**REVIEW**

# Exploring the Impact of Artificial Intelligence on Academic Writing: A Bibliometric Analysis of Trends, Advancements, and Ethical Challenges

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## ABSTRACT

This study investigates how artificial intelligence (AI) impacts academic writing, examining how it might improve language proficiency while addressing moral dilemmas. It explores AI's benefits and possible downsides via bibliometric analysis, emphasizing its impact on various academic fields and the necessity of a methodical, moral integration into language training. This review analyzes research on AI in academic writing using bibliometric methods. Publications from Scopus (2014-2024) were examined with the keywords "AI in academic writing." Data were processed through CSV, Excel, RIS, VOS viewer, and Map chart. The study identifies trends, top authors, institutions, and key research clusters in this domain. Artificial intelligence technologies, including ChatGPT and Grammarly, are acknowledged for their contributions to the improvement of writing fluency, grammatical precision, and reader engagement; however, ap-

prehensions surrounding academic integrity and the ethical utilization of artificial intelligence continue to exist, underscoring the necessity for a judicious and ethical integration within academic contexts. This study explores the increasing significance of artificial intelligence (AI) in scholarly writing. AI applications such as ChatGPT and Jenni AI enhance writing proficiency but provoke ethical dilemmas, including issues of plagiarism and dependency. It is essential to reconcile the advantages of AI with ethical considerations.

*Keywords:* Artificial Intelligence (AI); Academic Writing; Impact; Bibliometric; ChatGPT; Grammar

# 1. Introduction

The concept of "intelligence" lacks a universally accepted definition. Legg and Hutter provide a compilation of 70 definitions that encompass a wide array of perspectives. Jensen endorsed Carl Bereiter's characterization of intelligence as "what you use when you don't know what to do,". In contrast, Colom utilized Snyderman and Rothman's elucidation of critical components of intelligence, defining it as "a general mental ability for reasoning, problem-solving, and learning." In his conceptualization of intelligence, Gottfredson addressed multiple elements, emphasizing the significance of rapid learning and the capacity to learn from experience [1,2,3]. These conceptualizations illustrate that human intelligence encompasses a broad spectrum of competencies that extend beyond conventional definitions, and it is through the application and enhancement of these capabilities that individuals convey their authentic intelligence [4].

Artificial intelligence's quick development and integration in the twenty-first century has drastically changed personal and professional lives, altering everyday routines and interpersonal relationships [5]. AI is now present in almost every industry and area of daily life, influencing nearly every facet. This omnipresence improves our quality of life, education, and employment through technological advancements like computer vision, natural language processing, robotics and motion, machine learning, and deep learning [6].

Academic discourse represents a critical component of the English language competencies that learners leverage technological tools to enhance [7]. Learning a new language, especially writing, requires students to combine vocabulary, grammar, and the capacity to communicate intricate ideas and cultural quirks. This requires much mental work and a combination of analytical, creative, and metacognitive abilities [8]. Therefore, seeing students searching for tools and resources to help them write accurately and efficiently is unsurprising. With the introduction and subsequent development of artificial intelligence (AI) tools like ChatGPT and Google Translate, these tools have begun to gain recognition as a means of achieving this, opening the door for new pedagogical approaches to writing [9]. AI technologies have already started to change how language instruction is conducted, but they have also raised several pedagogical and ethical issues. One concern is that excessive dependence on AI might hinder the acquisition of fundamental language abilities and result in a cursory comprehension of linguistic structures [10]. AI-generated information raises concerns regarding academic integrity, making distinguishing between help and dishonesty difficult. This emphasizes the necessity of critically reevaluating teaching strategies and AI's role [11].

Academic writing is a systematic medium for disseminating ideas and facilitating the presentation of coherent, evidence-driven arguments and comprehensive analyses across various disciplines. However, it poses significant challenges, particularly in mastering the formal lexicon and ensuring academic integrity through meticulous citation practices [12]. Integrating AI-based writing assistants enhances the grammatical accuracy and structural coherence of scholarly work, thereby allowing researchers to concentrate on their inquiries' substantive and innovative dimensions [13].

This study analyzes how artificial intelligence (AI) impacts academic writing, examining its function and consequences through individual author examples. It explores the advantages and possible disadvantages of AI technologies as they support or contradict conventional academic writing techniques. Furthermore, the study uses bibliometric analysis to thoroughly assess trends, patterns, and the broader impact of AI on academic writing across a range of research areas. The analysis also focuses on the effects of AI on academic writing and its ethical challenges, such

as plagiarizing text for writing in the educational sphere.

# 2. Literature Review

## 2.1. The Needs of AI Tools

Several AI technologies are increasingly being used to enhance academic writing and research, each adapted to unique demands. Grammarly and OpenAI's ChatGPT are vital for improving writing quality. They include AI-driven grammatical checks, plagiarism detection, and text production capabilities, all necessary for creating clear and unique academic work [14]. ChatGPT, an AI tool, may aid in drafting review articles by providing complete overviews of prior studies [15]. Although ChatGPT can enhance student learning on specific topics, there are concerns that it may negatively impact the process. ChatGPT's usage of untrustworthy material might lead to destructive behaviors, including dishonesty, manipulation, and misinformation among pupils [16]. Therefore, when ChatGPT is unethically used, it may lead to human unintelligence and unlearning. Also, AlAfnan et al. (2023) suggest four strategies for instructors using ChatGPT for writing: (a) avoid theory-based questions for take-home assignments, (b) create personalized case-based and scenario-based assignment tasks, (c) use plagiarism detection software, and (d) use ChatGPT generated responses as examples in class [17].

Regardless of their differences, all children may benefit from inclusive learning environments created by schools using universal design principles [18]. Language educators should be aware that AI's rapid integration into education and administration transforms how students work and study. Gen-AI platforms and technologies are increasingly being used for various tasks. Students must be able to coexist and collaborate with AI as part of their digital literacy [19]. Gen-AI is highly disruptive, particularly in education [20]. Gen-AI should be integrated into the English topic without compromising its overall goals. This technology can help students strengthen their conceptual knowledge of texts, Interpretation, and critique, in addition to its usage as a writing tool [21].

