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Academic integrity and fraud in higher education: Thematic networks and disciplinary clusters in global research

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ABSTRACT

Objective. We analyzed the thematic structure and intellectual foundations of academic fraud and other forms of corruption in higher education.

Design/Methodology/Approach. We employed bibliometric techniques such as term co-occurrence and journal co-citation analysis to identify, first, the main thematic research clusters and, second, the most influential journals within each identified theme. Data was collected from the Scopus database for the period 1896 to 2024. The final corpus consisted of 5,374 documents.

Results/Discussion. We identified three thematic clusters: (1) *"institutional and systemic academic fraud,"* (2) *"Academic integrity, ethics, and educational policies,"* and (3) *"Higher education, regulation, and international context"*. The most co-cited journal was *Academic Medicine,* followed by *Plos One, Higher Education, Science and Engineering Ethics,* and *Journal of Academic Ethics.* One of the most notable aspects is that the co-citation map for cluster 1, which focused on academic fraud as an institutional and systemic practice, has an internal structure surprisingly similar to the overall co-citation map created from all the documents in the corpus. In contrast, the maps derived from clusters 2 and 3, related to institutional ethics, integrity, and higher education policies, did not display internal segmentation into multiple clusters but instead formed more homogeneous networks. *Academic Medicine* resulted in being one of the most co-cited publications in all three clusters and held central positions in terms of both frequency and link strength.

Conclusions. The results indicate that the study of academic fraud is a diverse yet interconnected field that draws on knowledge from education, ethics, institutional management, psychology, and social sciences. This diversity is both a strength and a challenge, as it risks fragmenting the field if a more systematic dialogue between approaches is not encouraged.

Keywords: academic integrity; academic corruption; academic fraud; higher education; bibliometric analysis; journal co-citation analysis; term co-occurrence analysis; digital transformation.

1. INTRODUCTION

Academic corruption in higher education is a phenomenon that takes different forms, ranging from bribery, falsification of credentials, plagiarism, and the sale of admissions to practices such as nepotism or opacity in institutional management. Understanding these forms varies considerably depending on cultural contexts and regulatory frameworks (Eaton, 2018). According to Heyneman *et al.* (2008), corruption in education has intensified due to the decentralization of decision-making, which makes it difficult to control the actors involved, the growth in the number and diversity of university owners and objectives, and the lack of experience in applying professional standards without resorting to traditional sanction mechanisms.

Xia & Feng (2007) explain that many internal and external factors contribute to academic fraud. One of these is personal interest, but others include a lack of ethical training, insufficient innovation, weaknesses in academic evaluation systems, institutional pressures, and the absence of legal mechanisms to prevent and address these issues. While many studies focus on plagiarism or exam copying as forms of academic fraud, there are also other non-traditional forms that occur. These are intensified by digital technologies that enable new types of dishonesty in assessments (Bachore, 2014). This issue should be taken seriously and must go hand in hand with the digital transformation processes of universities, which are becoming increasingly important in higher education (Fernández *et al.,* 2023). This digital transformation at universities has redefined not only their institutional positioning but also the ethical dynamics of the teacher-student relationship in virtual environments, marked by new challenges in academic communication (Chevtaeva *et al.,* 2021). Due to this complexity, institutions must take a proactive role, not only by implementing detection strategies but also by promoting moral development and emphasizing the importance of academic integrity from an educational perspective (Riad, 2023).

In a systematic review of academic dishonesty in online learning environments, Chiang *et al.* (2022) observed a steady rise in scholarly interest in the topic. They categorized publications into four main areas: dishonest behaviors, factors explaining them, technologies used in assessment, and prevention strategies. Their findings highlight the crucial role of technological and contextual factors in the occurrence of fraud. Meanwhile, in an article by Krou *et al.* (2020), through a meta-analysis of 79 studies, the authors found that motivational factors such as mastery orientation, intrinsic motivation, self-efficacy, perceived task value, and an internal locus of control are negatively related to dishonest behaviors, whereas demotivation and extrinsic goal orientation are positively associated with such behaviors.

In other studies, such as the one by Marques, Reis & Gomes (2019), the evolution and structure of the academic literature on dishonesty and plagiarism were analyzed using a bibliometric approach. Based on an analysis of publications up to 2017, the authors identified the main themes, the most influential sources, and the geographical concentration of knowledge in Anglo-Saxon contexts. The results show a thematic consolidation around plagiarism and integrity standards, as well as the existence of well-defined theoretical cores that have guided the development of the field. Also using bibliometrics, the study by Maral (2024) aimed to map the evolution, intellectual structure, and research gaps in the field of academic integrity using a sample of 1,406 publications from 1966 to 2023. The results reveal significant growth in the last decade, with a focus on plagiarism, copying, and other forms of dishonest behavior. The most influential contributions come from journals specializing in academic ethics, and emerging topics include integrity in virtual environments and the detection of violations. The study also highlights a geographical concentration of knowledge in English-speaking countries and emphasizes the need to explore new directions in the context of current technological advancements.

