Plagiarism in Academic Writing in Higher Education Institutions: A Bibliometric Analysis

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Article Info	Abstract
	Higher education institutions (HEI) are increasingly challenged by plagiarism, which threatens their academic standards and integrity. This is due to the fact that students have access to an overwhelming amount of information online, making it easier for them to copy and paste without giving proper credit or attribution. Additionally, the prevalence of technology has made it easier to copy and paste without detection. The study aimed to analyze the trends in plagiarism in academic writing by using bibliometric analysis, which is a technique that can measure and analyze the use of published documents. This analysis was used to identify any potential changes in the prevalence of plagiarism in academic writing over time and to identify potential factors that could be influencing it. The data is extracted from Scopus database with Boolean and proximity search strategy and found 579 related journal articles. There are tabulations of results ranging from descriptive analysis, citation analysis, co-citation analysis, and co-word analysis. The descriptive findings revealed that 'academic integrity', despite not being included in the search string, was the most commonly occurring word with 284 indicating a significant relationship between plagiarism in academic writing in HEIs. In addition, citation analysis for the top ten documents was presented. The findings of co-citation analysis highlight factors, new trends of academic integrity, and mitigation plans against plagiarism, while co-word analysis are thematically presented in three prominent clusters which is academic misconduct study, ethics and academic integrity. In most prominent articles cited by many authors, contract cheating is the new trend of plagiarism. As a result, it sheds light on the fact that academic integrity issues go beyond a new phenomenon that needs to be taken seriously. This study has both theoretical and practical implications for minimizing future plagiarism risks as well as identifying and recommending potential solutions to the problem.

Introduction

Individuals have been able to access information more easily as a result of the proliferation of the internet. Consequently, it is difficult to distinguish between original and plagiarized works (Roe, 2022). In response, the number of students plagiarizing has grown exponentially. The internet allows students to access information

quickly and easily without having to spend a lot of time and effort doing their own research. Consequently, copying and pasting work from other sources is much easier. Due to these factors, the number of students plagiarizing has increased significantly in educational institutions today (Eret & Ok, 2014).

Plagiarism has a negative impact on the quality of education and research, as it can lead to erroneous and incomplete information being disseminated to the public. It can also lead to a lack of trust in the educational system as a whole, as it demonstrates a lack of integrity and respect for intellectual property (Siler & Larivière, 2022; Jacsó, 2009). Here is a form of misconduct that is prevalent mostly among students, but occasionally among professionals as well. Plagiarism among students and professionals is a growing problem, as it can lead to unfair advantages in the academic and professional world. It can also lead to a lack of original thought, as individuals may be tempted to simply copy and paste information from others without giving proper credit. As such, it is important to ensure that all academic work is original and thoroughly referenced, in order to maintain the integrity of the educational system and uphold high standards of knowledge and scholarship. In academia, plagiarism occurs between professionals because of incentives and measurement. The use of quantitative metrics and rankings has become increasingly popular in evaluating and rewarding individuals and organizations. As a consequence of ranking systems, scholarly publishing behavior is altered, reinforcing status hierarchies and resulting in plagiarism issues (Siler & Larivière, 2022). As a result, instructors must remain vigilant in identifying and preventing plagiarism to protect the integrity of their institution's educational standards.

The Contagious Diseases of Cheating

With the rise of the internet and digital resources, it has become easier for students to find information and copy it without providing proper credit. This has caused a rise in the number of plagiarism cases in recent years, making it an epidemic problem (Egana, 2012; Wilkinson, 2009). In an article published in The Times on January 2, 2016 and as explained by Denisova Schmidt, 2017, it was reported that, based on more than 100 freedom of information requests, almost 50,000 students had been caught cheating over the previous three years. This shocking revelation highlights the need for universities to further strengthen their processes to prevent academic dishonesty. If plagiarism is left unresolved, the number of academic dishonesty will continue to increase. This is similar to treating a disease. It's important to understand the causes and symptoms, as well as the available treatments, in order to develop a successful plan of action. Taking the necessary steps to prevent the spread of plagiarism is crucial for keeping it from becoming an even bigger problem (Thomas, 2004).

A motive for this study is so that students, educators, and administrators can take informed, pre-emptive steps, establishing structures and safety nets within their institutions as these threats emerge . These measures can turn what may become a systemic crisis into a conversation, whether through establishing a culture of academic integrity, creating a code of conduct, or using plagiarism detection software like Turnitin Originality. By understanding the prevalence and scope of the threats posed by academic dishonesty, those in the academic community can create effective policies, systems, and processes that promote academic integrity and reduce the likelihood of cheating. This can include developing processes to quickly detect and respond to cases of cheating, as well as providing resources that enable students to make more informed decisions when it comes to academic

integrity. By having a proactive approach to addressing academic integrity, educators can help protect the educational environment, ensure fair and equitable assessment, and promote academic excellence. Additionally, it gives students the opportunity to learn and practice good habits and ethical behaviors. The educational landscape is changing and undergoing transformation, and it is imperative that higher education institutions address academic integrity issues, particularly plagiarism issues, as these endemic trends provide a significant mechanism for combating these issues. Once the cues of the problem are identified, a mitigation plan can be developed. This is important because plagiarism can have serious consequences for students, such as lowered grades, suspension, or even expulsion (Carpenter, 2006). Plagiarism can lead to a lack of trust in the institution, which can cause students and potential employers to question the institution's standards and quality of education (Nonis & Swift, 2001). The study can help raise awareness about the consequences of plagiarism and provide students with the information they need to make informed decisions. By understanding the potential risks of plagiarism, students can make better decisions about their academic work and protect their reputation. Accordingly, the following research objectives are presented:

1. To identify the most cited publications concerning plagiarism in academic writing in higher education by means of citation analysis. In particular, this study aims to assess how often these publications are cited in other works, and the impact they have on the field.
2. To examine co-citation patterns and the relationship between highly cited publications.
3. To analyze the current trends and make predictions regarding future trends in academic writing in higher education through the use of co-word analysis.

