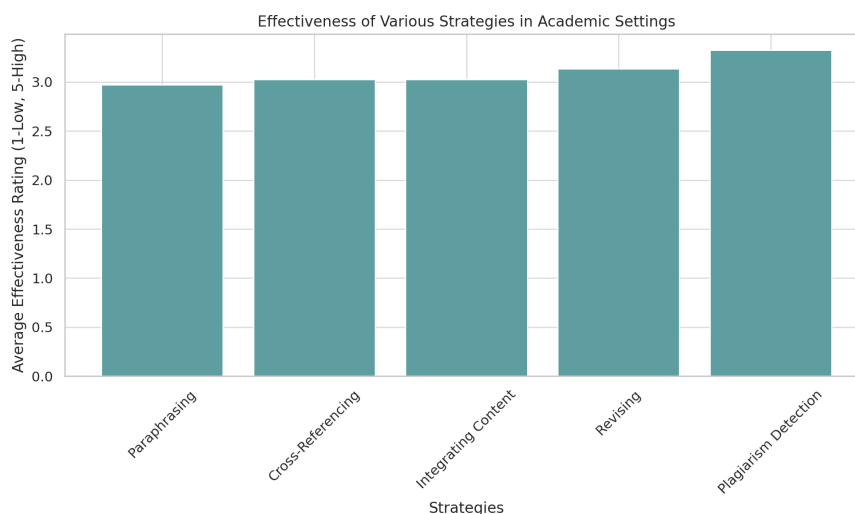


FIGURE 4.21: Bar graph showing the effectiveness ratings of various strategies employed to enhance academic integrity in improving content accuracy and preventing plagiarism.

study guide the development of policies and practices that effectively integrate these technologies while maintaining rigorous academic standards.

4.6.2 Comparative Analysis of Strategies by Discipline

Different academic disciplines may face unique challenges when integrating AI tools like ChatGPT, necessitating tailored strategies to uphold academic integrity. This analysis explores how the effectiveness of these strategies varies across disciplines, providing insights into tailored approaches that may be necessary.

Visual representations of the data reveal significant variations in how strategies are perceived across disciplines. For example, plagiarism detection might be rated highly effective in the humanities due to the heavy reliance on written content, whereas, in the sciences, strategies focused on accuracy and data integrity might be more valued.

These findings suggest the need for discipline-specific training and resources that address the particular challenges and integrity concerns of different academic fields. Institutions might consider developing tailored workshops, tutorials, and support materials that fulfill the distinctive needs of each discipline.

Understanding the variability in strategy effectiveness across disciplines is crucial for developing comprehensive, effective academic integrity policies. This knowledge allows educational institutions to implement the most appropriate and effective measures, ensuring that integrity and quality are maintained as AI tools become increasingly embedded in academic practices.

4.7 Recommendations for ChatGPT Integration in Teaching

This section explores faculty members' views on incorporating ChatGPT into teaching. It examines their insights, translating them into concrete recommendations for classroom use and assessing their overall willingness to endorse ChatGPT for academic tasks.

4.7.1 Faculty Recommendations for Classroom Integration

In assessing the potential integration of ChatGPT into classroom settings, faculty responses were visualized in a pie chart (figure 4.22). The results indicate a mixed sentiment among faculty, with varying degrees of endorsement and reluctance. Qualitative feedback highlighted concerns over the accuracy of the information and the need for improvements in ChatGPT's ability to provide up-to-date references, which suggests areas for enhancement in AI-driven educational tools.

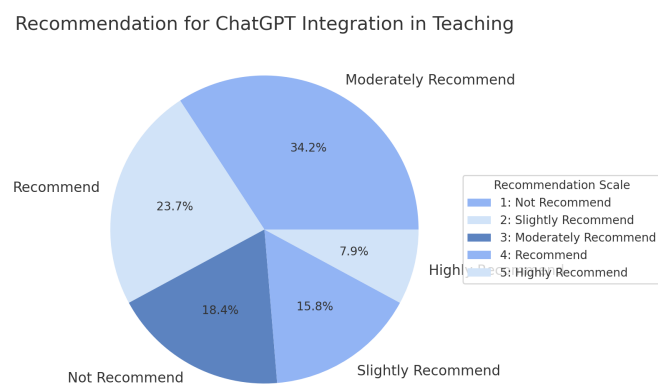


FIGURE 4.22: Recommendation for ChatGPT Integration in Teaching

4.7.2 Faculty Willingness to Recommend ChatGPT for Academic Writing

Similarly, faculty readiness to recommend ChatGPT to colleagues for academic writing tasks was explored (figure 4.23). The pie chart illustrates a distribution of recommendations that reflects a cautious yet considerate perspective toward the utility of ChatGPT in academic writing. Respondents also expressed the need for accurate citation tools and updated content, emphasizing the importance of reliability in academic resources. This