From a bibliometric perspective, various studies have addressed different aspects of academic integrity (e.g., Umar *et al.,* 2024; Suprapto *et al.,* 2024; Rodrigues *et al.,* 2025), hence, based on the growth in the literature highlighted by prior research (e.g., Chiang *et al.,* 2022; Maral, 2024), this study aims to analyze the thematic structure and intellectual foundations of scientific work related to academic fraud and

other forms of corruption in higher education. To achieve this, we will use bibliometric techniques such as term co-occurrence and journal co-citation analysis to identify, first, the main thematic research clusters and, second, the most influential journals within each identified theme. The study will address the following research questions:

1. What are the main thematic clusters that shape the academic literature on academic fraud, diploma mills, and corruption in higher education, and how are they interconnected through the co-occurrence of key terms?
2. Which scientific journals form the most cited intellectual foundation in this field, and how does their importance differ across the identified thematic clusters?

2. METHODOLOGY

We used a bibliometric approach to conduct this study, performing a thematic analysis and examining the intellectual structure of academic fraud mills and corruption-related issues in higher education. Data was collected from the Scopus database. We employed an advanced search with specific phrases related to the topic, such as *academic fraud, diploma mill, university corruption,* and *academic dishonesty,* combined with terms like *higher education* and *university*. These phrases were considered in the title, abstract, and keywords of the documents. We set 2024 as the cutoff for the time frame, covering the period from 1896 to 2024, as 1896 is the earliest document on the topic in the database. We also limited the document types to include articles, review articles, book chapters, conference articles, and conference reviews.

Using the search strategy described above, we obtained a total of 6,035 documents. However, during data preparation for analysis, we noticed that 661 documents did not contain any registered keywords, either author or index, so we excluded those documents from subsequent analytical stages. Based on this, the final corpus used for the bibliometric analysis consisted of 5,374 documents. We applied two main types of analysis to this set: a thematic analysis, based on the co-occurrence of keywords, and a structural analysis, focused on the co-citation of journals.

For the thematic analysis, we used VOSviewer software to integrate the keywords provided by the authors with those indexed by Scopus (Keywords Plus). First, we normalized the keywords by converting terms from uppercase to lowercase, removing semantic duplicates, and unifying morphological and orthographic variants. To generate the maps, we set a minimum threshold of ten occurrences, which enabled us to create a thematic map divided into three clusters. Articles were assigned to these clusters by matching the keywords in each document with the most prominent terms in each thematic group. The clusters were not assumed automatically; instead, we interpreted them qualitatively based on the most representative concepts and their semantic relationships. This approach helped us outline thematic structures and areas of knowledge.

For the journal co-citation analysis, we also used VOSviewer. First, we extracted the sources cited in the reference lists of the documents and then normalized the journal names. This was necessary because we noticed multiple forms of naming for the same journal, such as abbreviations, full names, and typographical errors. We only considered journals that were co-cited at least ten times within the corpus for the analysis. From the network generated, we identified the most co-cited journals overall and, more specifically, within each of the three previously identified thematic groups. To do this, we cross-referenced the thematic affiliation of the articles with the journals they cited, thus determining which journals held the most influence within each research area. As a result, 2,144 documents were assigned exclusively to one of the three clusters, while 1,381 documents had matches with terms belonging to more than one cluster and were classified as multi-cluster. Additionally, 1,849 documents could not be thematically classified because their keywords did not match any of the grouped terms, so they were considered unassigned for the thematic analysis. Through this integrated approach, we mapped both the thematic landscape and the intellectual foundation of the literature on academic fraud and related phenomena in higher education.

3. RESULTS

### 3.1. Thematic structure: Terms co-occurrence analysis

Through co-occurrence analysis of terms, we identified three clusters, as described in the methodology section. The map in Figure 1 displays a dense network of conceptual connections, where terms are arranged based on their semantic proximity and how often they co-occur in the analyzed documents. The most frequent terms with the strongest relationships in the map are "academic dishonesty," with 602 occurrences and a total link strength of 2726, followed by "plagiarism" (323 occurrences, 1503 link strength), "academic integrity" (176 occurrences, 931 link strength), and "cheating" (146 occurrences, 950 link strength). These concepts not only represent the most common themes in the literature but also connect the different clusters. This highlights their central role in academic discussions on misconduct in education.

Cluster 1, which we refer to as *"Institutional and systemic academic fraud,"* includes terms like "academic dishonesty," "academic fraud," "academic cheating," "exam cheating," "contract cheating," and "unethical behavior." It highlights the analysis of dishonest actions in education settings from both individual and

systemic angles, connecting with sub-themes such as assessment, institutional pressure, and academic culture. This cluster features highly dense terms associated with the act of fraud, such as "ghostwriting" and "fabrication." The most connected terms are "academic dishonesty," "cheating," and "plagiarism," which serve as conceptual links to the other two clusters, especially through their associations with "academic integrity" and "ethics."