Method

Bibliometric Review

The Scopus database contains studies of scientometrics dating back to the 1970's with direct quantitative interpretation in the study of bibliography (Naranan, 1971; Fokker & Lynch, 1974) as well as in the study of information literature (Line & Sandison, 1974; Corrigan, 1974). A similar amount of attention was paid to bibliographic analysis during the 1970's (Saracevic & Perk, 1973; Donohue, 1972) although the term was coined in 1963 (Kessler, 1963). In later years, it developed more empirically to provide a comprehensive insight into productivity, specifically to identify emerging trends in article and journal performance, collaboration patterns, and research constituents, as well as to examine the intellectual structure in the literature related to a given domain (Donthu, Kumar, Pattnaik, & Lim, 2021). In accordance with the needs of this study, three bibliometric

i. Citation analysis: A citation analysis tool can calculate various impact measures for scholars based on citation index data (Kaur, Hoang, Sun, Possamai, Jafariasbagh, Patil, & Menczer (2012). This analysis is carried out in order to analyze large-scale patterns and knowledge discoveries related to the similarities of relationship between documents in order to predict trends, co-authorship networks, and countries.

ii. Co-citation analysis: A co-citation analysis is a unique method of studying the cognitive structure of science, which involves tracking two papers cited together in the source articles, providing a forward-

looking assessment of document similarity (Small, 1973). The frequency of co-citation analysis provides a substantial amount of literature relatedness, which illustrates the strength of the observed theme (Surwase, Sagar& Kademani & Bhanumurthy, 2011)

iii. Co-word analysis: An appropriate tool for describing the network of interactions between different fields is co-word analysis (Callon, 1991). The assumption is that, using co-word analysis to explore the intellectual structure of keywords can offer complementary perspectives on plagiarism in HEI, particularly in the central phenomenon of plagiarism in academic writing.

Search Strategy and Data Collection

The Scopus database of scientific documents, which was established in 2004, makes it easy for institutions to measure their research productivity based on their published work (Utama, Setiyono, Jamari, Tauviqirrahman, Susanto, 2019). At present, there are 44034 journals listed in a vast number of sources. An integrated data set containing information such as cite scores, highest percentiles, citations, publications, and percentages of cited documents proved to be useful for bibliometric studies.

This data set provides the basis for understanding the impact of journals, enabling researchers to compare and contrast their findings effectively. The platform has more than 90 million curated documents, covering more than 7 disciplines, including social sciences, medicine, engineering, economics, business management, accounting, nursing, computer science, arts and humanities, and environmental science. Searching in Scopus with a string of different parameters, such as 'most cited document in Scopus', the earliest work was found in 2009 (López, de Moya Anegón, & Moed,2009; Jasco, 2009; Uzunboylu & Ozcinar2009) However, when using the parameter of 'number of documents in Scopus', the earliest work is similar by Lopez et. al, 2009 and Jasco, 2009. Several studies have been conducted to examine the volume of scientific data using Scopus, but this assumption may be refuted if different parameters are used and different performance sets are evaluated.

Table 1 presents the search string used in this study. The study of plagiarism in academic writing in higher education consists of three phases. Initially, basic searches are performed using the search string "Higher Education" and "plagiarism" and yielded 60 documents.

In response to the limited results of the previous search, the search string was expanded to include proximity operators, 'OR', 'AND', and several keywords such as 'higher education, university, HEI and plagiarism'. As a result of the search, 1126 documents were found. In the search process, conference proceedings, magazines, books, and book chapters are not omitted. Phase three searches are more specific and accurate with the same proximity operators, but different keywords and terminologies to display higher education to its best advantage.

It is necessary to note that higher education, university, university or university, higher education institute, and institute of higher learning are similar terminologies which have the same meaning and orientation. The third phase of the search enlarges the scope of the exploration by including terms related to plagiarism as well as academic writing. Results from phase three yield 579 documents that are limited to journal publications. Scopus

database search was carried out on January 20th, 2023.

Table 1. Search String in Scopus Database

No	Phase Keywords	No. of documents	Justification
1	Initial Search : Basic search, Boolean operators AND *"higher education*"* AND *"plagiarism"*	60	To see an overview of plagiarism trends in higher education. There seems to be limited data available as a result of the search. The expansion of the search string is expanded
2	Second Search: Advance search, Proximity operators OR; AND ("higher education*" OR "university*" OR "HEI*" AND "plagiarism*")	1126	To identify literature related to higher education and plagiarism. Universities are the only terms that appear in the search, while higher education contains multiple terms
3	Third search: Advance search, Proximity operators OR, AND ("higher education*" OR "universit*" OR"college*" OR "HEI" OR"IHL") AND ("integrity*")) AND ("plagiarism" OR"academic writing")	579	Since plagiarism is closely associated with academic writing, it should be specified in academic writing . Search are widened within the scope of Higher Education Institution, not limited to 'universiti' or University, it go across the Institution of Higher Learning

Results

Descriptive Analysis

The study provides comprehensive findings based on bibliometric analysis. In short, descriptive analysis is a method of summarizing quantitative data, citation analysis examines how often an article is cited and by whom and co-citation analysis looks at articles that have been cited together, providing information about the relationship between the articles. The analysis also provide co-word analysis which compares the content of articles and reveals the complexity of the topics being studied.