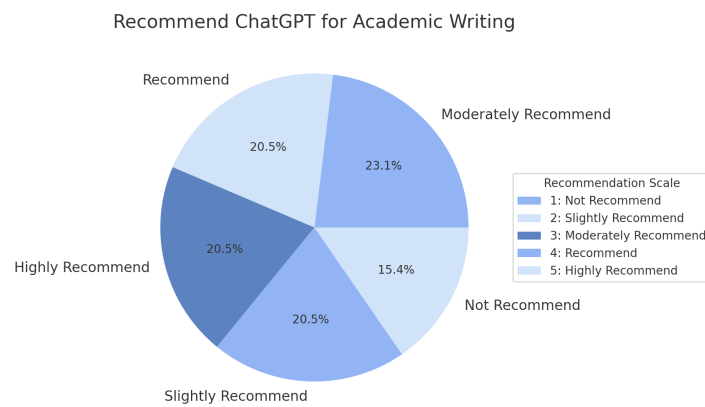


FIGURE 4.23: Recommend ChatGPT for Academic Writing

section has explored faculty recommendations for integrating ChatGPT in classroom settings and their willingness to recommend ChatGPT to colleagues for academic writing tasks. Through quantitative analysis via pie charts (figures 4.22 and 4.23), a spectrum of opinions has been captured ranging from 'Not Recommend' to 'Highly Recommend.' The majority of the responses leaned towards moderate to high recommendations, indicating a general positivity towards the adoption of AI tools like ChatGPT in academic settings.

4.8 Faculty Feedback on Potential Improvements for ChatGPT

This section explores the qualitative feedback provided by faculty on how ChatGPT could be improved to better serve academic purposes. Employing frequency analysis of the comments identified the most commonly mentioned words, highlighting key focus areas in the feedback. The top words along with their counts are:

- "is" (5 times)
- "and" (4 times)
- "of" (4 times)
- "chatgpt" (4 times)
- "its" (4 times)
- "it" (4 times)

- "should" (4 times)
- "none" (3 times)
- "the" (3 times)
- "information" (3 times)

Words like "should", "information", and specific mentions of "chatgpt" indicate that the comments are focused on suggestions for improvement, particularly concerning the functionality and accuracy of information provided by ChatGPT. Figure 4.24 shows the word cloud based on the frequency of words from the open-ended comments regarding improvements for ChatGPT. The size of each term indicates its frequency, highlighting key areas of focus such as accuracy and content relevancy.



FIGURE 4.24: Word cloud illustrating the frequency of terms in the open-ended responses regarding improvements for ChatGPT.

This chapter presented a comprehensive analysis of faculty perspectives regarding the integration of ChatGPT into academic environments. The quantitative results demonstrated a generally positive attitude towards using ChatGPT for teaching and academic writing, with a considerable number of faculty members recommending its use. Specifically, the analysis revealed that most respondents are open to integrating AI tools like ChatGPT into teaching practices and are willing to recommend them to colleagues for academic writing tasks.

Chapter 5

Conclusion and Future Research

This chapter concludes the investigation into the role of ChatGPT within academic environments, summarizing its impacts on productivity, creativity, and the ethical dimensions of scholarly work. Building on the insights from Chapter 4, the study now addresses the initial research questions and explores the future implications for both academia and technology development.

5.1 Addressing the Research Questions

This section systematically addresses the research questions. Each question is explored in the context of the data collected and analyzed in the preceding chapters. The findings not only highlight how ChatGPT is utilized within academic settings but also illustrate its impact on key performance indicators such as productivity, creativity, and the overall quality of academic writing

How familiar are the faculty with ChatGPT and its capabilities? The survey revealed varying levels of familiarity with ChatGPT among faculty, from beginners to experts in its use, indicating the need for structured training programs to improve the skillful employment of AI tools in academic writing.

How does ChatGPT impact the productivity and quality of work in academic writing? Respondents reported that ChatGPT boosts productivity during the drafting and research phases. Despite these benefits, concerns regarding the accuracy and depth of content suggest that ChatGPT should complement rather than replace human oversight in critical academic tasks.