We consider cluster 2 to be the thematic core of "academic integrity, ethics, and educational policies." It consists of terms like "academic integrity," "ethics," "moral development," "code of conduct," "professional ethics," "value education," and "curriculum." This group focuses on preventive, formative, and normative approaches to academic fraud. The semantic network within the cluster highlights values education, ethics-based curriculum design, and the role of institutions in fostering a culture of integrity. The term "academic integrity" serves as the central node in this cluster and is one of the key connectors to cluster 1, sharing multiple conceptual links through the contrast between dishonesty and ethics. Additionally, cluster 2 is related to cluster 3 through terms like "higher education" and "students."

Finally, we named cluster 3 *"Higher education, regulation, and international context"* because it groups terms like "higher education,"
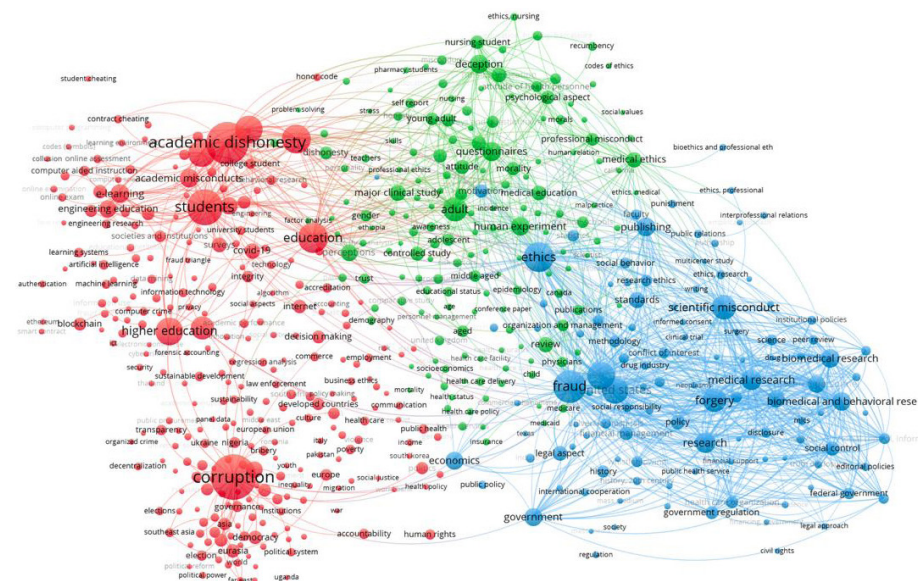
Figure 1. Co-occurrence network of terms related to academic fraud and other forms of corruption in higher education, according to Scopus data: 1896-2024.

"diploma mills," "degree mills," "quality assurance," "accreditation," "globalization," and "policy." This cluster reflects a more institutional aspect of the phenomenon, focusing on higher education as a space for regulation and quality control. The term "diploma mills" acts as a core reference point, serving as a key category for studies on the legitimacy of degrees, organizational fraud, and regulatory issues in a globalized setting. The relationship between this cluster and the others is established

through concepts like "higher education" and "students," highlighting how institutional contexts connect all three groups.

The overall structure of the co-occurrence map shows a thematic network with three levels (see Table 1). The first level focuses on individual fraudulent practices; the second includes institutional ethical and educational frameworks; and the third addresses the broader structures of higher education and its regulatory challenges.

Cluster	Core terms	Bridge terms (links to other clusters)	Conceptual focus
Cluster 1: Institutional and systemic academic fraud	corruption (683), academic dishonesty (602), students (426), education (310), plagiarism (277), cheating (261), higher education (257), academic integrity (246), crime (177), e-learning (120)	plagiarism, academic integrity, students	Explores fraudulent practices at the individual and institutional level, focusing on specific behaviors and cheating modalities.
Cluster 2: Academic integrity, ethics, and educational policies	adult (196), questionnaires (127), deception (120), human experiment (114), perceptions (98), major clinical study (85), medical ethics (83), review (80), nursing education (72), medical education (72)	academic integrity, higher education, students	Emphasizes ethical education, institutional codes of conduct, and the development of integrity-based curricula.
Cluster 3: Higher education, regulation, and international context	fraud (360), ethics (309), university (261), united states (234), scientific misconduct (204), forgery (194), medical research (145), research (141), biomedical and behavioral research (119), publishing (116)	higher education, students, accreditation	Addresses the broader systemic challenges related to fake degrees, cross-border regulation, and quality assurance in global higher education.

Table 1. Summary of the co-occurrence network of terms related to academic fraud and other forms of corruption in higher education, according to Scopus data: 1896-2024.

