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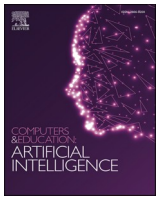

Generative AI in higher education: A bibliometric review of emerging trends, power dynamics, and global research landscapes☆

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ABSTRACT

The rapid evolution of Generative Artificial Intelligence (GenAI) is reshaping higher education (HE), offering transformative opportunities for academic engagement while posing significant challenges to academic integrity, ethical frameworks, and global research power dynamics. This study maps the recent (2022–2025) research landscape of GenAI in HE through a bibliometric analysis of 2762 articles from the Web of Science Core Collection. Employing multipolarity as an analytical lens, this study examines the power dynamics within this research domain reflected by publication records from different countries (or regions). Findings highlight surging global interest in GenAI in HE, with contributions led by the US, China, and the UK, alongside rising participation from non-Western scholars and institutions. By identifying the major topics, this study uncovers a more nuanced trajectory of GenAI-related discourse in HE. By examining publication status, contributors, and research topics, this study provides insights for stakeholders navigating the complexities of GenAI integration into HE and suggests trajectories for future research in this rapidly evolving field.

1. Introduction

The rapid emergence of Generative Artificial Intelligence (GenAI) has profoundly impacted higher education (HE), reshaping teaching, learning, and research practices (Allison et al., 2025). Since the launch of ChatGPT in late 2022, GenAI tools have become increasingly integrated into academic environments, offering new pedagogical possibilities while also raising serious concerns about academic integrity, ethical assessment, and information security (Baig & Yadegaridehkordi, 2024; Chan, 2023; Lai & Tu, 2024).

A growing body of literature has begun to explore the potential and pitfalls of GenAI in HE, including its applications in student assessment, academic writing, and curriculum design (Dwivedi et al., 2023; Farrokhnia, Banihashem, Noroozi, & Wals, 2023; Imran & Almusharraf, 2023). Recent reviews have primarily adopted systematic or scoping approaches, offering valuable syntheses of early empirical studies and media discourse (e.g., Jensen et al., 2024; McGrath et al., 2024). However, many of these studies remain narrow in scope, often concentrating on short time spans, specific national or institutional contexts, or isolated thematic areas. As a result, they may offer limited insight into the broader development of GenAI in HE research from a global perspective.

Research on GenAI in HE has expanded at an unprecedented pace since the public release of ChatGPT in late 2022, generating not only a surge in publication volume but also a rapid diversification of contributing regions, institutions, and disciplinary communities. This fast-moving and geographically uneven growth signals the need for a comprehensive, data-driven mapping of how the field is taking shape, who is shaping it, and which thematic directions are emerging. At the same time, existing reviews rarely interrogate the geopolitical structure of the field or assess whether GenAI-related research continues to reproduce traditional Western dominance or reflects a shift toward a more multipolar configuration of global knowledge production. To address these gaps, this study conducts a large-scale bibliometric analysis of 2762 peer-reviewed journal articles published between 2022 and 2025—capturing precisely the period during which GenAI became a transformative force in HE. By analysing publication trajectories, leading contributors, institutional and regional participation, and major

☆ As this study does not involve human participants, ethical approval is not required.

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thematic clusters, this study offers a distinctive contribution that combines bibliometric mapping with a multipolarity framework to reveal not only what is being researched but also how the global structure of influence in the field is evolving (Kwiek et al., 2024; Rawat & Sood, 2021).

However, bibliometric data alone may fall short in explaining the underlying power dynamics embedded in global knowledge production (Belter, 2015; Bergstrom et al., 2008; Marginson, 2022). This study introduces the analytical lens of multipolarity, a concept rooted in geopolitical thought, to interpret patterns of academic participation and influence (Selenica, 2023). Traditionally, educational research has been dominated by Western epistemologies and institutional hierarchies (Marginson & Xu, 2023). Yet the rapid and widespread adoption of GenAI across diverse geopolitical and educational contexts suggests that a more multipolar academic order may be emerging, in which non-Western scholars and institutions increasingly contribute to and shape global academic discourse (Marginson, 2024).

By combining bibliometric mapping with the analytical lens of multipolarity, this study illuminates how patterns of scholarly activity, intellectual influence, and thematic development in this field are evolving across regions and institutions. In doing so, this study offers a novel and timely exploration of how GenAI in HE research is unfolding across global contexts, and what this means for the future of knowledge production in the digital age.

2. GenAI in HE research: asymmetry or multipolarity?

Under the dual forces of globalization and technological acceleration, HE has increasingly evolved into a globally interconnected knowledge system (Selenica, 2023). Within this system, Anglophone countries, particularly the US, the UK, and Australia, have long occupied dominant positions in educational provision and academic knowledge production (Marginson, 2016). This dominance is sustained by structural advantages such as economic capacity, the global status of English as the lingua franca, and deeply institutionalized research infrastructures (Marginson & Xu, 2023). Together, these factors have contributed to a persistent asymmetry in global academic influence.

However, in recent years, emerging economies such as China have actively pursued strategies to reposition themselves within the global economic and academic hierarchy. These include increased research funding, international collaborations, and the development of indigenous digital platforms (Marginson, 2024). As a result, their visibility in global research networks is expanding, challenging the traditional centre-periphery model of knowledge production (Li et al., 2024; Oleksiyenko et al., 2024). These developments point to a possible transition from traditionally unipolar system dominated by Western, especially Anglophone, countries toward a more multipolar configuration in which more diverse players are taking part in shaping global research agendas and epistemic discourses (Marginson, 2024; Selenica, 2023).

The concept of multipolarity, rooted in geopolitical thought, traditionally refers to the diffusion of power from a single dominant actor toward multiple centres of influence (Selenica, 2023). Within HE and academic research, the term has increasingly been used to analyse how global science systems are becoming more pluralised—not only geographically, but also in terms of epistemic diversity, linguistic inclusion, and institutional de-centring (Selenica, 2023; Liu et al., 2025a). In this study, academic power structures are therefore understood not as static hierarchies, but as relational and networked configurations that can be examined through patterns of knowledge production and circulation. Following Marginson (2016, 2022) and Marginson and Xu (2023), publication volume, citation influence, and international collaboration networks are widely used indicators for assessing the distribution of academic influence within global science systems. While these metrics do not capture all dimensions of epistemic power, they provide meaningful proxies for examining whether influence remains concentrated in a small set of Western centres or is increasingly distributed across multiple regions. From this perspective, recent scholarship suggests that global HE is undergoing an ontological transition characterized by the diffusion of influence rather than the disappearance of hierarchy, giving rise to a condition of partial multipolarity in which new centres of knowledge production emerge alongside enduring structural inequalities (Marginson, 2024).

The case of GenAI is particularly instructive for examining multipolar dynamics in HE. Since the release of ChatGPT in late 2022, researchers worldwide have rapidly engaged with GenAI as both a subject of scholarly inquiry and a tool for teaching and learning (Allison et al., 2025). While Western institutions—especially those in the US and the UK—continue to play dominant roles in shaping technological infrastructures and early discourse, countries such as China, Saudi Arabia, and South Africa are becoming increasingly active in publishing, innovating, and participating in cross-border collaborations in this field (Ansari et al., 2024; McGrath et al., 2024). These emerging patterns reflect broader geopolitical shifts in which technological innovation intersects with, and at times unsettles, established hierarchies of academic influence. Analysing GenAI in HE through the lens of multipolarity therefore enables not only a descriptive mapping of who is publishing and where, but also a critical examination of how academic power is distributed, contested, and negotiated within this rapidly evolving research domain, moving beyond quantitative counts to illuminate the structural, geographic, and epistemic dynamics shaping global knowledge production.