What are the enhancements required for ChatGPT in academic writing?

Faculty members recommended improvements to ChatGPT, including enhanced information accuracy, better citation integration, and outputs more tailored to specific academic needs. These enhancements are essential for ChatGPT's effective utilization in academic writing.

What are the perceived benefits and challenges of using ChatGPT in academic settings? The benefits of using ChatGPT in academic settings include increased efficiency and easier access to information. Conversely, ethical challenges such as plagiarism risks and concerns about undermining original scholarship necessitate careful management and regulation of AI tools.

What are the different mechanisms to prevent plagiarism? Existing strategies to counter plagiarism with AI tools involve plagiarism detection software and ethical guidelines for AI use. Enhancing and widely adopting these strategies are crucial for maintaining the integrity of academic work.

Are the faculty inclined to implement ChatGPT in teaching? There is a generally positive attitude towards integrating ChatGPT in teaching, especially for creative and preliminary research tasks. However, hesitations about its full integration into evaluative processes persist until the enhancements are implemented.

5.2 Limitations of the Study

This study, though rich in insights, was subject to several limitations that warrant acknowledgment:

Limited Sampling Time and Size: Constraints on time allowed the survey to be conducted for only a brief period, restricting the number of participants and potentially limiting the diversity and depth of data collected. Consequently, the sample size may affect the validity of the findings, and caution is advised when applying these results to a broader population.

Geographical and Institutional Restrictions: The original plan was to administer the survey across various universities in Oslo, but institutional policies limited participation to certain universities, thereby constraining the diversity of academic perspectives from the local area. To counter this, the study was extended to include two institutions from different regions, which expand the scope of responses. Nevertheless, the variability in academic practices and attitudes across these regions could influence the study's conclusions.

Focus on Faculty Perceptions: The study predominantly focused on faculty perceptions, which, while providing detailed insights, exclude the viewpoints of other vital

academic contributors such as students and administrative staff. This focus on faculty might not fully represent the comprehensive impact of ChatGPT's integration into academic settings, as it overlooks other stakeholders who are integral to the academic ecosystem.

These limitations underscore the need for careful interpretation of the study's conclusions and suggest areas for further research to enhance the understanding and application of AI technologies like ChatGPT in education.

5.3 Future Research Directions

1. **Extend Sampling Time and Increase Sample Size:** Future studies could benefit from extended data collection periods to include a larger, more diverse sample. This would make the findings more applicable overall and provide a stronger basis for conclusions about the integration of AI tools like ChatGPT in academic settings.
2. **Expand Geographical and Institutional Scope:** To mitigate the impact of regional and institutional restrictions observed in this study, future research should aim to include a broader array of institutions, possibly across different countries. This would not only diversify the range of academic practices and perspectives studied but also enhance understanding of the global implications of AI in academia.
3. **Include a Wider Range of Academic Stakeholders:** While this study focused primarily on faculty perceptions, subsequent studies should consider including students, administrative staff, and policy makers to provide a more comprehensive view of the impacts of AI tools on academic processes. This would help in understanding the complicated effects of technology across all levels of academic operations.

5.4 Conclusion

This study has highlighted the significant advantages and inherent challenges of incorporating AI tools such as ChatGPT into educational environments. Looking ahead, it is clear that realizing the full potential of AI in academia demands careful and strategic planning. Such measures will ensure that the integration of these technologies enhances educational practices without compromising the standards of academic excellence and integrity.

Appendix A

Additional Materials

A.1 Survey Questionnaire

The survey questionnaire used to gather data for this study is presented below. This questionnaire was designed to assess faculty perceptions of ChatGPT's integration into academic settings, focusing on various aspects of its use and implications.