## 2.2. Ethical Challenges of Using AI Tools in Academic Writing

In its broadest sense, ethics is a philosophical subject concerned with moral concepts such as discriminating between right and wrong, good and evil [22]. AI ethics includes a variety of ethical concerns with the design and usage of AI systems [23]. The primary features of AI ethics are fairness, data privacy, security, ethical algorithms, decision-making, dependability, and transparency in AI [24]. Academic ethics in research and writing are founded on scientific principles such as honesty, fairness, openness, and accountability. Protecting the integrity of participant data, human subjects, and the study process is essential to research ethics [25]. Before beginning the study, researchers must establish ethical standards by getting informed and voluntary involvement from subjects, safeguarding their identity and confidentiality, and receiving clearance from an ethics committee. Ethical research also entails adhering to key concepts such as respect for rights, fairness, and damage minimization throughout the study [26]. Artificial intelligence is rapidly affecting academic writing, particularly in language processing and text generation, which simplifies scholars' jobs. Tools such as GPT-4, Jenni, Poe, and Scite help with literature searches, source organization, text editing, content development, and translation, providing necessary assistance in various professions. Some applications remove spelling and grammar problems, while others simplify source editing and bibliography creation. AI technologies improve academic writing speed and accuracy, leading to more efficient work for researchers [27]. AI ethics prioritizes honesty, openness, and justice while using these technologies. As AI grows more prevalent in academia, it's crucial to create ethical rules. Establish guidelines for using AI in academic writing to prevent plagiarism and authorship misrepresentation [28]. AI applications should minimize biases that may harm minority groups and promote fairness in academic contexts [29]. Collaboration among AI developers, researchers, and ethics committees is necessary to establish an ethical framework for using AI in academic writing [30]. AI presents ethical concerns that require comprehensive rules to balance inno-

vation and ethical considerations [31].

## 2.3. Research Questions

The use of AI in academic writing is becoming more and more prevalent in contemporary education, particularly in the teaching, learning, and production of writing. Even while earlier studies have looked at how AI technologies affect academic writing, there are still a lot of unanswered questions about the field's general tendencies, recurring themes, and international collaboration patterns. It's also necessary to look at how various AI-powered tools, such as citation managers, grammar helpers, and huge language models, have changed to influence academic writing processes. We suggest the following six research questions to fill in these gaps:

RQ1: What are the yearly patterns of AI-related publications and citations in scholarly writing?

RQ2: What are the main subjects and fields of study related to artificial intelligence in academic writing?

RQ3: Which nations, organizations, writers, and publications are at the forefront of academic writing research on artificial intelligence?

RQ4: How are research communication and academic writing improved by AI-powered writing tools?

RQ5: In what ways does the use of AI to academic writing support or contradict academic integrity?

## 3. Materials and Methods

In this study, we examined publications about regional knowledge using research-based analysis. Between 2014 and 2024, the analysis was conducted using Scopus, a widely used bibliographic database, with the primary term "AI in academic writing". The research was carried out in December 2024. The study was conducted using various technologies, including CSV files, Microsoft Excel 2021, RIS, VOSviewer, and a map graphic.

### 3.1. Article Review and Study Eligibility Criteria

During the process, key information such as the term "AI in academic writing" and all English-language articles were collected in a spreadsheet. The following selection

criteria were used: Article = ("AI in academic writing"), Document type = "article," Timeframe = "2014–2024", and Subject categories = Social Sciences, Computer Science, Psychology, and Multidisciplinary subjects. **Figure 1** depicts the research methodology procedure.
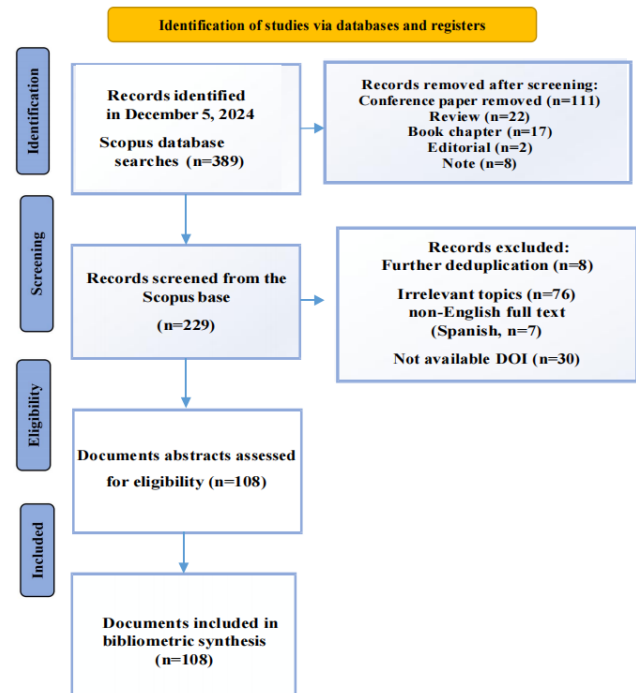


**Figure 1.** Methodology flowchart for the research.

For the searching process, relevant information, such as keyword "AI in academic writing" and all articles in English, were added to a spreadsheet. Article = ("AI in academic writing"), document type = "article", timespan = "2014-2024", Subject area = Scocial Science, Computer Science, Psychology, Multidisciplinary. **Figure 1** shows the flow of the selected methodology for the research.

The screening method used the exclusion criteria listed below:

1. Article titles, abstracts, and review sections must be in English.

2. Studies that focused on unrelated study areas were eliminated.

3. Articles that lacked clear definitions for key search criteria (impact, AI, academic writing) were removed.

4. Many papers that lacked a DOI have limited access. Because the Scopus filtering settings did not allow for automated elimination, some articles remained in the dataset.