Building on this conceptual framing, the study aims to investigate how multipolar dynamics are emerging within this rapidly developing field, with particular attention to publication trends, key contributors (authors, institutions, countries, journals), and thematic clusters. Therefore, four research questions are proposed:

(1) What is the current publication status of GenAI in HE research?
(2) Who are the primary contributors to GenAI in HE research?
(3) What are the major research topics of GenAI in HE research?
(4) How does the research landscape reveal the multipolar dynamics shaping global knowledge production?

3. Research method

3.1. Data collection

This study explores the recent global research landscape on GenAI in HE through a bibliometric analysis of relevant literature sourced from the Web of Science (WoS) Core Collection. The WoS Core Collection is widely regarded as one of the most comprehensive and authoritative bibliographic databases for multidisciplinary research (Falagas et al., 2008), and is frequently used in bibliometric reviews in education and social sciences (Hallinger & Kovačević, 2019).

To ensure the inclusion of high-quality and peer-reviewed literature, only journal articles were selected (Hallinger & Kovačević, 2019). Three WoS indexes were included for comprehensive disciplinary coverage: the Social Sciences Citation Index (SSCI), the Emerging Sources Citation Index (ESCI), and the Arts and Humanities Citation Index (AHCI). SSCI includes leading social science journals relevant to educational studies; ESCI covers emerging and rapidly evolving topics such as GenAI; and AHCI encompasses humanities-oriented scholarship, where ethical, philosophical, and pedagogical debates are increasingly prominent (Somoza-Fernández et al., 2018).

A keyword-based search strategy was employed to identify relevant publications. The search terms included combinations and variations of 'Generative AI', 'ChatGPT', 'GPT', 'Higher Education', and related synonyms. The initial search returned a total of 2788 journal articles published between 2022 and 2025. To ensure relevance, all retrieved records were manually screened by reviewing their titles, keywords, and abstracts. During this process, 26 articles were removed due to

irrelevance, resulting in a final dataset of 2762 journal articles. The literature search and screening process were completed on November 7, 2025, ensuring up-to-date coverage of the field (see Table 1).

3.2. Data analysis

The study employs descriptive analysis and scientific mapping for bibliometric examination (Hallinger & Kovačević, 2021). Specifically, descriptive bibliometric analysis is conducted to analyse the publication status as well as the output and citation counts of contributors.

To visualize the collected data, VOSviewer is used to generate bibliometric maps, which illustrate relationships among authors, institutions, journals, and keywords through network, overlay, and density visualizations (Arruda et al., 2022). In this study, a network map is employed to reveal interconnections between keywords and highlight thematic clusters based on their co-occurrence patterns (Aria & Cuccurullo, 2017). As shown in Fig. 3, the keyword co-occurrence network displays several dense, color-coded clusters, each representing a major topical area within the field. Additionally, a density map is used to identify areas of high research activity and influence. Fig. 2 presents a country-level density map (sorted by citation count), which visualizes the geographic distribution and citation impact of research outputs. Countries shown in warmer colours (e.g., red and yellow) indicate higher citation density and influence, while cooler colours (e.g., blue and green) reflect lower citation intensity.

Beyond mapping publication patterns, this study adopts the analytical lens of multipolarity to interpret the global distribution of academic influence. Multipolarity is operationalized through a set of bibliometric indicators: the geographical distribution of publications (based on all author affiliations), institutional diversity (locations of publishing institutions), authorship patterns (including co-citation and direct citation dynamics), and journal provenance (origin of publishers). These indicators help assess whether knowledge production in this field is becoming more decentralized, and to what extent academic power is shifting beyond traditional Western centres. By integrating bibliometric techniques with a critical interpretive lens, the study moves beyond quantitative mapping to engage more deeply with the evolving dynamics of academic power in GenAI in HE research.

Admittedly, several methodological limitations should be acknowledged. First, the exclusive reliance on the WoS database and English-language publications may lead to the underrepresentation of research from non-Western regions and locally published journals. Second, the focus on peer-reviewed journal articles excludes other potentially valuable sources (e.g., book chapters, conference proceedings) that may also offer important insights into the field. Third, while the concept of multipolarity offers a useful lens for analysing global academic dynamics, it may not fully capture informal or non-indexed knowledge flows, particularly in rapidly evolving technological domains like GenAI.

Future research could address these limitations by incorporating multilingual and multi-database searches, expanding the range of document types analysed, and integrating bibliometric data with qualitative methods to better capture informal knowledge production, regional perspectives, and epistemic diversity.

Table 1
Searching strategies.

Items	Searching Detail
Database	WoS Core Collection
Period	01/01/2022–07/11/2025
Searching Items	Topic (title, author keywords, and abstract)
Keywords	(Generative AI OR Gen-AI OR GenAI OR GPT OR ChatGPT) AND (Higher Education OR University OR Tertiary Education OR Postsecondary Education)
Document Type	Journal article
Language	English

4. Findings

The findings are presented in three interrelated sections, each corresponding to the core research questions. The first section provides an overview of the publication status, mapping the growth trajectory from 2022 to 2025 (Research Question 1). The second section identifies major contributors across countries, institutions, authors, and journals (Research Question 2). The third section draws on keyword co-occurrence analysis to uncover dominant thematic clusters (Research Question 3). Throughout all sections, the analysis also considers how these patterns reflect shifting global academic power dynamics (Research Question 4).

4.1. Overall publication growth trajectory

Fig. 1 illustrates the annual publication volumes and growth trajectory of research on GenAI in HE from 2022 to 2025. The data reveals a dramatic and ongoing surge in scholarly interest. Annual publication numbers increased from 9 in 2022 to 157 in 2023, 634 in 2024, and reached 1962 by November 7, 2025. This exponential growth reflects a rapidly expanding global research agenda surrounding the implications of GenAI in HE.

Although text-enabled GenAI technologies existed well before 2022 (Radford et al., 2018), widespread attention and focus in this area only emerged in late 2022, following the release of ChatGPT, the first commercially accessible GenAI chatbot (Fui-Hoon Nah et al., 2023). Its release sparked immediate and widespread discussions, extending both within and beyond academic literature, about the impact of GenAI on the HE sectors (Jensen et al., 2024). The surge in research can also be linked to the controversial role of GenAI in academia. Proponents view GenAI as a powerful tool for enhancing teaching and learning, with the potential to drive transformative changes in global HE (Zawacki-Richter et al., 2019). Conversely, critics have raised significant concerns about ethical issues such as plagiarism, which threatens academic integrity (Popenici & Kerr, 2017).

While the volume of research has grown dramatically over a relatively short span, questions remain about the sustainability of this trend (Jensen et al., 2024; Tripathi et al., 2024). The trajectory toward 2025 suggests that interest has not yet peaked. With GenAI tools continuing to evolve and permeate various aspects of HE, including assessment, academic writing, feedback systems, and curriculum design, scholars are likely to generate new research questions and applications, further fuelling academic output. However, a plateau or decline in publication volume remains possible. As the novelty of GenAI stabilizes, and as educational institutions adopt more regulated or cautious approaches to its integration, research intensity may level off. Additionally, potential policy restrictions or diminished public trust in AI technologies could affect both usage and scholarly engagement.