3.2. Intellectual basis of the field: Journals' co-citation analysis

The map generated in VOSviewer from journals that were co-cited at least ten times forms a structured network with multiple nodes arranged in interconnected clusters (Figure 2). Each node represents a scientific journal, and the links indicate how often two publications are co-cited in the references of the analyzed documents. The total link strength measures a journal's connection to others, while the citation frequency reflects its specific influence within the field. Overall, the most co-cited journal was *Academic Medicine,* with 102 citations and a total link strength of 293. This underscores its central role in the network and its influence in this research area. It is followed by *Plos One* (99 citations, 252 link strength), *Higher*

Education (87 citations, 271 link strength), *Science and Engineering Ethics* (82 citations, 274 link strength), and *Journal of Academic Ethics* (77 citations, 336 link strength), the latter with a notably high connection density.

The general map is organized into at least three main clusters. The first, marked in red in Figure 2, targets journals that cover topics in academic ethics and professional training, such as *Academic Medicine, Science and Engineering Ethics, Journal of Academic Ethics, Accountability in Research,* and *Nurse Education Today.* This group reflects the bioethical and educational aspects of the field, especially within health sciences and teacher training. The second cluster, shown in green, gathers journals focused on higher education, institutional management, and accreditation processes. These include journals like
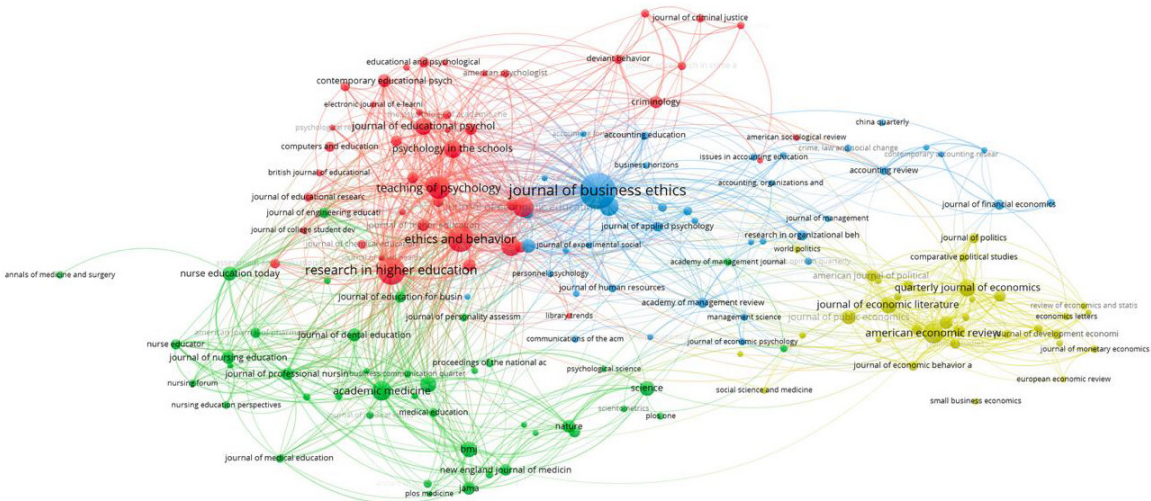
Higher Education, Studies in Higher Education, Quality in Higher Education, Tertiary Education and Management, and *Journal of Further and Higher Education.* This cluster emphasizes institutional and educational policy issues, as these journals concentrate on governance, academic quality, and regulatory frameworks for higher education institutions. The third cluster, depicted in blue, consists of journals related to educational management, administration, and the knowledge economy. Journals such as *Academy of Management Journal, Academy of Management Review, Educational Management, Administration & Leadership,* and *Teaching in Higher Education* are part of this group. It offers a leadership-focused view on institutional innovation and academic organization, where fraud can also be examined through organizational control, institutional culture, and managerial responsibility.

The co-citation network illustrates how various disciplines, from medicine to educational administration, have contributed to the development of the field of academic fraud and integrity issues in higher education (see Table 2). Some journals, like *Plos One* and *Frontiers in Psychology,* act as interdisciplinary hubs by connecting multiple thematic areas, serving as points where different fields intersect. Overall, this co-citation network reflects a diverse yet organized intellectual foundation, where ethics, institutional governance, and empirical research on academic quality and behavior come together around a complex, transdisciplinary phenomenon.

#	Journal	Citations	Links (connected journals)	Total Link Strength	Cluster number
1	Journal of Business Ethics	330	99	612	3
2	Research in Higher Education	185	73	428	1
3	Ethics and Behavior	166	86	424	1
4	Teaching of Psychology	127	70	326	1
5	Journal of Economic Education	104	63	280	1
6	American Economic Review	104	48	169	4
7	Academic Medicine	102	58	293	2
8	Studies in Higher Education	96	66	167	1
9	Journal of Personality and Social Psychology	90	52	154	3
10	Psychology in the Schools	79	54	219	1

Table 2. List of the 10 most cited journals in the co-citation map on academic fraud and other forms of corruption in higher education, according to Scopus data: 1896-2024.