## 3.2. Bibliometric Analysis

The goal of bibliometric reviews is to provide a comprehensive overview of the literature, not to define words or assess the quality of research [32]. The data acquired in CSV format were subsequently imported into Excel, where a bibliometric analysis was conducted. Before initiating the studies, the dataset was meticulously scrutinized for inaccuracies. The examined articles underwent a thorough analysis, wherein the most pertinent articles were distinguished, alongside the identification of corresponding authors who contributed the highest volume of publications. The articles identified from the search were evaluated and categorized based on various parameters: the annual number of publications, type of documents, ranking of papers, ranking of journals, ranking of primary funding sponsors, distribution across subject categories and periodicals, as well as affiliation by country and institution. Ultimately, the co-authorship dynamics and co-occurrence of keywords were investigated to elucidate the research domain's knowledge components and structural framework by delineating clusters of the most prevalent keywords within the literature.

## 4. Results

### 4.1. Trend of Publications on AI in Academic Writing

In many educational areas, artificial intelligence's impact on academic writing has many scientific implications. Between 2014 and 2024, 396 papers on AI in academic writing were published (**Figure 2**).

The dataset exhibits considerable variation in annual publications over the decade. The record count for each year and its corresponding percentage of the total are summarized in **Figure 2**. In 2024, there is a sharp increase, peaking at 285 publications. The number of publications stays extremely low between 2015 and 2020, ranging from one to two annually. In 2022, the number rose significantly to 19 publications. The number of publications rose substantially to 84 publications in 2023. Between 2022 and 2024, the trend shows a sharp increase in publications.
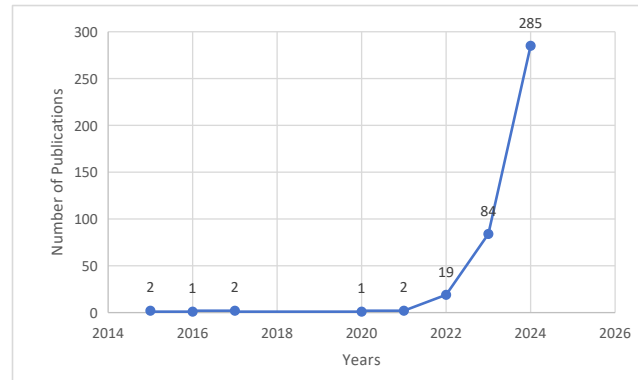


**Figure 2.** Decade period of articles on AI in academic years during the period 2014–2024.

### 4.2. Publication Types of AI on Academic Writing

Among all categories, the article has the most publications (224).

Conference papers are the second most common type of publication, with 122. A smaller percentage of review papers are than conference papers and articles, with 23 papers. Book Chapters are the least common kind, with 17 works. In addition, the Note section indicates eight publications, and the Editorial shows two papers within 10 years. **Table 1** shows that articles make up the majority, with conference papers coming in second and book chapters and reviews coming in last.

**Table 1.** List of summarizing the distribution of publication types.

| | |
|---|---|
| Article | 229 |
| Conference Paper | 111 |
| Review | 22 |
| Book Chapter | 17 |
| Note | 8 |
| Editorial | 2 |

### 4.3. Authors and Their Affiliated Country

Our research found that 396 authors studied AI in academic writing from 2014-2024. **Figure 3** shows 10 authors who have published more than two papers. Among them, Nazim, M, Mohammad, T, Khan, S reigned with 4 publications, followed by Alzubi, A with 3, Chaka, C, Bernik, A, Becker,B, Barrot, J, Ayyoub, A, and Alafnan, M with two publications. This list of top 3 authors comes from Saudi Arabia.
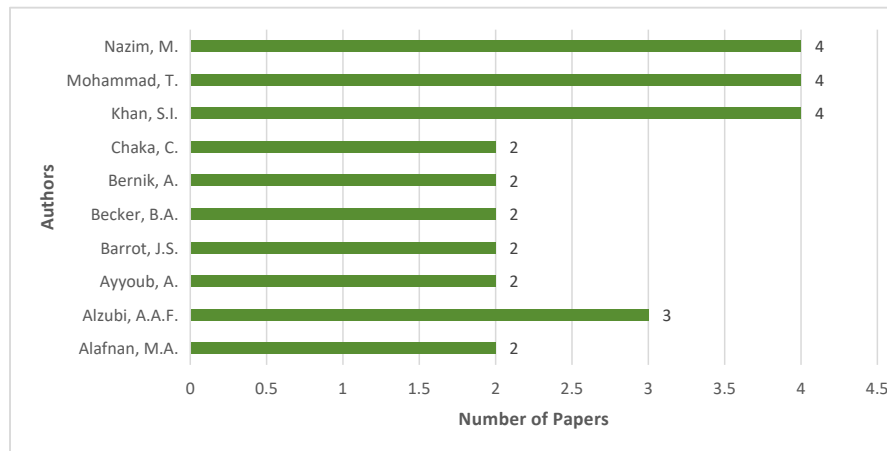
**Figure 3.** List of top authors published on AI on academic writing.