Still, the rapid and geographically dispersed growth in publications suggests that GenAI has already catalysed a wide-reaching scholarly response—one that transcends traditional academic centres and is increasingly characterized by diverse regional contributions and institutional engagement (Marginson, 2024). Regardless of whether enthusiasm continues or gradually wanes, the presence of GenAI in HE research is now firmly embedded, likely continuing to shape pedagogical practices, policy debates, and future research trajectories worldwide (Dwivedi et al., 2023; Farrokhnia et al., 2023).

4.2. Major contributors

4.2.1. The participation of countries

Fig. 2 and Table 2 present the country/region-level distribution of GenAI in HE research from 2022 to 2025. In this study, countries are

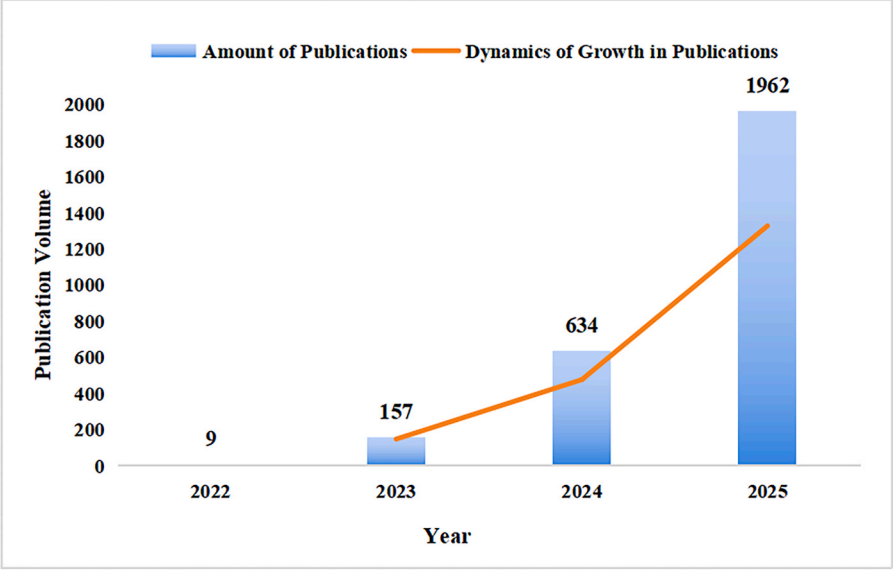

Fig. 1. Annual publication volumes and growth trajectory.

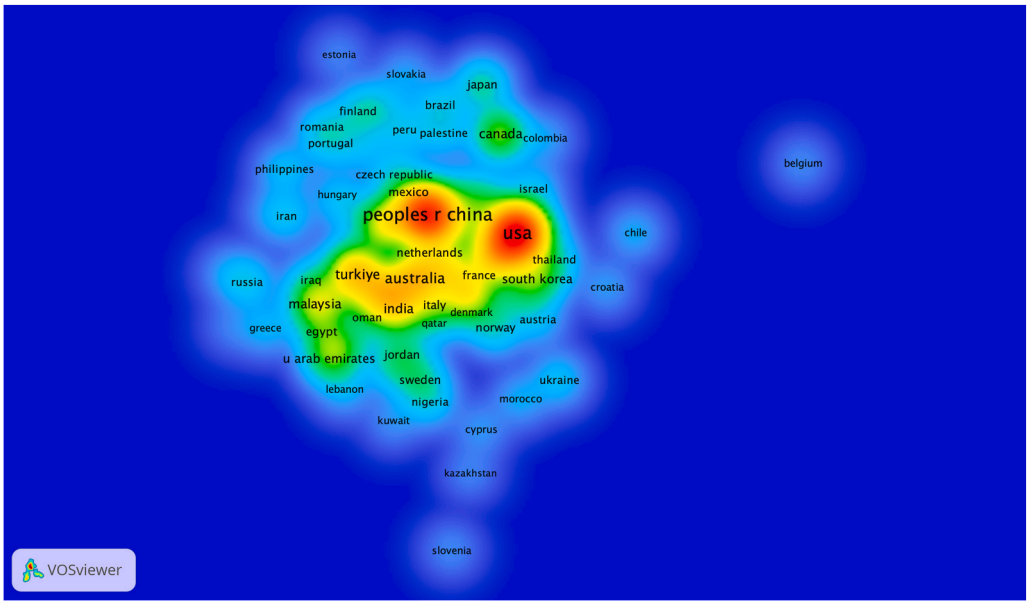

Fig. 2. Research countries' density map (sorted by citations).

identified based on the institutional affiliations of all contributing authors, rather than solely the first or corresponding author (Zupic & Čater, 2015; Perianes-Rodriguez et al., 2016). This inclusive approach offers a more accurate reflection of global scholarly participation and collaboration patterns in this emerging field.

The density visualization in Fig. 2, generated via VOSviewer, displays the geographical intensity of research contributions. In this map, node colours correspond to item density and citation strength—with red and yellow zones indicating areas of high citation concentration, and blue representing lower engagement (Huang et al., 2020; Van Eck & Waltman, 2011). Meanwhile, Table 2 provides quantitative data on the number of publications, citation counts, and total link strength—a VOSviewer metric that captures the strength of co-authorship and citation connections with other countries/regions, indicating levels of international academic influence and integration (Donthu et al., 2021).[1]

A total of 128 countries/regions contributed to GenAI in HE literature. As shown in Table 2, the US leads with 556 publications, followed by the China (475), England (172), Australia (168), and Saudi Arabia (138). Beyond publication volume, total link strength provides insight into countries' positions within international collaboration networks (Donthu et al., 2021; Glänzel & Schubert, 2004). Higher total link strength among several non-Western countries, particularly China,

[1] The classification of countries is based on the original records in the WoS database, reflecting how researchers' affiliations are categorized in the database rather than being manually set (e.g., England and Scotland are listed separately).

Saudi Arabia, and emerging Asian and Middle Eastern contributors, indicates growing centrality in global research networks. This pattern suggests not only increased output but also enhanced relational influence, reflecting a gradual diffusion of academic power within the field. Notably, China surpasses the US in total link strength (5173 vs. 3803), suggesting a particularly robust international collaboration profile. Additionally, a number of non-Western countries such as India, South Africa, Oman and Qatar, are emerging as active contributors. These findings reflect a broadening of participation in GenAI in HE research, consistent with a gradual shift from academic asymmetry toward multipolarity.