The final search included only journal publications up to 2023 with 579 articles cited 7336 times. These data are extracted from 1983, which corresponds to the year when the internet was born and information began to spread. Before the internet boom, people wrote in a regular way, like now, the opportunities are wider and make the plagiarism much easier.

Assuming that people were just getting acquainted with the internet in 1983, not much research has been conducted on plagiarism issues. There has been an increase in plagiarism studies over the last decade, especially during the millennial era from 2000-2007. According to Scopus data, there were 183 articles published about plagiarism in Higher Education in 2014. In light of the scope of studies, which range from plagiarism in students' writing to plagiarism prevention strategies, these numbers are significant.
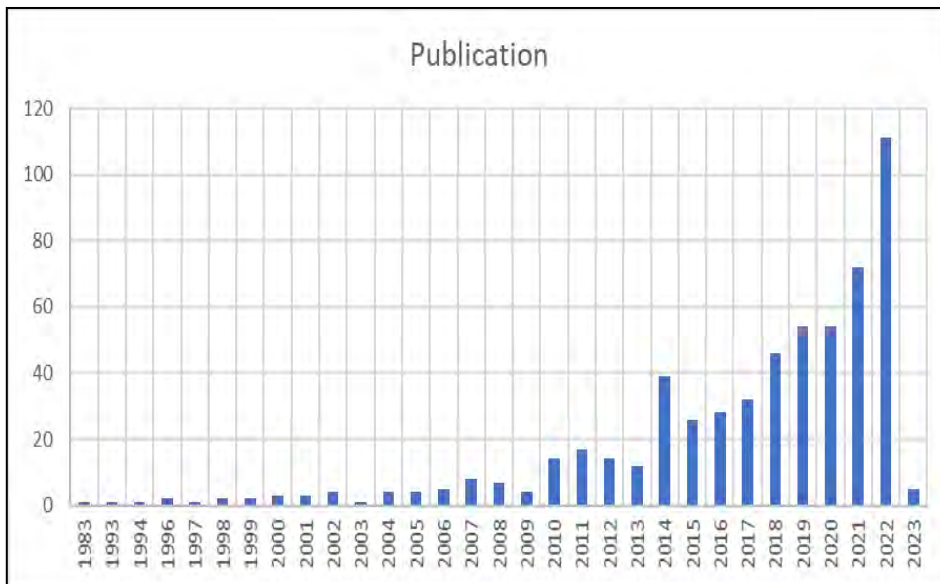

Figure 1. Number of Publications from 1983-2023 as Extracted from Scopus

Please embed tables and figures in appropriate areas within the document and center them horizontally. Tables and figures should not exceed the given page margins. Provide captions (maximum length: 6 to 8 words) for each table or figure. Centre the caption above the table and below the figure. Please reference the table or figure in the text (see Table 1). Please do not use vertical lines in tables. For figures, GIF and JPEG (JPG) are the preferred formats.

Citation Analysis

Document Citation

Table 2 shows the top 10 highest publications based on the cited document. There are three publications that receive the most citations: Nonis and Swift (2001) with 275 citations, Rettinger and Kramer (2009) with 149 citations and King, Guyette and Pitrowski (2009) with 146 citations. The rest of the cited documents are indicated by rank, author and citation as follows (4; Roig, 2001; 144), (5; Brimble & Clarke, 2005; 136), (6; Gullifer & Tyson, 2010; 134).

Table 2. Top 10 Document Citation Analysis

Rank	Author	Title	Citation
1.	Nonis & Swift (2001)	An Examination of the Relationship Between Academic Dishonesty and Workplace Dishonesty: A Multicampus Investigation	275
2.	Rettinger & Kramer (2009)	Situational and Personal Causes of Student Cheating	149
3.	King, Guyette & Pitrowski (2009)	Online Exams and Cheating: An Empirical Analysis of Business Students' Views	146
4.	Roig, M. (2001)	Plagiarism and Paraphrasing Criteria of College and University Professors	144
5.	Brimble & Clarke (2005)	Perceptions of the prevalence and seriousness of academic dishonesty in Australian universities	136
6.	Gullifer & Tyson (2010)	Exploring university students' perceptions of plagiarism: a focus group study	134
7.	Bretag, Harper, Burton, Ellis, Newton, Rozenberg, Saddiqui & Van Haeringen (2019)	Contract cheating: a survey of Australian university students, Studies in Higher Education	128
8.	Chapman, K. J., Davis, R., Toy, D., & Wright, L. (2004).	Academic Integrity in the Business School Environment: I'll Get by with a Little Help from My Friends	108
9.	Park, C. (2004)	Rebels without a clause: towards an institutional framework for dealing with plagiarism by students	108
10.	Carpenter, Harding, Finelli, Montgomery, & Passow, (2006)	Engineering Students' Perceptions of and Attitudes Towards Cheating	99

Following is a discussion of some of the points raised in the document analysis. It provides insight into the topics discussed in the document, including any underlying themes or potential talking points and identify any gaps in knowledge or areas that need further exploration. An interesting finding of the document analysis is that academic honesty is one of the determinant factors for honest employees. Nonis and Swift (2001) ascertained if students cheat in college and are hired on academic credentials that they obtained dishonestly, employers will suffer. If students believe that cheating in college is acceptable, they will believe that cheating in the workplace is acceptable. The findings emphasized Students who do not respect the climate of academic integrity in college will not respect integrity in their future professional and personal relationships. A major implication is not only in the future, but also in the present where the learning process is greatly impacted (Carpenter et, al. (2006). As a result, faculty are hindered by academic dishonesty in diagnosing and addressing shortcomings in student learning and in assessing student learning. Students outsourcing tasks or assessments to third parties is another cheating

behavior that is on the rise. Due to the existence of file-sharing websites and commercial services that facilitate cheating, this type of behavior is widespread. These websites and services make it easy for students to get access to assignments and assessments from other students or professionals, allowing them to submit assignments as if they had done them themselves. This makes it much easier for students to cheat without getting caught (Bretag, et. al, 2019).