Institutions are classified according to the quality of the articles they publish. In 10 years, three hundred and seventy-nine different institutions cooperated to publish papers related to AI in academic writing. As indicated in **Figure 4**, the institutions include universities from other countries, such as Prince Sultan University, Monash University, University College London, Najran University, University of Arkansas, The University of Auckland, The Open University, The University of Texas at Austin, University of Waterloo, University of Pittsburgh. Most institutions have published three papers. Prince Sultan University stands out with six papers and is the highest contributor to the dataset. Monash University and University College London show the same productivity. However, overall, The Open University, The University of Auckland, The University of Texas at Austin, the University of Arkansas, the University of Pittsburgh, and the University of Waterloo show the most minimal contribution with three papers.
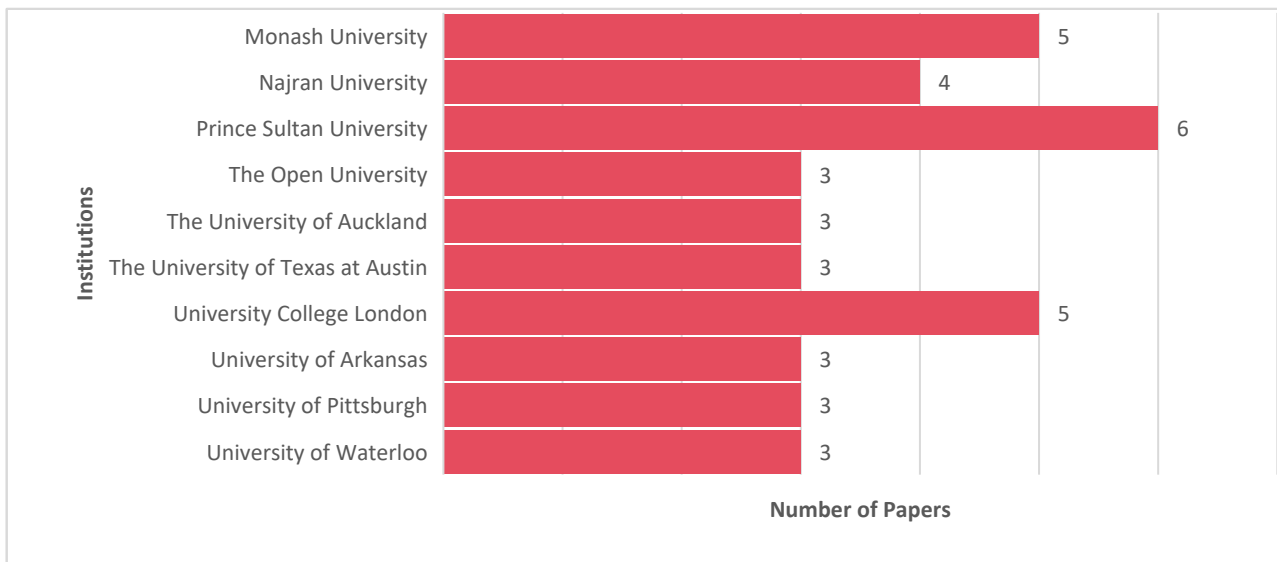


**Figure 4.** List of top institutions on AI on academic writing.

## 4.4. Top Countries on AI on Academic Writing

The number of publications in the ten most productive countries in the field of AI in academic writing between 2014 and 2024 (**Figure 5**). The USA dominated with 99 publications, followed by China 35, UK 32, India 22, Saudi Arabia 19, Australia 16, Indonesia 16, Canada 14, Japan and Malaysia 12.
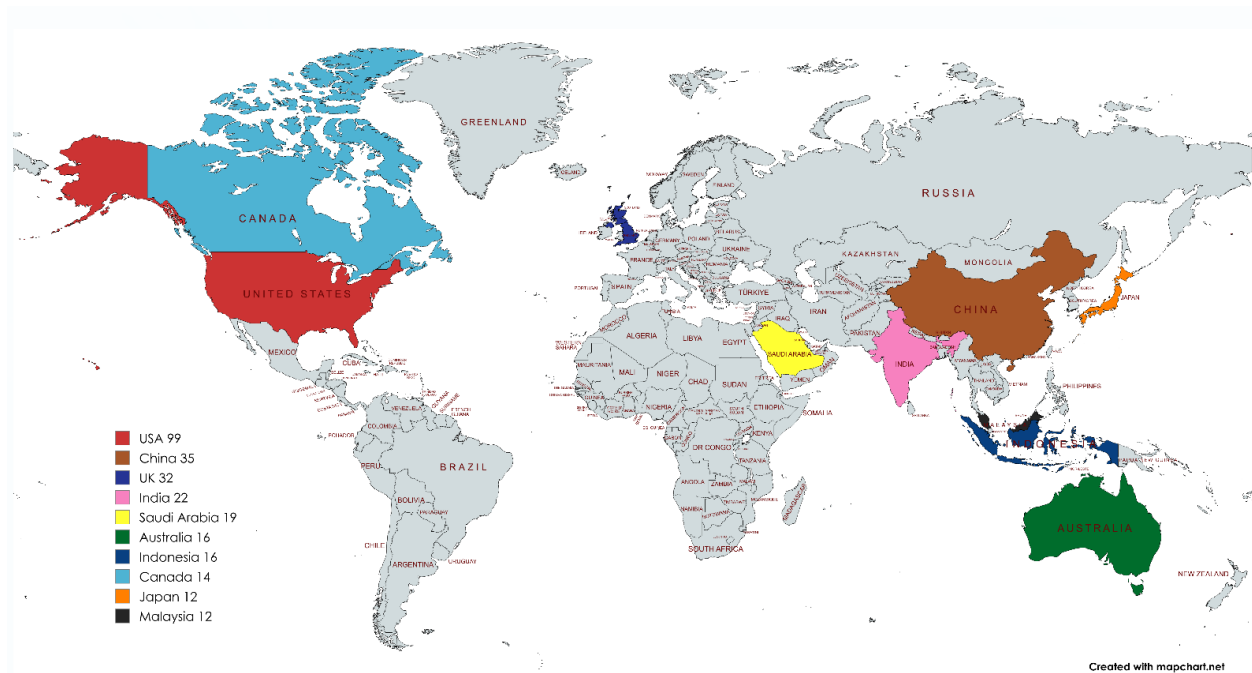
347