Importantly, this distribution is not merely a reflection of research capacity, but also shaped by differentiated national policy environments, digital infrastructures, and platform accessibility. For example, the leading position of the US reflects a combination of early technological leadership in large language model development (e.g., OpenAI, Anthropic), open access to GenAI platforms, and early institutional adoption within HE (Marginson, 2024). By contrast, China's strong publication output and notably high total link strength emerge from a distinct configuration of state-led AI research investment and international collaboration strategies, as articulated in the New Generation Artificial Intelligence Development Plan, which promotes the integration of AI—and more recently GenAI—into education (NSB, 2020; Wu et al., 2020). Despite restricted access to some Western GenAI platforms, China's expanding collaboration networks, partly facilitated through initiatives such as the Belt and Road Initiative, contribute to its growing centrality in global research networks (Ge & Ho, 2022). Similarly, emerging Middle Eastern systems such as Saudi Arabia and Qatar contrast with traditional European research centres by combining targeted national GenAI strategies and substantial digital investment with rapidly expanding research communities, creating conditions for accelerated participation in GenAI in HE research (Albaroudi et al., 2025; Mohamad et al., 2025).

While the current landscape continues to reflect the influence of traditional academic powerhouses, the presence of diverse regional contributors, particularly from Asia, the Middle East, and Africa, signals an emerging multipolar structure of knowledge production (Selenica, 2023). This is not only a matter of publication counts and citations, but also of epistemic participation: researchers from these regions are beginning to shape narratives, frameworks, and priorities in GenAI and education (Marginson & Xu, 2023). Such a landscape aligns with the underpinning of academic multipolarity, wherein the production of knowledge is no longer monopolized by a narrow set of countries or institutions, but involves a plurality of actors negotiating over what counts as legitimate knowledge, methods, and futures for HE in the age of GenAI (Marginson, 2024).

Table 2
Top 20 contributing countries/regions (sorted by citations).

Country/Region	Documents	Citations	Total Link Strength
USA	556	8435	3803
People's R China	475	6998	5173
England	172	4575	2389
Australia	168	4013	2262
Saudi Arabia	138	3296	2071
Germany	111	2802	1166
India	101	2765	1351
Netherlands	34	2666	1008
Taiwan	97	2653	1400
Spain	111	2646	1431
Poland	36	2584	1165
Oman	29	2282	1141
Singapore	44	2224	909
New Zealand	27	2151	811
South Africa	45	2149	776
Italy	49	2047	783
Switzerland	30	1995	552
Norway	31	1981	601
Scotland	22	1978	636
Qatar	14	1878	607

4.2.2. The leading institutions

Table 3 ranks the top institutions by citation count, with the University of Hong Kong, the Chinese University of Hong Kong, and the University of Economics in Katowice leading in impact, receiving 1498, 797, and 680 citations respectively. While citations reflect scholarly influence, publication volume and co-authorship strength also offer insight (see Table 4): for example, the Education University of Hong Kong is highly productive (38 documents), and the University of Hong Kong also shows strong network connectivity (total link strength: 505), indicating both scale and strategic positioning within the global research network.

Geographically, these top institutions span a broad range of regions. While several high-impact contributors are based in Western countries such as Monash University (Australia) and University of Leeds (UK), a notable number of institutions come from non-Western regions, such as Hong Kong (University of Hong Kong), mainland China (Beijing Normal University), Mexico (Tecnológico de Monterrey), Malaysia (University Sains Malaysia), Jordan (University of Jordan), and Saudi Arabia (King Saud University). This distribution reflects a decentralization of scholarly authority, with research visibility no longer confined to traditional academic centres.

A notable observation is the absence of US-based institutions among the top contributors by citation. Despite the US's leading position in national output and total citations (as shown in Table 2), its institutional performance appears diffuse, suggesting that GenAI-related research is dispersed across a broad range of American universities rather than concentrated in a few dominant centres.

In another significant contributing country, China, the institutional presence is largely concentrated in Hong Kong. This concentration likely reflects both platform access advantages—as international GenAI tools remain restricted in the mainland—and targeted policy support. Initiatives like the Smart City Blueprint 2.0 and the Innovation and Technology Development Blueprint actively promote GenAI integration in education within Hong Kong (Innovation and Technology Bureau, 2020; Innovation Technology and Industry Bureau, 2022). By contrast, mainland institutions such as Peking University, Beijing Normal University, and Zhejiang University appear with lower citation counts, possibly due to language barriers and limited access to global platforms (Lian et al., 2024). Nevertheless, China's investment in domestic GenAI platforms such as ERNIE Bot, Doubao, and DeepSeek, signals a broader shift toward technological self-reliance, aligned with emerging patterns of geopolitical divergence in AI development (Marginson, 2024; South China Morning Post, 2024).

Overall, the institutional landscape of GenAI in HE research reflects a trend towards multipolar knowledge structure, where high-impact research is no longer concentrated in a small set of elite Western institutions. Instead, a range of universities across regions including Asia, Latin America, the Middle East, and Africa are actively shaping the discourse. This emerging configuration not only diversifies epistemic perspectives but also signals a broader shift toward a more pluralistic and globally distributed academic framework (Marginson, 2022, 2024).

4.2.3. Key authors

To identify the main contributing authors, this study employed citation analysis using two complementary approaches. First, it conducted co-citation analysis (See Table 5), which identifies pairs of authors whose works are frequently cited together by a third source (Chen, 2016, pp. 41–44). Authors with high co-citation frequencies may not appear directly in the reviewed literature, but their work forms part of the broader intellectual foundation cited by those studies. Second, the study examined direct citation patterns (See Table 6), focusing on how frequently authors within the reviewed literature are cited by subsequent research. Finally, the study also identifies the top 20 most

Table 3
Top 15 cited institutions.

Organization	Country/ Region	Documents	Citations
The University of Hong Kong	Hong Kong	33	1498
The Chinese University of Hong Kong	Hong Kong	37	797
University of Economics in Katowice	Poland	10	680
Tecnológico de Monterrey (Monterrey Institute of Technology)	Mexico	18	525
Monash University	Australia	22	489
Universiti Sains Malaysia	Malaysia	18	477
The Education University of Hong Kong	Hong Kong	38	424
University of Leeds	United Kingdom	19	370
All India Institute of Medical Sciences	India	19	360
King Saud University	Saudi Arabia	10	348
Uppsala University	Sweden	10	287
Deakin University	Australia	9	280
The University of Jordan	Jordan	17	256
Peking University	China	10	243
Hong Kong Baptist University	Hong Kong	15	240

productive authors by counting their publications directly related to the GenAI in HE (Table 7). Accordingly, authors with high co-citation counts are often foundational to the theoretical and conceptual structure of GenAI in HE research (Small, 1973), while those with high direct citation counts are central contributors actively shaping ongoing research in this emerging field, and those produce most documents also may indicate their emergency positions in this field.

Across the three author tables—most co-cited authors (Table 5), most directly cited authors (Table 6), and most productive authors with most publication volumes (Table 7)—a clear pattern emerges: GenAI in HE is shaped by a distributed and increasingly multipolar constellation of scholarly influences. The co-citation network is still anchored by foundational US-based theorists such as Viswanath Venkatesh, Fred Davis, and Joe Hair, whose models (e.g., TAM, UTAUT, SEM frameworks) remain central reference points in GenAI scholarship. At the same time, the prominence of J. David Creswell, whose work advances qualitative and mixed-method inquiry, reflects the growing methodological diversification of the field beyond purely psychometric or technology-adoption perspectives. Importantly, the co-citation list reveals a markedly internationalised landscape, with influential contributions from Germany (Kasneci), Poland (Strzelecki), Jordan (Sallam), Nigeria (Aje), Malaysia (Lim), Vietnam (Perkins), China (Tlili), Canada (Baidoo-Anu), and a strong cluster from Hong Kong (Chan, Chiu, Lo, Kohnke). Their presence demonstrates that knowledge production around GenAI in HE is no longer dominated solely by Anglophone centres but is increasingly shaped by diverse regional epistemic traditions.