Rettinger and Kramer (2009) highlighted that witnessing others' cheating determines future dishonest behavior is crucial to finding a way to reverse this relationship. Institutions with reporting requirements have lower rates of cheating because students embrace this requirement and feel reluctant to cheat themselves. This is because when students see that their peers are being held accountable for their actions, they are less likely to engage in cheating behavior themselves. This creates a culture of honesty and integrity, which further discourages cheating. They further adds changing culture and attitudes on campuses will lead to heightened integrity of all sorts, including academic integrity. This is in line with King et. al, (2009) and Park (2004), which believed it is important for instructors and the institution at large to take proactive action at the earliest sign of academic dishonesty. It is essential to clearly define at the start of each course what constitutes cheating both by the college or university at large and by individual faculty members. Students should be exposed to honor code strategies and integrity guidelines in print, on educational websites, and in classroom discussion.

Similarly, Brimble and Clarke (2005) point out on institutional accountability in ensuring both academic staff and academic management to adhere rigorously to policies and are vigilant in identifying dishonest behavior. Moreover, assessment policies should be examined to ensure that they minimize the opportunity for students to engage in misconduct in assessment methods and invigilation. This is because it is important to maintain the integrity of the academic institution and to ensure that students are not engaging in any form of cheating or plagiarism. Academic staff and management must be held accountable and must be responsible for monitoring students to ensure they are adhering to the academic rules and regulations. To this end, educational institutions should ensure that all policies and procedures in relation to assessment and invigilation are firmly enforced.

Roig (2001) makes interesting discoveries about college professors' plagiarism in which the terminology and unfamiliarity of the topic probably account for the high proportion of distortions in students' paraphrases as well as those found in his study with professors. To avoid conveying inaccurate information, professors in the study may have been forced to adhere as closely as possible to the original language in order to maintain readability This is because if they altered the original language too much, they may have changed the intended meaning of the text, which would lead to them conveying inaccurate information. Similarly, Paraphrasing and summarizing should be clearly distinguished to prevent students from committing such unethical actions. Students may not understand the nuances of proper attribution and paraphrasing, especially when working with complex texts. As a result, they may inadvertently use the same language as the original source and not realize it is plagiarism. To help prevent this, teachers and professors should provide clear instruction on how to properly cite sources and how to properly paraphrase and summarize texts (Weaver & Bryant, 1995). Inadvertent plagiarism may be the major cause of students committing plagiarism because they fail to recognize the subtle aspects of attribution of ideas and paraphrasing of texts (Gullifer & Tyson, 2010).

Discussion

Please use 10-point font size. Please margin the text to the justified. Manuscripts should be 1.5 times spaced. A paragraph should have at least 3 sentences. Footnotes and endnotes are not accepted. All relevant information should be included in main text. Do not indent paragraphs; leave a space of one line between consecutive paragraphs. Do not underline words for emphasis. Use italics instead. Both numbered lists and bulleted lists can be used if necessary. Before submitting your manuscript, please ensure that every in-text citation has a corresponding reference in the reference list. Conversely, ensure that every entry in the reference list has a corresponding in-text citation.

Bibliographic Coupling of Countries

There are a total of 20 countries in Table 3 with the highest number of publications about plagiarism in academic writing. There was a minimum requirement of five publications per country. The threshold was met by 32 countries out of 89. A total link strength calculation was performed for all countries based on publications, citations, and total number of link exchanges. Links between countries with the greatest total strength were selected. In terms of total link strength, United States ranked first with 144 publications, 2770 citations, and 15771 references. The first value represents the number of publications, the second value represents the number of citations, and the third value represents the total link strength for the other countries. Among the other countries were; Australia (99; 1997; 15642), United Kingdom (58; 976; 9568), Canada (32; 254; 5316), China (18; 169; 3429), Spain (17; 121; 3295), United Arab Emirates (23; 129; 3143), Indonesia (10; 29; 2002), Saudi Arabia (19; 134; 1930), New Zealand (9; 85; 1775), Pakistan (7; 121; 1773), South Africa (15; 67; 1687), Hong Kong (6; 71; 1591), Malaysia (14; 72; 1555), Turkey (6; 91; 1427), Norway (7; 56; 1415), Croatia (9; 125; 1276), Sweden (5; 45; 1241), Vietnam (5; 37; 1149) and Czech Republic (6; 68; 1091).

Table 3. Top 20 Countries in Plagiarism in Academic Writing in Higher Education

Rank	Country	Publication	Citation	Total link strength
1.	United Stated	144	2770	15771
2.	Australia	99	1997	15642
3.	United Kingdom	58	976	9568
4.	Canada	32	254	5316
5.	China	18	169	3429
6.	Spain	17	121	3295
7.	United Arab Emirates	23	129	3143
8.	Indonesia	10	29	2002
9.	Saudi Arabia	19	134	1930
10.	New Zealand	9	85	1775
11.	Pakistan	7	121	1773
12.	South Africa	15	67	1687
13.	Hong Kong	6	71	1591

Rank	Country	Publication	Citation	Total link strength
14.	Malaysia	14	72	1555
15.	Turkey	6	91	1427
16.	Norway	7	56	1415
17.	Croatia	9	125	1276
18.	Sweden	5	45	1241
19.	Vietnam	5	37	1149
20.	Czech Republic	6	68	1091