**Figure 5.** List of top countries on AI on academic writing.

## 4.5. Top Funding Agencies and Cluster Names on AI on Academic Writing

In 2014–2024, one hundred and forty funding agencies cooperated to publish 396 papers on AI in academic writing. Based on our analysis in **Figure 6**, six grants or supported initiatives, the National Natural Science Foundation of China is at the forefront of contributions. The contribution of this agency is far more than any other, making it the primary funding source. The second most prominent funding body is the Ministry of Science and Technology, which has contributed five times. These two institutions' combined dominance of the financing environment shows their dedication to furthering research and development. Third place goes to the National Science Foundation with four donations, followed by the European Commission with three. Even if they are not as well-known as the leaders, these organizations still contribute significantly to project financing. Their efforts demonstrate their commitment to promoting global academic and scientific advancement. At the lower end of the spectrum, two initiatives have been contributed to by Najran University and the Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (CAPES). These groups offer moderate assistance, suggesting their financing goals are specialized or localized. Meanwhile, organizations such as the Ministry of Education, the Government of Canada, the Japan Society for the Promotion of Science, and the Fundamental Research Funds for the Central Universities each sponsor just one project or grant, making their contributions negligible. They are involved in the worldwide research promotion effort even if their financing is tiny.
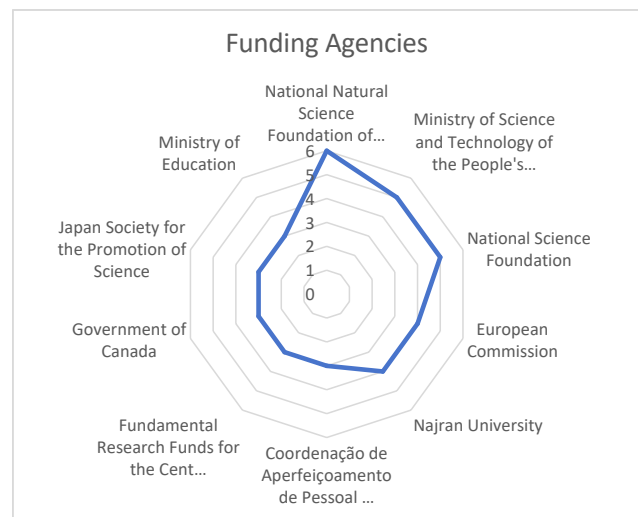


**Figure 6.** List of top funding agencies on AI on academic writing.

## 4.6. Top Co-Authorships and Keywords of AI on Academic Writing

Co-authorship, keyword co-occurrences, citations,

bibliographic coupling, and co-citation maps can be generated using VOSviewer based on bibliographic data. File formats supported include .txt, ris, and .csv from databases such as Scopus. The raw file was imported into VOSviewer, and a map of co-authorship and keyword co-occurrences (shown in **Figures 7** and **8**) was created using the software. The co-authorship analysis resulted in a network of 62 authors. There are 60 items distributed over 33 clusters. The co-authorship visualization created by VOSviewer depicts these academic contacts, highlighting the collaboration networks among scholars in this rapidly emerging topic.
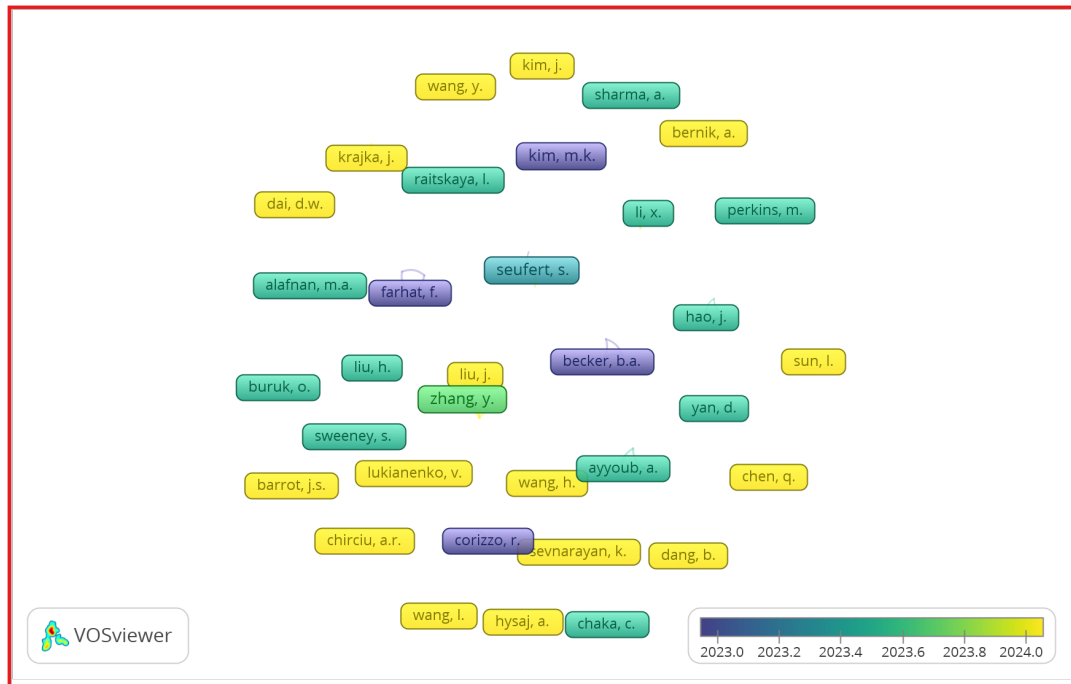