The most directly cited authors—those driving current debates in GenAI adoption—show a marked shift toward more diverse regional actors, particularly Hong Kong (Chan, Chiu, and Moorhouse), Europe (Strzelecki, Noroozi), and the Middle East (Sallam). These authors are not merely drawing on Western theories but are actively shaping emerging discourses around academic integrity, assessment authenticity, and GenAI-enabled pedagogy. Their prominence signals that epistemic authority in GenAI-related HE research is now shared among multiple global regions, extending beyond the traditional Western core.

This multipolar trend becomes even more pronounced when examining the most productive authors, where the highest publication outputs come from Vietnam (Duong Cong Doanh), Bangladesh (Himel Mondal), Palestine (Zuheir Khlaif), and Hong Kong (Zou Di), alongside consistent contributions from Jordan, Pakistan. These regions—previously peripheral in global HE research—are now key engines of scholarly output in GenAI and education, particularly in applied, pedagogical, and assessment-focused domains. Their strong presence suggests that GenAI, as an emerging field, is less constrained by traditional centre-periphery hierarchies and more open to new entrants who leverage local pedagogical needs, technological ecosystems, and policy contexts.

The comparison across the three tables therefore underscores an important transition: while the theoretical scaffolding of GenAI adoption draws from long-standing Western frameworks (as reflected in co-cited authors), the empirical production, experimentation, and domain innovation are now driven by a broader set of global actors. This shift exemplifies the movement from asymmetry toward a multipolar global knowledge system, where epistemic authority is dispersed, regional expertise is elevated, and global GenAI research is shaped by multiple, interacting regions of scholarly activity.

Table 4
Top 15 most productive institutions.

Organization	Country/ Region	Documents	Total Link Strength
The Education University of Hong Kong	Hong Kong	38	242
The Chinese University of Hong Kong	Hong Kong	37	322
The University of Hong Kong	Hong Kong	33	505
Monash University	Australia	22	172
The Hong Kong Polytechnic University	Hong Kong	21	102
King Saud University	Saudi Arabia	20	141
Deakin University	Australia	19	183
All India Institute of Medical Sciences	India	19	39
Tecnológico de Monterrey	Mexico	18	202
Universiti Sains Malaysia	Malaysia	18	182
Beijing Normal University	China	18	113
The University of Jordan	Jordan	17	182
The University of Queensland	Australia	16	145
Nanyang Technological University	Singapore	16	71
Zhejiang University	China	15	114

Table 5
Top 20 Co-cited authors.

Author	Citations	Affiliated Institution	Country/ Region
Cecilia Ka Yuk Chan	652	University of Hong Kong	Hong Kong
Viswanath Venkatesh	628	Pamplin College of Business	United States
Enkelejda Kasneci	422	Technical University of Munich	Germany
Joe F. Hair	414	University of South Alabama	United States
Fred D Davis	379	Texas Tech University	United States
Yogesh K. Dwivedi	365	King Fahd University of Petroleum & Minerals	Saudi Arabia
Artur Strzelecki	331	University of Economics in Katowice	Poland
Malik Sallam	321	University of Jordan	Jordan
Akinniyi A. Aje	317	University of Ibadan	Nigeria
Thomas K. F. Chiu	306	The Chinese University of Hong Kong	Hong Kong
Chung Kwan Lo	278	The Education University of Hong Kong	Hong Kong
David Baidoo-Anu	277	York University	Canada
J David Creswell	259	Carnegie Mellon University	United States
Lucas Kohnke	245	The Education University of Hong Kong	Hong Kong
Olaf Zawacki-Richter	242	University of Oldenburg	Germany
Ahmed Tlili	220	Beijing Normal University	China
Weng Marc Lim	211	Sunway University	Malaysia
Gwo-Jen Hwang	206	National Taichung University of Education	Taiwan
Mike Perkins	201	British University Vietnam	Vietnam
Tiffany H. Kung	197	Stanford University	United States

Table 6
Top 20 directed cited authors.

Author	Citations	Affiliated Institution	Country/ Region
Cecilia Ka Yuk Chan	1342	University of Hong Kong	Hong Kong
Artur Strzelecki	679	University of Economics in Katowice	Poland
Omid Noroozi	650	Wageningen University and Research	The Netherlands
Mike Perkins	429	British University Vietnam	Vietnam
Thomas K. F. Chiu	319	The Chinese University of Hong Kong	Hong Kong
Joseph Crawford	310	University of Tasmania	Australia
Michael Cowling	306	Central Queensland University	Australia
Himel Mondal	303	University of Calcutta	India
Behzad Foroughi	250	I-Shou University	Taiwan
Malik Sallam	242	University of Jordan	Jordan
Benjamin Luke Moorhouse	234	City University of Hong Kong	Hong Kong
Muna Barakat	216	Applied Science Private University	Jordan
Cong Doanh Duong	216	National Economics University	Vietnam
Shaikat Mondal	202	All India Institute of Medical Sciences	India
Xiaoqing Gu	165	East China Normal University	China
Muhammad Farrukh Shahzad	160	Beijing University of Technology	China
Shuo Xu	159	Beijing University of Technology	China
Zuheir N Khlaif	159	An-Najah National University	Palestine
Hyeon Jo	143	HJ Institute of Technology and Management	South Korea
Margaret Bearman	142	Deakin University	Australia

Table 7
Top 20 most productive authors.

Author	Documents	Affiliated Institution	Country/ Region
Himel Mondal	11	India Institute of Medical Sciences	India
Cong Doanh Duong	11	National Economics University	Vietnam
Zuheir N. Khlaif	10	An-Najah University	Palestine
Di Zou	10	The Hong Kong Polytech University	Hong Kong
Yueh-Min Huang	9	National Cheng Kung University	Taiwan
Artur Strzelecki	9	University of Economics in Katowice	Poland
Gwo-Jen Hwang	9	National Taichung University of Education	Taiwan
Hsin-Yu Lee	8	National Yunlin University of Science and Technology	Taiwan
Ting-Ting Wu	8	National Yunlin University of Science and Technology	Taiwan
Malik Sallam	8	University of Jordan	Jordan
Muhammad Farrukh Shahzad	7	Beijing University of Technology	China
Shaikat Mondal	7	Shahjalal University of Science and Technology	Bangladesh
Cecilia Ka Yuk Chan	7	The University of Hong Kong	Hong Kong
Benjamin Luke Moorhouse	6	City University of Hong Kong	Hong Kong
Mike Perkins	6	British University Vietnam	Vietnam
Thomas K.F. Chiu	6	The Chinese University of Hong Kong	Hong Kong
Shuo Xu	6	Beijing University of Technology	China
Mostafa Al-Emran	6	Victorian Institute of Technology	Australia
Yun-Fang Tu	6	Soochow University	Taiwan
Blanka Klimova	6	University of Hradec Králové	Czech Republic

4.2.4. Key journals

Table 8 presents the top journals contributing to GenAI in HE research, ranked by publication volume. The leading journal is *Education and Information Technologies*, with 120 publications and 1456 citations, indicating both significant output and academic impact. *Education Sciences* follows with 91 publications and 1161 citations. Notably, *BMC Medical Education* ranks third in volume (73 publications), highlighting the growing interest in GenAI applications in medical and health professions education. Several journals stand out for their citation impact despite publishing fewer articles. For example, the *International Journal of Educational Technology in Higher Education (IJETHE)* has only 40 papers but boasts the highest citation count (2689) and strong link strength (628), underscoring its central role in scholarly discourse. Similarly, *Innovations in Education and Teaching International (IETI)* and *Interactive Learning Environments* demonstrate high citation-to-publication ratios, pointing to their influence in pedagogical innovation and technology integration.