An illustration of the bibliographic coupling of the countries is provided in Figure 2, along with a visual representation of the network. Figure 2 depicts the clusters that were frequently linked together by colour. The more studies that come from similar countries are cited together, the more likely they are to be cited with each other. United States, Australia, United Kingdom, and Canada form the largest cluster as shown in red. Sweden, Croatia, Denmark, and the Netherlands belong to the second cluster, which is green, while Germany, Switzerland, and Ukraine belong to the third cluster, which is blue. In spite of the fact that Malaysia and Saudi Arabia appear in the fourth cluster in yellow, their total link strength places them at ninth and fifteenth, respectively.
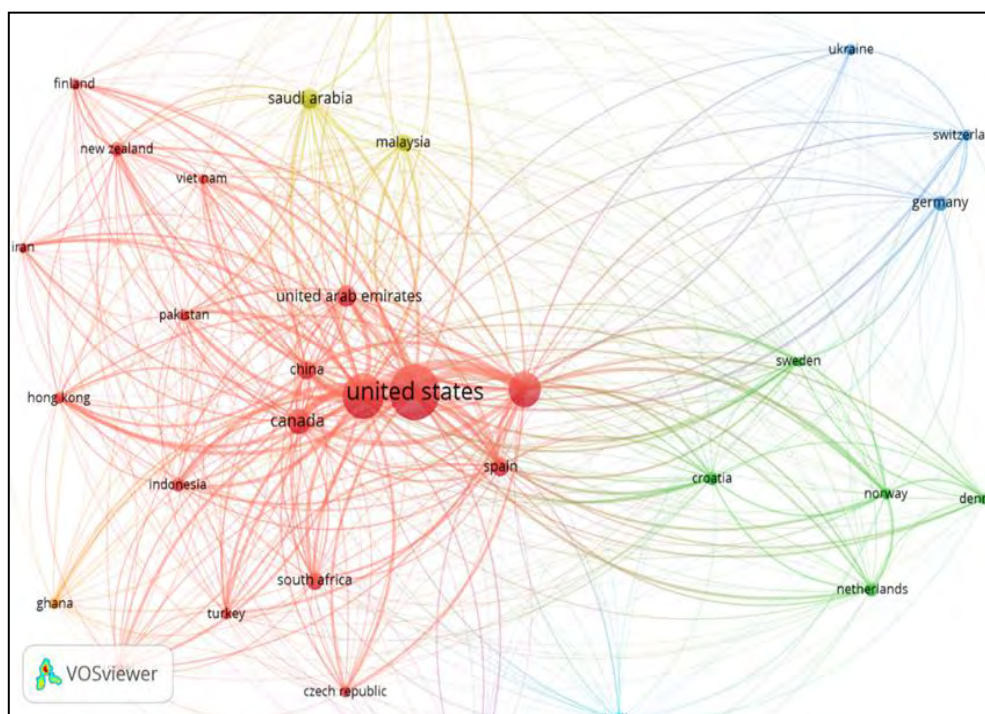

Figure 2. Network Visualization of Bibliographic Coupling (Countries)

Co-Authorship Network of Countries

The co-authorship countries network publishing on plagiarism in academic writing in HEI comprised of 45 countries, however only 5 countries are tabulated as it consider the top 5 countries with setting the minimum numbers of documents of a country is 3. The first rank are countries from United Kingdom with 58 publications

and 976 citations and highest number of total link strength with 49, followed by United States with 144 publications, 2770 citations and 34 total link strength, Australia with 99 publication, 1997 citations and 21 total link strength, Saudi Arabia with 19 publications, 134 citations and 15 total link strength and United Arab Emirates with 23 publications, 129 citations and 14 total link strength. Countries in Asia do not weigh any representation, which could be due to scholars worldwide concentrating more on publications produced by developed countries. Further, the large network of developed countries indicated these patterns happened because partnerships and collaborations were only paired with countries with similar status quos (Jacobsen, 2006). In general, there is less dynamic engagement in research and co-authorship. This is explained by the dominant presence of research partnerships and co-authorship within the same countries.

Overview of Co-Citation Analysis

An overview of the co-citation analysis of plagiarism in academic writing in HEI is presented in Table 4, with the cluster labels, number of publications, and top three publications listed. There are 4 clusters of red, green, blue, and yellow items, each of which has 10 or more items. In red, contract cheating is the new threat to academic integrity with the top three publications by Bretag et al., 2019, Curtis and Vardanega, 2019, and Curtis and Clare, 2017. It has been shown that green is associated with plagiarism procedures as published by Bretag et al, 2014; Daffin and Jones, 2018; Elzubair, 2003; whereas blue are associated with plagiarism with Anderson and Obenshain, 1994, Bernardi et al., 2004 and Brimble and Clarke, 2005 as the top three publications. The last cluster in the yellow color scheme is labeled dealing with plagiarism from the students' perspective, which has published in top three publication by Belter and Du Pra, 2009; Compton and Pfau, 2009; and Eret and Ok, 2014.