**Figure 7.** Network map of top co-authorships based on the total link strength.
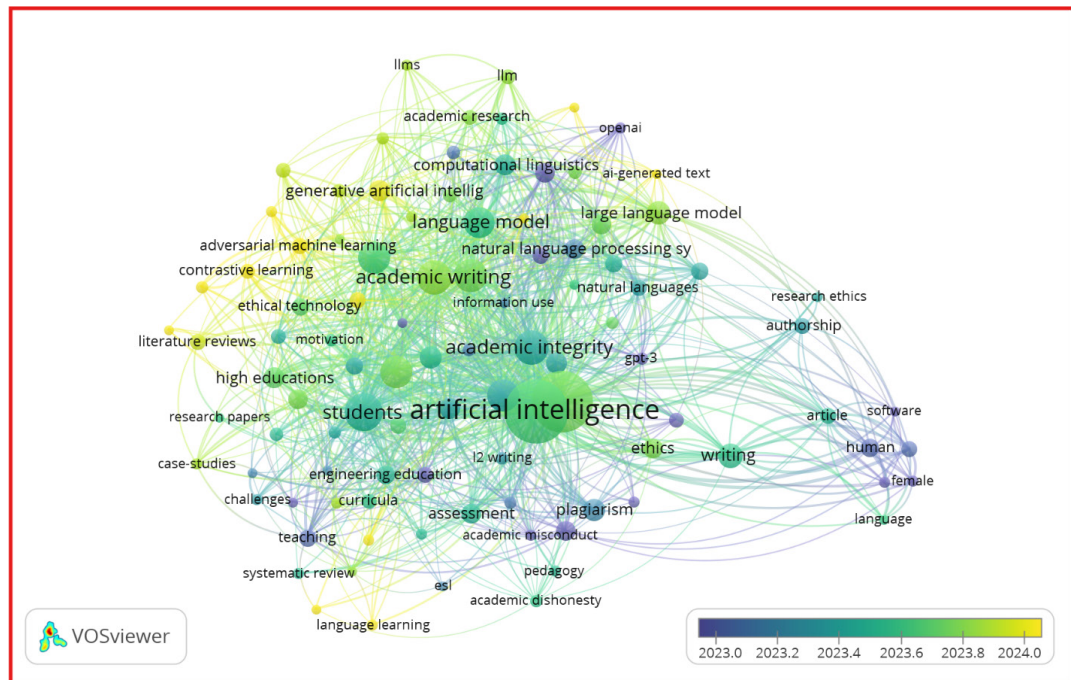


**Figure 8.** Network map of top keywords based on the total link strength.

Each node in the graphic reflects a specific author who has contributed to AI research in the academic field. The lines linking these nodes represent co-authorship, showing cases where scholars worked together on academic papers. The proximity of nodes represents the frequency and closeness of collaboration; writers who collaborate regularly appear to be closer and more intertwined. One of the most valuable parts of the visualization is using color to reflect the average publishing year. The color gradient, from dark blue to yellow, depicts a period of intellectual work. Authors portrayed in deeper tones (such as Becker, B.A. and Corizzo, R.) began writing on this topic around the start of 2023. Authors in yellow, such as Wang, Y., Chaka, C., and Sun, L., are more recent contributors whose work is part of the newest advances in AI and academic writing. The Map also indicates the existence of theme groupings or subcommunities. Although not expressly stated, the geographical organization of authors suggests categories based on specific research interests, such as AI's ethical implications, role in academic integrity, or practical applications in language processing and content development. These clusters highlight the field's multidisciplinary character, bringing together expertise in education, linguistics, computer science, and ethics. The co-authorship visualization provides valuable insights into the collaborative structure of AI research in the academic sphere. It displays the crucial contributors, how they interact, and how the field has changed over time. As artificial intelligence continues transforming the academic scene, visual tools like these assist in tracking intellectual conversation and create better connectedness among scholars.

We used VOSviewer's keyword co-occurrence tool to discover hot themes for the research and select relevant elements to include. We imported the data and used "co-occurrence" as the analysis type, "full counting" as the counting technique, and "all keywords" as the unit of analysis.

The analysis yielded 1844 keywords. After excluding the general keywords with a low relevance score and those with low occurrence (by default, a minimum of 100 occurrences of a keyword is selected to strengthen the co-occurrence results), 100 items were finally identified. Based on the total link strength, each resulting keyword is sketched in a node, creating a network map of all keywords. **Figure 8** shows the network map of the top 10 authors' keyword co-occurrence. The size of the node reflects the keyword's degree of importance. There are 100 items distributed over 5 clusters.

A bibliometric study using VOSviewer identifies five clusters of hot subjects in artificial intelligence in academic writing based on keyword co-occurrence in bibliographic data. Cluster 1 includes the keywords "artificial intelligence," "writing skills," and "teaching" and focuses on the integration of AI approaches. The second cluster focuses on the technical landscape of AI, namely language models. It contains terms like "language model," "huge language model," "GPT-3", "natural language processing," and "chatbot". This category represents the foundational technologies that power AI writing tools, demonstrating the rapid growth of computational linguistics and its applicability in educational contexts. Cluster 3 focuses on the academic setting in which writing occurs. This cluster, which includes topics like "academic writing", "higher education", "academic research", and "students", focuses on how AI is altering traditional academic processes. It also reflects the institutional and intellectual contexts in which AI tools are used for writing and research.

Meanwhile, the next cluster is focused on assessment and educational integrity. It contains terms like "assessment", "pedagogy", "plagiarism", "academic dishonesty", and "education". This field is concerned with judging student work equitably in the era of AI, ensuring that learning results remain valid and ethical values are followed. Finally, the last cluster addresses student involvement and problems. Keywords such as "university students", "self-regulated learning", "literature studies", and "systematic reviews" refer to the student experience when adjusting to AI. This cluster represents students' challenges and learning tactics in interacting with AI-assisted academic settings.

## 5. Discussion

This study aimed to use bibliometric analysis to examine a range of data on AI in academic sources and determine which academic fields and scientific publications have had the most effect on the subject. According to this bibliometric study, papers released over a decade ago discovered the finest findings on AI in academic writing.