The journal landscape reveals a dominance of educational technology and interdisciplinary venues, such as *JMIR Medical Education*, *Frontiers in Education*, and *Cogent Education*, while traditional HE journals remain underrepresented. Few top-ranked outlets are from core HE journals (e.g., *Studies in Higher Education*) or flagship computer science platforms (e.g., *IEEE Transactions on Learning Technologies*), suggesting that GenAI in HE is emerging at the intersection of multiple fields, rather than within a single disciplinary core. The presence of multidisciplinary journals (e.g., *Sustainability*) and domain-specific outlets (e.g., *BMC Medical Education*) further indicates that GenAI in HE is being explored through diverse academic entry points. While this diversity enriches the field, it also raises questions about theoretical coherence and disciplinary depth.

From a quality perspective, some journals such as *IJETHE* and *IETI* are widely indexed (e.g., SSCI, Scopus Q1/Q2) and well-cited, whereas others may lack high impact-factor rankings or are not traditionally regarded as 'leading' in HE research. This mixed profile reflects the early-stage, interdisciplinary, and fragmented nature of the field, where research is disseminated through accessible but not always top-tier academic channels.

From a geopolitical perspective, nearly all top-contributing journals are published by Western-based publishers (e.g., Springer, Taylor & Francis, MDPI), headquartered in the US, UK, or Western Europe. This aligns with the Western/non-Western asymmetries in academic publishing, wherein non-Western scholars often navigate Western epistemic standards, including English-language dominance, peer review conventions, and methodological preferences (Altbach, 2011; Xu, 2020). Although researchers from the non-Western are increasingly represented in GenAI in HE literature, their visibility and influence remain mediated by these epistemic gatekeeping structures (Liu et al., 2025a).

Thus, while the bibliometric data suggests a plurality of publishing venues, the underlying knowledge infrastructure remains unevenly distributed. In this sense, the current journal landscape reflects a 'partial multipolarity' where new voices and regions are emerging, but still within a system that privileges Western-centric norms of legitimacy and impact (Marginson & Xu, 2023).

4.3. Major research topics

Through VOSviewer, keyword co-occurrence analysis was employed to reveal the major topics within the GenAI in HE research. This method serves as an effective tool for identifying research focal points, tracking trends, and revealing the structure of scientific knowledge within a specific domain (Aria & Cuccurullo, 2017; Su et al., 2021). Out of the 2762 publications, a total of 6239 keywords were utilized, with 133

Table 8
Top 15 most productive journals.

Journal	Documents	Citations	Total Link Strength	Publisher
Education and Information Technologies	120	1456	726	Springer
Education Sciences	91	1161	442	MDPI
BMC Medical Education	73	332	101	Springer BioMed Central
Frontiers in Education	61	290	305	Frontiers Media
JMIR Medical Education	48	900	125	JMIR Publications
International Journal of Educational Technology in Higher Education	40	2689	628	Springer
Cureus Journal of Medical Science	40	970	55	Springer Nature
Interactive Learning Environments	38	1024	285	Taylor & Francis
Cogent Education	37	356	203	Taylor & Francis
Sustainability	30	954	194	MDPI
Innovations in Education and Teaching International	28	1604	191	Taylor & Francis
British Journal of Educational Technology	26	446	130	Wiley
International Journal of Human-Computer Interaction	24	741	199	Taylor & Francis
Arab World English Journal	24	114	49	Arab World English Journal
European Journal of Education	23	228	94	Wiley

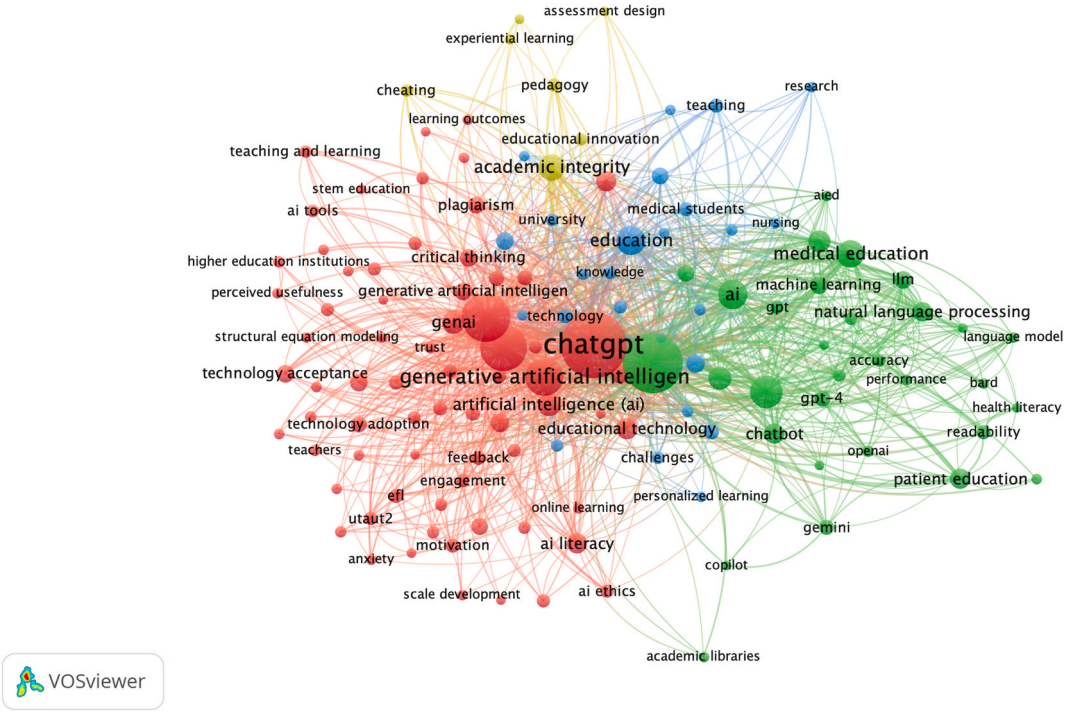

Fig. 3. Keyword co-occurrence networks visualization map.

keywords appearing more than 10 times. Excluding less frequent keywords, these 133 keywords were organized into a co-occurrence network, where their closeness indicates their relevance, such as co-authorship and shared research fields (Xie et al., 2020; Zupic & Čater, 2015). Further, clusters were formed by grouping keywords based on their relevance (Liu et al., 2025b). Fig. 3 presents the four keyword clusters identified, denoted by the colours: red, blue, green, and yellow. After analysing the primary keywords within each cluster and the connections among them, this study discussed the main themes in GenAI in HE research.