Figure 2. General co-citation network on academic fraud and other forms of corruption in higher education, according to Scopus data: 1896-2024.
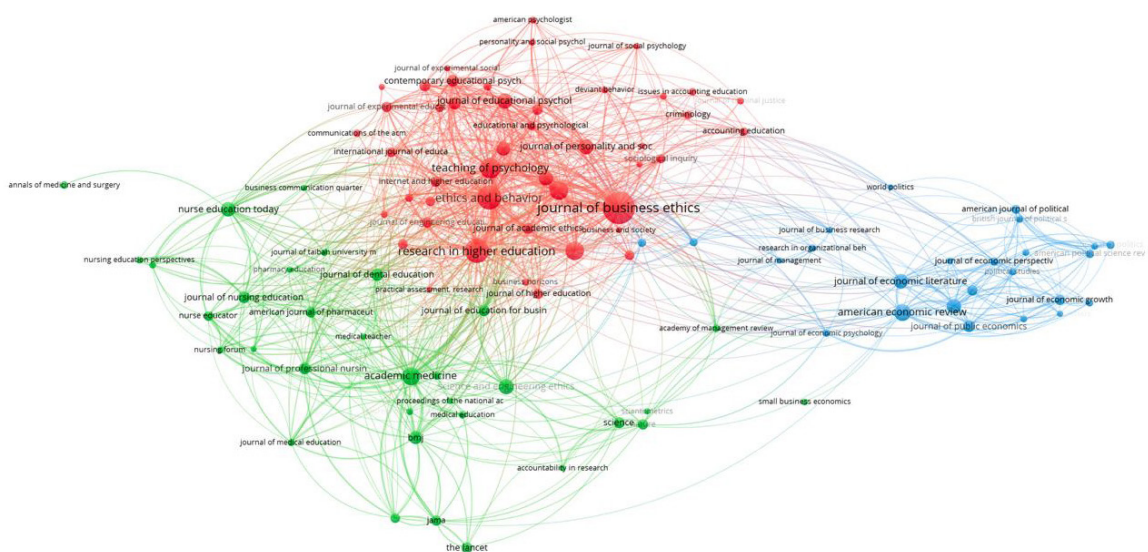
3.2.1. Journal co-citation analysis derived from Cluster 1: "Institutional and systemic academic fraud"

Based on the co-citation analysis conducted solely on the documents assigned to cluster 1 of the co-occurrence map, the journals that form the intellectual and disciplinary foundation of this research line were identified. The purpose of this analysis is to determine which disciplines support academic work focused on fraudulent practices within educational settings, especially those related to individual behavior, types of cheating, and organized academic dishonesty.

The map in Figure 3 shows a diverse disciplinary structure, though with clearly defined cores. One of the most cited journals in this cluster is *Academic Medicine,* with 79 citations and a total link strength of 213, indicating its importance within the health sciences field. Its centrality suggests that many studies on academic fraud are conducted in clinical, educational, or professional settings related to medicine. It is also worth noting that ethical and professional training requirements are especially important in these areas. Other notable journals include *Accountability in Research,* with 10 citations, highlighting the focus on academic integrity from a perspective of institutional responsibility and good research practices. Another key area is represented by journals in management and management education, such as the *Academy of Management Learning and Education,* the *Academy of Management Review,* and *Accounting Education.* These publications show that the study of institutional academic fraud is not confined to traditional humanities or social sciences but has also entered the fields of economics, accounting, and management sciences. In this context, fraud is examined through frameworks such as organizational culture, leadership, corporate responsibility, and human resource management in educational institutions. Similarly, the presence of journals like *Ethics and Behavior* and *Teaching in Higher Education* highlights an interdisciplinary approach that combines ethical psychology with the empirical study of teaching practices and learning environments.

Overall, the disciplinary foundation of this cluster combines contributions from health sciences, professional ethics, educational psychology, administration, and university pedagogy. This composition shows that the study of institutional academic fraud relies on multiple academic traditions and requires both normative and empirical methods. The variety of co-cited journals confirms the complexity of the phenomenon, which goes beyond the individual student and extends to the organizational structures, norms, and cultures that allow or prevent such behavior.