The yearly production of articles illustrates the degree of change in the significant phrases related to AI in academic writing between 2015 and 2025. The introduction stage reveals that learners' interest in the impact of artificial intelligence on academic writing began with the approach's description and was only tangentially related to their writing abilities. We can see the approach's necessities and the keywords used over the 10 years. From the analyses on the impact of AI on academic writing, the United States is leading among the top institutions and countries for artificial intelligence. The main reason for this is that the country is traditionally defined as one of the most developed countries in the world. There may be a significant reason for this since this country has many highly regarded research centers and universities, such as the University of Pittsburgh, Arizona State University, and Georgia State University. The United States institutions publish many academic journals in top fields. For example, US universities have published about 94 papers on the current topic and are regularly ranked among the best in the world. Although Saudi Arabia and other Arab nations have more outstanding higher education institutions, the United States remains dominant. This is because universities in the United States have more publications on AI in their academic work than institutions in other nations. Thus, more scientific research has been conducted in the United States.

Few articles on AI in academic writing were written in 2023 than in 2024, resulting in 2024, the trend year with the most articles. Since this database was collected in December 2024 and the 2025 process was examined in December 2024, we can observe that 2025 underperformed. Writing about this subject is increasingly popular, and different AI systems are being created. Likewise, on the other side of the coin, every finding contains both positive and negative aspects; the true challenge is how and in what way to apply them.

### Exploring the Impact of AI on Academic Writing

Adopting AI technologies in academic writing must be balanced because there are substantial advantages and noticeable disadvantages. Artificial intelligence (AI) technologies like ChatGPT and Jenni AI greatly assist language learners and researchers by improving writing fluency, grammatical accuracy, and essay structure. With the help of scaffolding systems that will enhance argumentation concept structure and individualized feedback, these technologies increase motivation, engagement, and self-efficacy in academic work. AI-powered solutions also help schools and institutions automate tedious work, detect plagiarism, and offer creative approaches to quality analysis and active learning. Despite these advantages, there are still issues with AI technologies' ethical use, inventiveness, and academic integrity. Excessive dependence on AI-generated material and issues like "AIgiarism" (machine-mediated plagiarism) might undermine creativity and critical thinking. These problems are further compounded by educators' lack of knowledge and tools to identify AI-generated content, necessitating institutional changes and professional development. Moreover, the suitability of instruments intended to assess human-generated work and the possible abuse of AI for academic shortcuts provide ethical conundrums.

AI has advantages and disadvantages in academic writing. Certain norms, moral frameworks, and curricular modifications that balance its advantages and disadvantages are needed to utilize it effectively. If ethical usage is encouraged, AI may improve learning outcomes while maintaining academic integrity and innovation in higher education.

AI is an essential tool for writing academic communication, especially for scientists. The impact it has on academic writing is unmatched, and examples are chatGPT, quillbot, typeset, and Grammarly, which help users produce more polished and cohesive writing, which makes it a well-liked tool for professional and academic writing assignments. In addition, they offer tools like real-time writing help, collaborative editing, and plagiarism detection, utilizing AI to improve accuracy and productivity in academic and research operations, and advice on clarity, tone, style, punctuation, grammar, and spelling. Additionally, it provides features like personalized writing criticism and plagiarism detection, making it a popular AI writing aid for various platforms and situations. AI tools have a unique role in improving the efficiency of each work, but it is vital to use them properly; otherwise, it will lead to plagiarism.

The fast development of artificial intelligence (AI) technology has substantially influenced academic writing. **Table 2** shows that an artificial intelligence (AI) applica-

tion has resulted in a wide range of research spanning several topic areas. One of the most popular themes is ChatGPT in Writing, which has received attention from 27 research. These studies investigate the function of ChatGPT in enhancing writing abilities, assisting students in academic settings, and assessing the tool's influence on writing quality and ethics. Scholars have investigated ChatGPT's capacity to aid learners, whereas some researchers have investigated its limits and pedagogical consequences. The studies also address the incorporation of ChatGPT into the curriculum. The more significant topic of artificial intelligence in writing is closely related, comprising 39 research studies. This category includes generic AI applications for creating, analyzing, and evaluating written texts and ChatGPT. In this category, scholars investigate AI tools' ethical, cognitive, and stylistic effects on the writing process. These emphasize how teaching and learning across disciplines are impacted by AI technology.

It was evaluated by some researchers how AI may improve assessment techniques, encourage participation, and enable individualized learning. It provided insights into the practical consequences of AI-enhanced education, particularly emphasizing classroom integration. The group named The Impact of AI and Ethical Challenges, which consists of 15 works, critically examines ethical issues. The moral, intellectual, and sociological concerns raised by the application of AI in writing and education are covered in this corpus of work. Finally, 14 articles are included in Systematic and Bibliometric Reviews on AI, which include thorough summaries of current AI trends and meta-analyses. The growth, focus, and influence of AI literature in writing and education are evaluated by academics. When taken as a whole, these categories show a deep and varied scholarly discussion about AI and writing, bringing to light the potential and difficulties that come with developing intelligent systems in the classroom.