The Role of ChatGPT in Academic Writing

1. Your subject area:

2. Your gender identity:

Male

Female

Other

3. Your age:

Under 25

25-34

35-44

45-54

55-64

64 and Above

4. Your position:

Professor

Associate Professor

Assistant Professor

Lecturer

Researcher

5. How long have you worked in higher education?

Less than 1 year

1-5 years

6-10 years

More than 10 years

6. Are you familiar with ChatGPT?

7. How frequently do you use ChatGPT for academic writing?

8. How frequently do you perform the following writing tasks using ChatGPT?

Developing teaching materials/activities

Not at all

Slightly

Moderately

Very Frequently

Highly Frequently

Editing/revising texts

Not at all

Slightly

Moderately
Very Frequently
Highly Frequently

Creating examinations

Not at all
Slightly
Moderately
Very Frequently
Highly Frequently

Writing reports/presentations

Not at all
Slightly
Moderately
Very Frequently
Highly Frequently

Summarizing research papers

Not at all
Slightly
Moderately
Very Frequently
Highly Frequently

Generating research proposals

Not at all
Slightly
Moderately
Very Frequently
Highly Frequently

9. How much has ChatGPT improved your productivity on academic writing tasks?

10. How has ChatGPT enhanced the quality of your academic writing?

11. How beneficial is using ChatGPT for the following?

Facilitating information search

Not Beneficial
Slightly Beneficial
Moderately Beneficial
Very Beneficial
Highly Beneficial

Generating ideas

Not Beneficial
Slightly Beneficial
Moderately Beneficial
Very Beneficial
Highly Beneficial

Drafting and structuring ideas

Not Beneficial
Slightly Beneficial
Moderately Beneficial
Very Beneficial
Highly Beneficial

Assisting with sentence structure/completion

Not Beneficial
Slightly Beneficial
Moderately Beneficial
Very Beneficial
Highly Beneficial

Paraphrasing

Not Beneficial
Slightly Beneficial
Moderately Beneficial
Very Beneficial
Highly Beneficial

Improving grammar and spelling

Not Beneficial
Slightly Beneficial
Moderately Beneficial
Very Beneficial
Highly Beneficial

12. How challenging do you find the following aspects of using ChatGPT?

Content relevance

Not Challenging
Slightly Challenging
Moderately Challenging
Very Challenging
Highly Challenging

Not responding to requests

Not Challenging

Slightly Challenging
Moderately Challenging
Very Challenging
Highly Challenging

Inadequate information

Not Challenging
Slightly Challenging
Moderately Challenging
Very Challenging
Highly Challenging

Impact on cognitive skills

Not Challenging
Slightly Challenging
Moderately Challenging
Very Challenging
Highly Challenging

13. How concerned are you with using ChatGPT in academic writing?

Risk of plagiarism

Not Concerned
Slightly Concerned
Moderately concerned
Very Concerned
Highly Concerned

Risk of spreading misinformation

Not Concerned
Slightly Concerned
Moderately concerned
Very Concerned
Highly Concerned

Over-dependence on AI technology

Not Concerned
Slightly Concerned
Moderately concerned
Very Concerned
Highly Concerned

Accuracy and reliability of Information

Not Concerned
Slightly Concerned

Moderately concerned
Very Concerned
Highly Concerned

Diminishing personal writing style and creativity

Not Concerned
Slightly Concerned
Moderately concerned
Very Concerned
Highly Concerned

Data privacy and security

Not Concerned
Slightly Concerned
Moderately concerned
Very Concerned
Highly Concerned

14. How essential are the following strategies to support writing using ChatGPT?

Enhancing content accuracy/reliability

Not Essential
Slightly Essential
Moderately Essential
Very Essential
Highly Essential

Improving grasp of academic subjects

Not Essential
Slightly Essential
Moderately Essential
Very Essential
Highly Essential

Enhancing citation/referencing tools

Not Essential
Slightly Essential
Moderately Essential
Very Essential
Highly Essential

Integrating advanced plagiarism detection features

Not Essential
Slightly Essential
Moderately Essential

Very Essential
Highly Essential

Strengthening data privacy/security protocols

Not Essential
Slightly Essential
Moderately Essential
Very Essential
Highly Essential

15. Other comments regarding ChatGPT improvements:

16. How effective are the following strategies in preventing plagiarism?

Paraphrasing/rewording

Not Effective
Slightly Effective
Moderately Effective
Very Effective
Highly Effective

Cross-referencing/verifying information

Not Effective
Slightly Effective
Moderately Effective
Very Effective
Highly Effective

Integrating ChatGPT output with personal insights

Not Effective
Slightly Effective
Moderately Effective
Very Effective
Highly Effective

Revising ChatGPT suggestions

Not Effective
Slightly Effective
Moderately Effective
Very Effective
Highly Effective

Using plagiarism detection software

Not Effective
Slightly Effective
Moderately Effective

Very Effective
Highly Effective

- 17. How effective is using ChatGPT for classroom teaching?**
- 18. Would you recommend the integration of ChatGPT in teaching?**
- 19. Would you recommend ChatGPT to your colleagues for academic writing tasks?**

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