Table 4: Co-citation clusters on Plagiarism in Academic Writing in HEI

Cluster	Cluster label	Number of item	Top three publications
1 (red)	Contract cheating: new threats for academic integrity	16	Bretag et, al (2019), Curtis and Vardanega (2019) and Curtis and Clare (2017)
2 (green)	Promoting a plagiarism procedures (institutional lens)	14	Bretag et, al (2014), Daffin and Jones (2018) and elzubair (2003)
3 (blue)	Factors of committing a plagiarism act	14	Anderson and Obenshain (1994), Bernardi et al (2004), and Brimble and Clarke (2005)
4 (yellow)	Dealing with plagiarism (students lens)	10	Belter and Du Pra (2009), Compton and Pfau (2009) and Eret and Ok (2014)

Co-Word Analysis

Based on a minimum of five keyword occurrences, 146 keywords were found out of 579 references, and only 50 keywords were selected. There is an assumption that non-trivial relationship can exist between references despite the fact that the relationship is assumed to be significant between different authors . The representation of the co-word analysis are shown in Figure 3. Table 5 shows the top 10 keywords with the strongest total link strength and

number of occurrences. The most frequent keyword appears to be human, with 1089 occurrences and 1089 links. Plagiarism ranked second, with 86 occurrences and 985 links. The following keywords are listed with their occurrences and total link strength. Ethics (84; 641) are the third keyword, followed by article (58; 570), academic integrity (283; 544), gender of men and women (37; 542), publishing (49; 541), university (53; 536), and scientific misconduct (49; 500).

Table 5. Top 10 Keywords on Plagiarism in Academic Writing in HEI

Rank	Keywords	Occurrences	Total link strength
1	Human	103	1089
2	Plagiarism	205	750
3	Ethics	84	641
4	Article	58	570
5	Academic integrity	283	544
6	Gender (male & female)	37	542
7	Publishing	49	541
8	University	52	536
9	Scientific misconduct	49	500
10	universities	44	478

An illustration of the co-occurrence network between keywords is shown in Figure 3. It is evident that there are three distinct clusters in the figure. The three clusters represent different themes in the co-occurrence network. For example, the red cluster contains keywords related to the method of academic misconduct study, the green cluster contains keywords related to ethics, and the blue cluster contains keywords related to academic integrity.
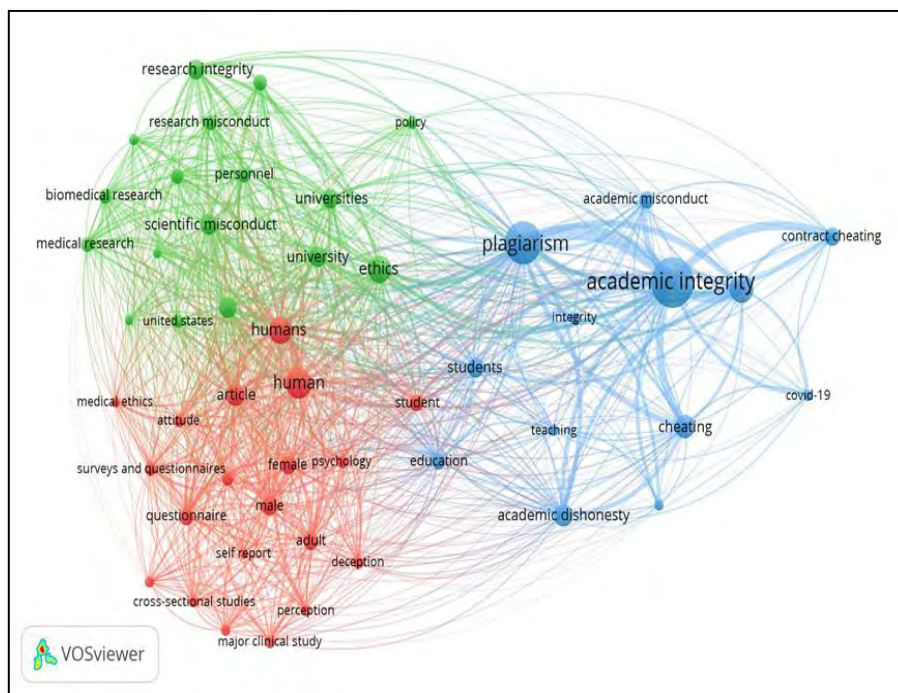

Figure 3. Network Visualization of Co-Occurrence Keywords

The visualization of the co-occurrence network allows for a deeper understanding of the relationships between the keywords. For example, the red cluster contains words related to the method of academic misconduct study, which suggests that the keywords in the cluster are related to the study's methodology. Similarly, the green cluster contains keywords related to ethics, indicating that the keywords in the cluster are related to ethical considerations. Meanwhile, the blue cluster contains keywords related to academic integrity, which implies that the keywords are related to the importance of maintaining academic integrity.

According to each cluster, the following points are discussed and elaborated:

- *Cluster 1 (red).* Several methods were used to conduct the academic misconduct study, including questionnaires, surveys, cross-sectional studies, and self-reports. Rather than focusing solely on students, studies of plagiarism in academic writing include samples from teaching staff and adults. It is important to note that the analysis of findings utilized a number of tools and methods in order to provide support for the claim. This allowed for a better understanding of the motivations for plagiarism, the prevalence of it, the strategies to prevent it, and the impact it has on academic integrity. Additionally, the diverse methods used to gather data provided a comprehensive view of the issue and allowed for a more accurate assessment of the scope of the problem. These tools and methods included cross sectional studies, surveys and questionnaires, interviews, focus groups, and document reviews. There are a total of 20 items highlighted, however, only a few are addressed in light of the significance of the keywords.

- Among the most interesting keywords were 'deception, attitude, and professional misconduct'. Harrison et. al., (2021) mentioned contract cheating is a deliberate deception, whereas plagiarism is technically the result of carelessness or a lack of awareness of attribution conventions. To start with, students deceive themselves into paying others to complete their academic assignments. It is a form of cheating that can be difficult to detect and has serious consequences for universities, instructors, and students alike. Denisova et. al, (2019) points out, students who study for knowledge and skills have a lower likelihood of engaging in deception behavior like plagiarism and bribery. This is because students who are studying for knowledge and skills have a better understanding of the material, and are therefore less likely to engage in deception behavior to get a good grade. Nowadays, students in higher education must concentrate on obtaining a qualification that will allow them to enter the employment market, rather than focusing on their education alone. Additionally, this interpretation could explain the perceived increase in academic dishonesty among students (Roe, 2022).