Figure 3. Journal co-citation map derived from cluster 1: "Institutional and systemic academic fraud".
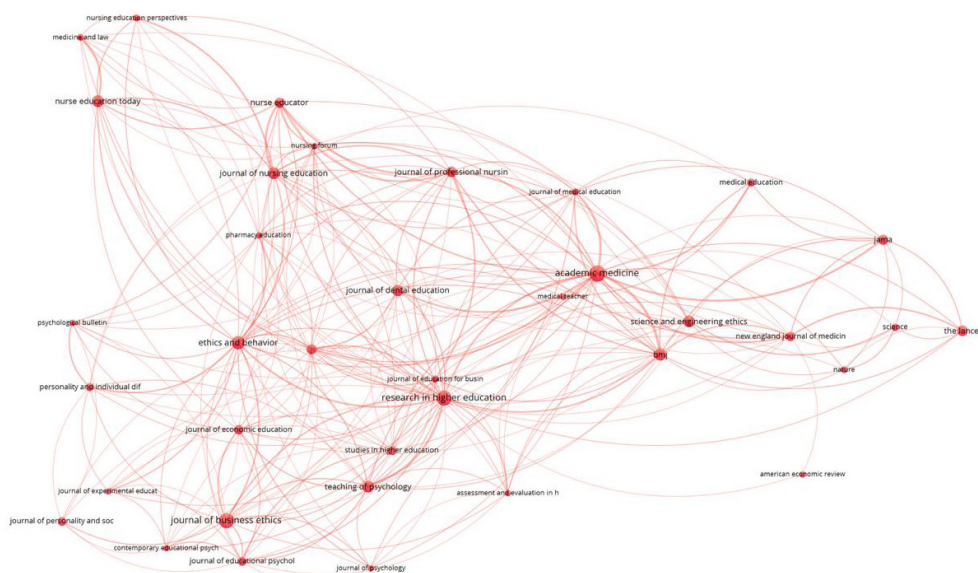
3.2.2. Journal co-citation analysis derived from Cluster 2: "Academic integrity, ethics, and educational policy".

The co-citation analysis of journals in the documents assigned to cluster 2 reveals an intellectual foundation composed of publications that integrate ethical, educational, and normative perspectives on higher education (see Figure 4). Unlike cluster 1, which focuses more on fraud as a form of deviant behavior, this thematic group emphasizes the institutional and educational factors that promote the development of a culture of integrity in academia.

The most co-cited journal in this group is *Academic Medicine,* which also appears as central in cluster 1, although here it emphasizes its role as a benchmark in professional training and medical ethics, with 61 citations and a total link strength of 157. Its recurring presence indicates that the field of health sciences remains one of the most active in reflecting on academic and professional ethics. In this context, the journal *BMJ* (British Medical Journal), with 34 citations, and the *American Journal of Pharmaceutical Education,* with 23, are important sources, reaffirming the significance of the healthcare sector in developing models and frameworks for institutional integrity. Another key element within this cluster consists of journals focused on assessment, university

teaching, and the development of educational policies. *Assessment and Evaluation in Higher Education* and *Higher Education Research & Development* hold prominent positions, indicating that discussions around academic integrity are closely connected to the design of assessment systems in educational institutions. The psychological and behavioral aspect is also represented through journals such as *Teaching of Psychology* and *Ethics and Behavior.* These sources support the view that academic integrity is both an individual trait and a product of the educational environment.

In this cluster, we also identified journals in the field of economics, such as the *American Economic Review,* though less frequently. Their marginal presence can be seen as a technical contribution to discussions on incentives, evaluation models, or institutional structures applied to the university setting. Overall, the co-citation of journals within cluster 2 indicates an interdisciplinary composition with a strong presence of medicine, psychology, university pedagogy, and educational management. Unlike cluster 1, where the focus is mainly on fraud as a deviant practice, here the emphasis is on the ethical and institutional conditions that foster a culture of integrity. This intellectual foundation underpins a more preventive and formative approach to the issue of academic fraud.

Figure 4. Journal co-citation map derived from cluster 2: "Academic integrity, ethics, and educational policy".
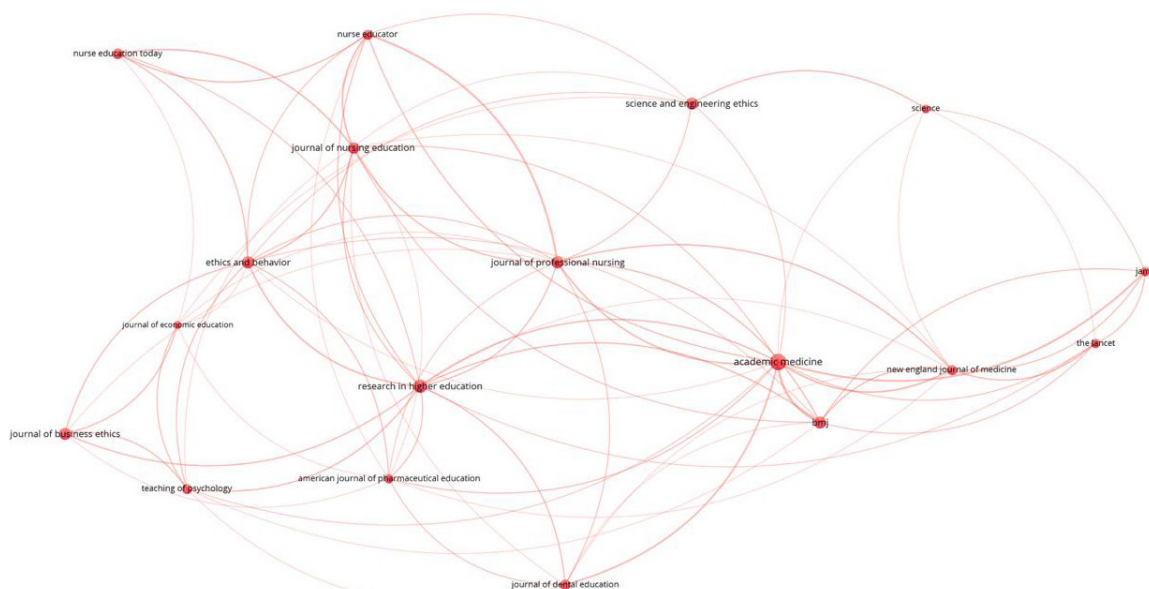
3.2.3. Journal co-citation analysis derived from Cluster 3: "Higher education, regulation, and international context"