4.3.1. Cluster 1 (red): adoption, perception, and behavioural engagement with GenAI in HE

The red cluster comprises 71 authors' keywords such as 'technology acceptance', 'perceived usefulness', 'AI literacy', 'students', 'attitudes', and 'engagement', indicating a strong emphasis on how learners and educators adopt, perceive, and interact with GenAI in HE contexts.

A significant body of research in this cluster investigates the psychological and pedagogical factors that influence GenAI adoption. These include motivational drivers, levels of trust, perceived usefulness, and ethical concerns. For example, Chan and Hu (2023), in their study of Hong Kong undergraduates and postgraduates, found that while college students acknowledged ChatGPT's utility for writing and research, they expressed caution regarding its accuracy and data privacy implications.

Another key theme involves students' subjective experiences of using GenAI in academic tasks. Xiao and Zhi (2023) and Liu et al. (2024), both focusing on mainland Chinese EFL (English as a Foreign Language) contexts, show that learners valued ChatGPT for academic writing and reading support, yet emphasized the need for critical thinking and noted limitations in fostering creativity and spoken language development. Similarly, in a study conducted in Aldreabi et al., 2025 found that university students were more inclined to adopt GenAI as a time-saving learning aid, though adoption was significantly constrained by perceived cost barriers.

Finally, several studies highlight generational and cultural

differences in GenAI adoption. In a Hong Kong-based study, Chan and Lee (2023) identified an emerging 'AI generation gap'[2]: Gen Z students showed strong readiness to use GenAI for personalized learning and productivity, whereas Gen X and Gen Y instructors were more sceptical, citing concerns about overreliance, ethical risks, and pedagogical disruption.

Overall, this cluster positions GenAI adoption in HE as a behaviourally and culturally mediated process, shaped by learners' beliefs, disciplinary practices, and sociocultural contexts.

4.3.2. Cluster 2 (blue): GenAI in research practices and professional/ applied HE

Cluster 2 features keywords such as 'research', 'survey', 'qualitative', 'training', 'medical students', 'nursing education', and 'faculty', indicating a thematic emphasis on GenAI's role in academic research and professional education. Studies within this cluster examine how GenAI supports literature reviews, content analysis, and academic communication, while also highlighting its integration into applied and professional fields such as medical, health, and teacher education.

For example, in a systematic review, Liu et al. (2023) analysed Chinese scholars' perspectives on ChatGPT's applications in education, revealing broad acceptance of GenAI for research support, academic writing, and institutional analytics, while also noting concerns about model reliability and educator preparedness. Similarly, Farazouli et al. (2024), working in a Sweden university context, examined the challenges of evaluating GenAI-generated responses to university-level exam questions, raising critical concerns about accuracy and the academic judgement required in research and teaching contexts.

Beyond research, several studies highlight GenAI's expanding role in professional education. For example, van den Berg and du Plessis (2023), based in South African teacher education programs, emphasized GenAI's potential in curriculum planning and professional learning in teacher education, while cautioning against uncritical adoption. Similarly, Parker et al. (2024), drawing on experiences from US graduate teaching assistants, explored how emerging educators navigate GenAI's use in undergraduate assessments, linking its adoption to instructor training and academic development in HE. In the medical domain, studies across diverse educational contexts have explored the integration of GenAI into medical and health education, revealing varying levels of acceptance alongside concerns about clinical accuracy, ethical risks, and domain-specific applicability (Pham et al., 2025).

Overall, this cluster illustrates how GenAI is reshaping research and academic practices and supporting the evolution of professional education across a variety of applied and professional disciplines.

4.3.3. Cluster 3 (green): technical evaluation and academic utility of GenAI systems

This cluster includes keywords such as 'accuracy', 'performance', 'natural language processing', 'readability', and 'academic libraries', pointing to a primarily technical and evaluative research focus.

A core focus of this body of work is the assessment of GenAI systems' reliability and performance. Studies in this area compare outputs from different large language models (LLMs), examine hallucination rates, and evaluate the readability and coherence of GenAI-generated texts. For instance, Khlaif et al. (2023) systematically evaluated ChatGPT's ability to generate full-length research articles and abstracts, identifying both its promise in supporting academic writing and critical limitations, such as fabricated references, missing in-text citations, and misleading conceptual structures. Notably, these concerns are particularly salient in HE contexts such as academic libraries and information services, where GenAI is being explored as a tool for enhancing access to scholarly resources and streamlining knowledge workflows (e.g., Meakin, 2024).

In terms of applied innovation, Xi et al. (2025), focusing on a university of teachers in China, investigated the integration of an LLM-driven Socratic tutoring system into a HE problem-solving environment. Their findings suggest that such systems can foster reflective reasoning and conceptual understanding, while also raising concerns about the accuracy and pedagogical alignment of GenAI-generated responses. Looking forward, Allison et al. (2025) argue for the development of robust evaluation frameworks to assess how GenAI tools interact with emerging technologies such as extended reality (XR) and multimodal learning systems. Their work highlights the need for more rigorous, cross-platform benchmarks to guide responsible innovation.

Collectively, this cluster reflects the growing importance of technological scrutiny and performance assessment in shaping the responsible and effective use of GenAI within HE.

4.3.4. Cluster 4 (yellow): ethics, integrity, and governance of GenAI in HE

Cluster 4 is defined by keywords such as 'academic integrity', 'plagiarism', 'cheating', 'ethics', 'critical thinking', and 'trust', indicating sustained scholarly attention to the ethical risks, institutional vulnerabilities, and governance challenges posed by GenAI in HE.

A central concern in this cluster is the threat GenAI poses to academic honesty and assessment integrity. Perkins (2023) demonstrated that GenAI-generated content can evade traditional detection systems, creating new complexities for institutional integrity frameworks. Similarly, Cotton et al. (2024) warned that ChatGPT may compromise the design and validity of assessment tasks, underscoring the need for clear pedagogical strategies to support ethical and transparent GenAI use.

In addition to technical concerns, research highlights growing tensions around trust, fairness, and institutional preparedness. Dakakni and Safa (2023), focusing on a Lebanon university, found that both educators and students express uncertainty about privacy and fairness in GenAI use, calling for stronger institutional guidance, training, and dialogue. These findings point to broader pedagogical vulnerabilities that extend beyond detection technologies.

A more critical perspective is offered by Luo (2024), who conducted a comparative policy analysis of top-ranked universities across Asia, Europe, Australia, and North America. Luo argues that many institutions frame GenAI primarily as a threat to the originality of student work, treating AI involvement as external assistance incompatible with authentic authorship. This framing, Luo suggests, reinforces narrow, surveillance-based interpretations of academic integrity, while ignoring the potential for evolving, hybrid forms of human-AI collaboration.

Collectively, this cluster underscores the persistent ethical dilemmas and evolving governance demands that GenAI continues to generate within contemporary HE.

4.3.5. Synthesis through the lens of multipolarity

Interpreting these four clusters through the lens of multipolarity reveals an emerging global research landscape in which GenAI in HE is shaped by diverse regional priorities, rather than being driven by a single Western centre.

Cluster 1 highlights how adoption patterns vary across sociocultural and institutional contexts. East Asian students—such as those in China and Hong Kong (Chan & Hu, 2023; Chan & Lee, 2023; Liu et al., 2024; Xiao & Zhi, 2023)—demonstrate strong readiness to adopt GenAI for productivity and language learning. By contrast, students in Jordan (Aldreabi et al., 2025) appear more selective in their adoption, emphasizing GenAI's utility for saving time while expressing reservations due to financial barriers and uneven institutional support.