- In connection with the keyword 'attitude', student's attitudes toward academic dishonesty can be significantly improved through teachers' strictness toward dishonesty (Cerda et. al., 2022). By enforcing strict penalties for cheating, such as automatic failure in the course, instructors can discourage students from engaging in academic dishonesty. Furthermore, by providing clear expectations and consequences for cheating, instructors can also help students to understand why cheating is wrong and why they should not engage in such activities. Waltzer et. al., (2022) makes an interesting discovery concerning the perspectives of bystanders rather than perpetrators. In spite of the fact that cheating is wrong, students are very reluctant to report violations when they witness them. Scholars and educators may overestimate the complexity of students' decisions about reporting cheating based on their negative attitudes toward

cheating and refusal to report cheating. Consequently, to effectively prevent cheating, it is important to assess the underlying reasons why students are reluctant to report violations, as well as to provide them with the necessary support to make the choice to report it.

- A further related study with the keyword "professional conduct" is from Decullier and Maisonneuve (2020) and Bayaa et. al, (2016). As Decullier and Maisonneuve (2020) points out, the system of requiring researchers to publish a lot of papers is the source of bad practices. The pressure to publish a lot of papers can lead to researchers feeling like they have to cut corners in order to meet the demands of the system. This can lead to them making shortcuts that could result in the data being manipulated or even fabricated. The prevention of transfer of academic dishonesty from higher education to the workplace is essential because academic dishonesty can lead to professional misconduct in the workplace, since individuals who have engaged in academic dishonesty are more likely to engage in unethical behavior in the workplace. (Bayaa et. al., 2016). In the following Table 6, two publications that contain each keyword are cited:

Table 6. Keyword and Publication in the Red Cluster

No	Author	Title	Keyword
1	Harrison D., Patch A., McNally D., Harris L., 2021	Student and Faculty Perceptions of Study Helper Websites: a New Practice in Collaborative Cheating	Deception
2	Denisova-Schmidt E., Prytula Y., Rumyantseva N.L., 2019	Beg, borrow, or steal: determinants of student academic misconduct in Ukrainian higher education	
3	Cerdà-Navarro A., Touza C., Morey-López M., Curiel E., 2022	Academic integrity policies against assessment fraud in postgraduate studies: An analysis of the situation in Spanish universities	Attitude
4	Waltzer T., Samuelson A., Dahl A., 2022	Students' Reasoning About Whether to Report When Others Cheat: Conflict, Confusion, and Consequences	
5	Decullier, E., & Maisonneuve, H. (2020).	Have ignorance and abuse of authorship criteria decreased over the past 15 years?	Professional misconduct
6	Bayaa Martin Saana, S.B., Ablordeppey, E., Mensah, N.J., Karikari, T.K., 2016	Academic dishonesty in higher education: students' perceptions and involvement in an African institution	

- ***Cluster 2 (green).*** / The green cluster contains 20 items, but only three keywords related to ethics should be highlighted; they are 'research ethics, authorship, and research misconduct'. A university's size plays an important role in determining the size of its institutional regulatory research committees (Phoomirat, et. al., 2022). Large universities generally have more resources, including financial and personnel resources, to devote to research and development. As a result, they often have larger committees that are

responsible for approving and overseeing research projects. In addition, the authors believe that medium and small universities need more support to develop their own ethical regulations for research. It is imperative for Malaysian universities to become excellent research universities that researchers are aware of and follow guidelines regarding research ethics. To this end, universities must ensure that faculty and students understand, adhere to, and are accountable for research ethics (Olesen, et. al, 2018)

- The frequent occurrence of ghost and honorary authors might be attributed to social scientists' misconceptions about authorship criteria, where it has been demonstrated that social scientists often overlook the importance of intellectual contribution when determining which authors should be listed on a publication (Pruschak & Hopp, 2022). Students have different perceptions of plagiarism with regard to owning ideas, owning language, and owning time devoted to research, and that it is often difficult for them to differentiate the boundaries between these things (Vaccino-Salvadore & Hall Buck, 2021).

- According to Fong & Wilhite (2021), False investigators appear to be widespread despite the legal and ethical issues associated with their inclusion. The term false investigator refers to researchers who have been listed on grant proposals as part of a research team, despite no expectation that they will contribute to it. This is usually done to inflate the team's experience and credentials in order to increase the chances of receiving a grant. This unethical practice is a form of academic dishonesty. In light of the challenges inherent in modern science and the prevention of misconduct, research institutions should equip future generations of researchers with the skills necessary for responsible research practices (Abdi et. al., 2021). This can be done by incorporating ethics and research integrity into curricula, as well as providing mentorship and guidance for young researchers.