The co-citation map generated from the documents in cluster 3 emphasizes the foundational research on institutional structures, educational quality, and fraudulent activities in higher education from a systemic and global perspective. This thematic group concentrates on accreditation procedures, quality assurance, dangers related to diploma mills, and academic governance in both national and international contexts.

Once again, *Academic Medicine* appears as the most co-cited journal, with 48 citations and a total link strength of 85 (see Figure 5). This journal acts as a central node across the three thematic clusters, although its specific relevance in this group is tied to its role as a benchmark in accreditation policies, professional standards, and ethical training. It is followed by the *BMJ* (British Medical Journal) with 29 citations, and *Ethics and Behavior* with 28, both offering a critical and normative viewpoint from health and psychology on assessing institutional integrity. Key publications in the education field are also identified, such as *Higher Education Policy, Quality in Higher Education,* and *Journal of Further and Higher Education.* These journals comprise the core of this cluster, which emphasizes public policy, comparative analysis of higher education systems, and the regulatory frameworks that determine the recognition and legitimacy of academic institutions. Their presence highlights the structural approach characterizing this group, where fraud is viewed more as an institutional issue than an individual one.

A notable feature of cluster 3 is the presence of journals in the fields of law and public management, though to a lesser extent. These provide a complementary perspective alongside the analysis of regulations, state supervision instruments, and institutional accountability processes. This disciplinary diversity helps us understand that studying educational fraud is not only an academic concern but also requires a legal, political, and administrative approach. The co-citation analysis for cluster 3 reveals an intellectual foundation characterized by journals centered on higher education policy, quality assurance, and professional ethical standards. Unlike the other two clusters, where pedagogical or psychological approaches dominate, this cluster adopts a more institutional and regulatory perspective on the issue of academic fraud (see Table 3).

Figure 5. Journal co-citation map derived from cluster 3: "Higher education, regulation, and international context".

Map (Thematic Cluster)	Number of Journals	Number of Clusters in Map	Dominant Subject Area	Top 10 Co-cited Journals (Citations)
Cluster 1	106.0	3.0	Education, ethics, management	journal of business ethics (248); research in higher education (136); ethics and behavior (136); teaching of psychology (99); journal of economic education (84); studies in higher education (83); academic medicine (79); american economic review (67); science and engineering ethics (55); journal of educational psychology (55)
Cluster 2	37.0	1.0	Ethics, health sciences, educational policy	academic medicine (61); research in higher education (52); journal of business ethics (51); ethics and behavior (41); journal of nursing education (34); teaching of psychology (34); bmj (34); nurse education today (34); science and engineering ethics (32); journal of dental education (31)
Cluster 3	18.0	1.0	Higher education policy, accreditation, ethics	academic medicine (48); research in higher education (33); bmj (29); ethics and behavior (28); science and engineering ethics (26); journal of professional nursing (26); journal of business ethics (26); journal of nursing education (24); journal of dental education (22); nurse education today (21)

Table 3. Summary of the journal co-citation network based on the three thematic clusters related to academic fraud and other forms of corruption in higher education, according to Scopus data: 1896-2024.

4. DISCUSSION

The intersection of themes in co-occurrence and journal co-citation networks reveals a varied intellectual landscape, with clear patterns connecting topics and disciplines. This provides valuable insights into how academic communities explore their understanding of academic fraud and the foundational theories and practices behind it. Notably, the co-citation map for cluster 1, which centers on academic fraud as an institutional and systemic issue, surprisingly resembles the overall co-citation map generated from all documents in the corpus. Both maps show three distinct clusters where journals from related fields such as ethics, educational management, and health sciences are grouped together. This indicates that the topic of institutional academic fraud is not only highly interdisciplinary among the three themes but also the primary source of the theoretical references in the field. In essence, when researchers study fraud broadly, they tend to cite works from multiple disciplines, explaining why the co-citation map mirrors the overall map's structure. The density and segmentation of this initial map suggest a stage of thematic maturity and

bibliographic consolidation, likely because discussions about academic fraud as dishonest behavior have a longstanding history across various scientific areas.