**Table 2.** Classification and Interpretation of extracted articles.

| Number of Papers | Name of Groups | Studies |
| --- | --- | --- |
| 27 | ChatGPT in Writing | (Acut et al., 2024 [33]; Ahmed at al., 2024 [34]; Alkamel et al.,2024 [35]; Alshahrani et al., 2024 [36]; Anik et al., 2024 [37]; Asad et al., 2024 [38]; Bernardino et al., 2024 [39]; Berriche & Larabi-Marie-Sainte., 2024 [40]; Bin-Nashwan., 2023 [41]; Casal et al., 2023 [42]; Črček et al., 2023 [43]; Desaire et al., 2023 [44]; Gralha & Pimentel., 2024 [45]; Kaliterna et al., 2024 [46]; Koltovskaia et al., 2024 [47]; Kurt G & Kurt Y., 2024 [48]; Liu et al., 2023 [49]; Mahapatra, 2024 [50]; Mahyoob et al., 2023 [51]; Mizumoto., 2024 [52]; Mouser., 2024 [53]; Rababah., 2024 [54]; Rojas., 2024 [55]; Song S & Song Y., 2023 [56]; Teng, 2023 [57]; Tseng & Lin., 2024 [58]; Werdiningsih & Rusdin., 2024 [59]) |
| 39 | Artificial Intelligence in Writing | ( Agbor et al., 2024 [60]; Alafnan et al., 2024 [61]; Alexander et al., 2023 [62]; Alhajji., 2024 [63]; Amirjalil et al., 2024 [64]; Bacon & Maneerutt, 2024 [65]; Balachandar & Gurusamy, 2024 [66]; Bilikozen, 2024 [67]; Chaka, 2023 [68]; Corizzo et al., 2023 [69]; DuBose et al., 2023 [70]; Fathi & Rahimi, 2024 [71]; Gallagher & Wagner., 2024 [72]; Gasaymeh et al., 2024 [73]; Hegazy et al., 2024 [74]; Ibrahim., 2023 [75]; Javanbakht, 2024 [76]; Jin et al., 2025 [77]; Khalifa & Albadawy, 2024 [78]; Kim et al., 2024 [79]; Krajka & Olszak, 2024 [80]; Lukianenko et al., 2024 [81]; Malik et al., 2023 [82]; Maphoto et al., 2024 [83]; Mohammadkarimi., 2023 [84]; Murray & Tersigni [85]; Muthukrishnan et al., 2024 [86]; Nazari et al., 2021 [87]; Nguyen et al., 2024 [88]; Popkov & Barrett, 2024 [89]; Pratiwi et al., 2024 [90]; Qaffas, 2024 [91]; Rafida et al., 2024 [92]; Sysoyev & Filatov, 2024 [93]; Tantivejakul et al., 2024 [94]; Ugwu et al., 2024 [95]; Utami & Winarni, 2023 [96]; Waltzer et al., 2024 [97]; Wang, 2024 [98]; Widodo et al., 2024 [99]) |
| 13 | AI in Education | (Akpan et al., 2025 [100]; Chauke et al., 2024 [101]; Fisk., 2024 [102]; Lusiana & Khadijah., 2024 [103]; Michels., 2024 [104]; Nel., 2024 [105]; Ou et al., 2024 [106]; Rejeb et al., 2024 [107]; Saqib & Zia., 2024 [108]; Schei et al., 2024 [109]; Spindel & Ackerman, 2024 [110]; Sweeney, 2023 [111]; Yuriev et al., 2023 [112]) |
| 15 | The Impact of AI and Ethical Challenges | (Alheadary, 2024 [113], Chavez et al., 2024 [114], Chung & Jeong, 2024 [115], Crompton et al., 2024 [116], Haleem et al., 2022 [117], Jose & Jose B.J., 2024 [118], Koplin., 2023 [119], Nam & Bai, 2023 [120], Park & Milner, 2024 [121], Rashid et al., 2024 [122], Sarwanti et al., 2024 [123], Sevnarayan & Potter, 2024 [124], Sharifzadeh, 2024 [125], Yuan et al., 2024 [126], Zou & Huang, 2024 [127]) |
| 14 | Systematic & Bibliometric Reviews on AI | (Andrade et al., 2024 [128], Bakri et al., 2024 [129], Bhagat et al., 2022 [130], Castillo-Martínez et al., 2024 [131], Fabiano et al., 2024 [132], Farhat et al., 2023 [133], Gujjarappa & Chandrashekara, 2024 [134], Gunawan et al., 2024 [135], Heins, 2023 [136], Imran & Almusharraf, 2023 [137], Lo et al., 2024 [138], Ma et al., 2024 [139], Zhang & Umeanowai, 2024 [140], Zheltukhina et al., 2024 [141]) |

# 6. Limitation

The study's dependence on Scopus as its sole database for gathering literature across ten years is one of its limitations. This method was selected to avoid formatting problems when merging data from multiple sources. In addition, although many articles exist, a few authors' works have been examined over the decades. However, our method excludes relevant literature from other databases in different languages by restricting the analysis to English-language publications discovered in Scopus. Future studies could get around this problem by integrating data from various sources and considering literature that has been published in multiple languages.

# 7. Conclusions

This study emphasizes how artificial intelligence (AI) has become more prevalent in academic writing, especially in the last ten years. According to the bibliometric analysis, there has been a notable change in research tendencies, with academic publications about AI coming from the US leading the way. Artificial intelligence (AI) tools like Jenni AI and ChatGPT provide impressive advantages in enhancing essay structure, grammar, and writing fluency but also raise significant ethical issues. Issues that need to be addressed include the possibility of plagiarism, restrictions on originality, and an excessive dependence on material produced by artificial intelligence. It is important to balance the benefits and downsides of AI in academic writing to utilize it thoroughly. This calls for creating suitable standards, moral principles, and curriculum modifications to guarantee AI technologies' responsible and efficient use. As AI develops, creativity, academic integrity, and improving learning outcomes should be the main focuses of its incorporation into educational environments. Finally, when appropriately applied, AI may significantly raise the caliber of academic work. Its application requires careful evaluation of its ethical implications.

This study aimed to examine the significance of artificial intelligence over the last ten years, as well as the years that have observed the emergence of this trend and the years that have noticed it become an actual topic. The authors' statistical analysis and research findings demonstrated that artificial intelligence (AI) is a tool that helps humans solve complex problems quickly. However, it should be used responsibly and in balance to avoid plagiarism.

Artificial intelligence's growing integration into academic writing presents significant potential and complex ethical issues. When AI systems are applied, fairness, accountability, and transparency must be guaranteed. Respecting research ethics, including informed permission, data security, and academic honesty, is still essential. Explicit norms and cooperation between developers, researchers, and ethical committees are essential for preserving trust and defending academic principles in order to profit properly from AI breakthroughs.

developers of AI tools such as ChatGPT, Grammarly, and Jenni AI, whose innovations have inspired this exploration into academic writing enhancement. The authors are also grateful to the Scopus database for providing access to the resources utilized in this research. Finally, the support of colleagues and peers throughout this project is deeply appreciated.

## Conflicts of Interest

The authors declare that they have no conflict of interest.

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