Table 7. Keyword and Publication in the Green Cluster

No	Author	Title	Keyword
1	Phoomirat, R., Kerdsomboon, T., & Palittapongarnpim, P. (2022)	Current status of approaches of Universities in fostering research ethics in Thailand,	Research ethics
2	Olesen, A.P., Amin, L., Mahadi, Z. (2018)	In Their Own Words: Research Misconduct from the Perspective of Researchers in Malaysian Universities	
3	Pruschak & Hopp (2022)	And the credit goes to … - Ghost and honorary authorship among social scientists	Authorship
4	Vaccino-Salvadore & Hall Buck (2021).	Moving from plagiarism police to integrity coaches: assisting novice students in understanding the relationship between research and ownership	
5	Fong & Wilhite (2021)	The Impact of False Investigators on Grant Funding	Research misconduct
6	Abdi, Pizzolato, Nemery, Dierickx, (2021)	Educating PhD Students in Research Integrity in Europe	

- *Cluster 3 (blue).* This cluster presents the idea of the "academic integrity" with 8 items (subtheme). Representative keywords selected are 'cheating' and 'plagiarism'. The keywords are represented by only one publication due to the limited number of items. However, this does not mean that keywords or publications are unimportant. This information is tabulated for readers to get a sense of what is basically being said by the researcher, since perspectives usually differ.

- Online learning provides a great deal of opportunity for contract cheaters, which was observed during COVID-19. There was a common trait among people who did not cheat, such as a competitive spirit, a strong desire to learn, and self-confidence. In addition, students believe contract cheating can be combated by educating students on plagiarism and enforcing harsher penalties on repeat cheaters (Erguvan, 2022). The study have discussed different mechanism in combating plagiarism or academic dishonesty. It has been shown that proctored exams decrease cheating temptations and are associated with decreased cheating rates. Proctored exams are less likely to lead to cheating behavior than exams without proctoring, although students are equally tempted to cheat Conijn, Kleingeld, Matzat & Snijders, 2022).

- A study by Hamza, et. al., (2022) found that most students were unaware of plagiarism (contract cheating and ghostwriting) due to a lack of integrity training. This lack of knowledge was found to be the result of a lack of both awareness and knowledge of the ethical implications of plagiarism. On the other hands, doctoral students are committing plagiarized data and plagiarized publications as evidenced by their self-reported behavior (Holm& Hofmann, 2018). Self-reported behavior of plagiarism among doctoral students included copying and pasting sections of text from other sources, claiming authorship of work that was not their own, and misrepresenting data in their research.

Table 8. Keyword and publication in the blue cluster

No	Author	Title	Keyword
1	Erguvan, (2022)	University students' understanding of contract cheating: a qualitative case study in Kuwait	Cheating
2	Conijn et. al, (2022)	The fear of big brother: The potential negative side-effects of proctored exams	
3	Hamza, et. al. (2022)	Contract Cheating and Ghostwriting among University Students in Health Specialties	Plagiarism
4	Holm & Hofmann (2018)	Associations between attitudes towards scientific misconduct and self-reported behavior	

Implication

Theoretical Implication

As a result of the study, several theoretical implications are offered. Apart from paying greater attention to students who engage in plagiarism as well as institutions' responsibility, careful attention could also be given to bystanders who witness plagiarism. It is only through the empowerment of academic integrity communities that the endemic

can be halted. By empowering bystanders to take a stand when they witness plagiarism, they can foster a culture of academic integrity and be an example for other students, creating a ripple effect of integrity throughout the institution (Waltzer, et. al., 2022). This can help to ensure that students understand the consequences of plagiarism and develop a sense of responsibility for their own work. As such, academic institutions must prioritize the empowerment of these academic integrity communities in order to create a strong foundation of academic excellence. The vast body of literature on plagiarism shows a lackadaisical approach to appropriate sanctions, so more research on sanctions and mechanisms is needed (Hesselmann & Reinhart, 2021; Mongeon, 2016; Lu, Jin & Uzzi, 2013). The lack of research on sanctions and mechanisms could be due to the fact that plagiarism is often accepted as a culture or norms rather than a legal one (Farahat, 2022). As a result, there is not much discussion on the legal implications of plagiarism in academic settings. As such, more research on sanctions and mechanisms is needed to ensure that plagiarism is properly addressed in a legal manner.

Practical Implication

As a result of this investigation, it was found that organizations have provided sufficient guidelines to their staff, despite some loopholes being found. However, they forgot that they indirectly placed pressure on their employees through high performance expectations such as publishing or perish requirements, publication requirements in reputable journals, securing grants and so on. These expectations can cause employees to take shortcuts and ignore the guidelines, leading to a decrease in the quality of their work and a lack of accountability for their actions. Setting realistic academic expectation can help to prevent this issue. Employees should be given adequate time and resources to complete their tasks without expecting them to take shortcuts. This way, employees do not have to feel like they are being set up for failure, and can focus on the task at hand. It also ensures that the tasks are completed correctly, as opposed to being rushed and potentially done incorrectly. Clear and achievable goals should be set to ensure that employees are motivated and held accountable for their work.

Conclusion and Limitation

A bibliometric review of document citations and co-authorships indicates a dominant presence of studies from developed countries, owing to limited involvement from underdeveloped and developing countries. Hence, co-authorship, a phenomenon that attracts researchers and affiliates from similar status quos, can be reevaluated and demonstrated in more comprehensive bibliometric studies for dynamic findings. The study provides an overview of 1) plagiarism in academic writing in HEI, 2) the network structure of the subject, and 3) how to predict future trends in plagiarism through citation, co-citation, and co-word analysis. The Scopus database returned 579 publications related to plagiarism in academic writing in higher education. There has been an increase in the number of studies conducted on this topic over the years and the number is expected to increase in the coming years. The study addresses several limitations, including the types of documents examined (conference proceedings, books, and book chapters) causing a narrow scope of research. It also does not consider the impact of plagiarism on student learning outcomes comprehensively or the effectiveness of plagiarism prevention tools. Other limitations include the subjectivity of the authors' interpretation when classifying the research theme. Additionally, the authors' personal biases may impede the accuracy of the research theme classification, resulting

in discrepancies across different contexts.

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