In contrast, the maps generated from clusters 2 and 3, which relate to institutional ethics, integrity, and higher education policies, do not show internal segmentation into multiple clusters but instead form more homogeneous networks. This may be because these approaches have not yet reached the same level of interdisciplinary development as the first group. For cluster 2, the co-cited journals are mainly focused on ethical education, moral psychology, and professional training, especially in health sciences. This creates a more discipline-specific map, where co-cited journals tend to share similar theoretical assumptions and institutional backgrounds. The same pattern is seen in cluster 3, which concentrates on macro-level higher education, with a clear dominance of journals focused on educational policies, accreditation, and institutional quality. The limited disciplinary diversity within these two clusters might have prevented the co-citation networks from generating enough theoretical tension to form distinctly different subclusters.

Another revealing aspect of the analysis is the presence of certain journals that consistently appear across different maps. *Academic Medicine* is a noteworthy example, as it is one of the most co-cited publications in all three clusters and holds central positions in terms of both frequency and link strength. Its sustained presence is explained not only by the importance of ethics and professional training in the field of medicine, but also because this journal has served as a platform for discussing accreditation standards, institutional integrity, and ethical dilemmas at both the individual and organizational levels. Therefore, *Academic Medicine* not only contributes to a specific thematic cluster but also functions as a bridge between the three conceptual axes, reinforcing its role as a cross-cutting intellectual reference point in studies of academic fraud.

In contrast, some other journals have a more specific focus limited to a single cluster, which is still informative. For example, the *Journal of Business Ethics* has a strong presence in cluster 1 but does not appear among the leading journals in clusters 2 and 3. This suggests that perspectives from organizational ethics and management are more heavily applied to analyzing fraud as an institutionalized behavior, but not necessarily to studying integrity policies or regulatory frameworks in higher education. Likewise, journals such as *Quality in Higher Education* and *Higher Education Policy* are strongly represented in cluster 3, where the focus is on diploma mills and accreditation, but are almost absent from the other maps. This reinforces that their contribution is more structural and normative, related to institutional quality assurance rather than ethical or psychological aspects.

These differences in the distribution of co-cited journals help us understand how the field has become more specialized: some approaches rely on broader and more established disciplinary centers, while others are supported by more specific academic communities with limited bibliographic sources. They also reveal how studies on academic fraud connect, or don't connect, with broader regulatory, cultural, and educational contexts. Overall, this finding not only highlights the disciplinary variety in research on academic fraud but also shows how choosing bibliographic sources influences how the problem, its causes, and potential solutions are understood.

5. CONCLUSIONS

In this paper, we examine the academic literature on academic fraud and related dishonest behaviors in higher education using a bibliometric approach based on co-occurrence networks of terms and journal co-citations. From a sample of 5,374 documents obtained from Scopus and then refined, we identified three distinct thematic clusters: one focused on individual and institutional fraudulent practices, another on ethical, educational, and integrity frameworks, and a third on regulation, legitimacy, and higher education policies.

The thematic structure highlights the diversity of concepts within the field and the coexistence of approaches to a complex, interdisciplinary phenomenon. The co-citation networks generated from each thematic cluster helped us visualize the intellectual foundation of each approach. Cluster 1 displayed a dense network divided into three subclusters, like the overall co-citation map, emphasizing its central role and maturity in the literature. In contrast, the maps from clusters 2 and 3 were more compact and lacked internal subdivisions, indicating a more focused or less interdisciplinary bibliographic field.

A notable finding is the role of specific journals as hubs of connection between clusters, with *Academic Medicine* serving as the clearest example. Their presence on all three maps shows their role as a link between ethical, pedagogical, and regulatory discussions. Other journals, however, were exclusively connected to a single topic, confirming the existence of specific citation communities for each approach. Co-citation thus made it possible to identify not only the most influential sources but also the disciplinary makeup that shapes each research line.

Overall, the results show that studying academic fraud is a diverse but connected field that draws on knowledge from education, ethics, institutional management, psychology, and social sciences more broadly. This diversity is both a strength and a challenge because it can fragment the field if a more systematic dialogue

between approaches is not promoted. The analysis provided here offers a solid foundation for future research to examine the thematic development, knowledge gaps, and relationships that shape this expanding area.

Conflict of interest

The authors declare that there are no conflicts of interest.

Contribution statement

Conceptualization, investigation, methodology, validation: Kanagat Baigusheva, Konuratova Ainur Sansyzbaevna.

Data curation, formal analysis, software, visualization, writing-original draft: Konuratova Ainur Sansyzbaevna.

Project administration, supervision, validation: Nurlan Baigabylov.

Statement of data consent

The data generated during the development of this study have been included in the manuscript.

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