Cluster 2 further exemplifies this multipolar configuration, with research emerging from China (Liu et al., 2023), Sweden (Farazouli et al., 2024), South Africa (van den Berg & du Plessis, 2023), and US (Parker et al., 2024). Each context brings distinct perspectives on how

[2] Generational cohorts are commonly defined by birth years as follows: Generation Z (Gen Z) refers to individuals born approximately between 1997 and 2012, Generation Y (GenY) between 1981 and 1996, and Generation X (Gen X) between 1965 and 1980. These cohorts often exhibit differing attitudes toward technology adoption, digital literacy, and educational innovation.

GenAI supports research, professional training, and applied education.

In Cluster 3, technical evaluation studies also reflect a decentralized research landscape. Projects such as Xi et al.'s (2025) LLM-based Socratic tutoring system illustrate how pedagogical innovation and model benchmarking are no longer confined to Western AI hubs. Instead, they are increasingly distributed across Asia and other emerging research-producing regions.

Cluster 4 reveals how institutional policies and ethical discourses around GenAI are similarly diversified. In Anglophone contexts, including the UK and US (Cotton et al., 2024; Parker et al., 2024; Perkins, 2023), GenAI is commonly framed as a threat to authorship, originality, and assessment validity. By contrast, Dakakni and Safa's (2023) Middle Eastern study identifies broader concerns around trust, fairness, and privacy. Luo's (2024) global policy analysis further underscores these differences, revealing that many Western universities adopt surveillance-oriented integrity frameworks, while institutions in China and South Africa exhibit more openness to pedagogical exploration and human-AI collaboration.

Overall, this multipolar perspective presents a research field characterized by a distributed constellation of academic actors, each informed by distinct institutional and epistemic orientations. Rather than a unipolar, Anglophone-dominated system, GenAI in HE research is emerging as a distributed, heterogeneous, and globally negotiated knowledge domain, where diverse various regions contribute substantively to shaping the future directions, ethical debates, and pedagogical transformations associated with GenAI.

5. Discussion and conclusion

To provide an overview of recent GenAI in HE research, this study conducted a bibliometric analysis of 2762 articles from the WoS Core Collection spanning January 2022 to November 2025. Using descriptive analysis and scientific mapping, this study explored the publication status, key contributors, academic power dynamics reflected by publication records from different countries (or regions), and major research sub-topics in this field. The findings revealed an emerging, rapidly expanding field marked by a high volume of publications, diverse authorship, and broad thematic scope from various regional and international perspectives. By examining the global academic relationships reflected among the main contributors, this study also illuminated the current power dynamics within GenAI in HE research. Additionally, keyword co-occurrence analysis shows that the development of this field—spanning technological innovation, teaching practices, and regulatory responses—is being shaped by contributions from multiple regions, each bringing distinct institutional contexts and ways of producing knowledge.

The geographic distribution of major contributors—including countries/regions, journals, institutions, and authors—reveals not only persistent asymmetries in academic influence but also a discernible shift toward an increasingly multipolar global research trend (Marginson, 2024). On one hand, analyses of the leading contributing countries, high-impact journals, and top co-cited authors continue to show the strong and enduring dominance of traditional Western powerhouses such as the US, the UK, and Australia, consistent with bibliometric patterns observed across other HE research domains (Liu et al., 2025a). On the other hand, our findings point to a growing trend of multipolarity, as an expanding range of previously 'peripheral' regions begin to play a more significant role in shaping the GenAI in HE knowledge base. Comparisons across co-cited authors, directly cited authors, and the most productive authors reveal a field that remains historically rooted in Western theoretical foundations yet is rapidly diversifying in terms of contemporary intellectual influence and research productivity. Increasingly, impactful contributions are emerging from Hong Kong, mainland China, South and Southeast Asia, the Middle East, and parts of Europe. This evolving configuration demonstrates that intellectual leadership in the field is no longer solely concentrated in Western centres but is becoming more diffuse, with new research hubs contributing meaningfully to theoretical innovation, pedagogical experimentation, and policy-oriented debate. Overall, this authorship landscape reinforces the broader conclusion of our study: the knowledge ecosystem of GenAI in HE is characterized by 'partial multipolarity'—a system where new voices and regions are gaining prominence, even as Western-centric norms of legitimacy and impact continue to shape global academic hierarchies (Marginson & Xu, 2023). The field is thus developing within a polycentric global knowledge system in which multiple regions participate in steering its future directions, debates, and possibilities.

Moreover, this study identifies four key thematic clusters in GenAI in HE research: (1) Adoption, perception, and behavioural engagement with GenAI in HE, (2) GenAI in research practices and professional/applied HE areas, (3) Technical evaluation and academic utility of GenAI systems, and (4) Ethics, integrity, and governance of GenAI in HE. These findings partially align with those of McGrath et al. (2024), who conducted a systematic review of 23 empirical studies published within the first year of ChatGPT's release and identified themes such as GenAI performance, reliability, and student motivation. While McGrath et al. (2024) offer a qualitative synthesis of early empirical findings, this study provides a broader, data-driven bibliometric mapping based on 2762 publications. This contrast illustrates both continuity and evolution in the field. For example, academic integrity and ethical concerns emerged as dominant topics in both studies, with our analysis demonstrating their sustained prominence over time through persistent keyword clustering. However, this study also reveals a diversification in research on users' adoption, perception, and behavioural engagement with GenAI in HE, as well as growing attention to discipline-specific and professional applications—indicating heightened sensitivity to contextual, institutional, and occupational variations in how different actors engage with GenAI technologies. Furthermore, while McGrath et al. (2024) primarily highlighted early practical uses of GenAI as evidenced in performance tests and preliminary pedagogical trials, our findings—when interpreted through the lens of multipolarity—show that GenAI in HE research is now shaped by a heterogeneous constellation of global contributors. Emerging research hubs across Asia, the Middle East, Europe, and other non-Western countries are not only expanding the empirical base but are also redefining pedagogical priorities, ethical debates, and technological evaluations. This diffusion of scholarly engagement signals a shift toward a more polycentric global knowledge system, where diverse regional perspectives collectively drive the maturation and direction of GenAI-related HE research.

This study offers important theoretical and practical implications by integrating findings across publication patterns (RQ1), major contributors (RQ2), thematic clusters (RQ3), and global knowledge-production dynamics (RQ4). The application of a multipolarity lens shows that although Western institutions continue to hold strong citation influence, emerging hubs are increasingly shaping the field's thematic development. Importantly, this shift does not signal the emergence of a fully egalitarian or post-hierarchical global knowledge system. Rather, the observed patterns point to a form of *partial multipolarity*, in which academic influence is progressively diffused across multiple regions while Western-centric epistemic norms, publication venues, and evaluation regimes continue to structure global visibility and legitimacy. Beyond descriptive growth in publication output, the analysis shows that relational indicators—such as collaboration intensity and network centrality—offer additional insight into how academic power is negotiated and reconfigured within GenAI in HE research. The keyword cluster analysis further highlights several areas where future research can be deepened: studies on GenAI adoption would benefit from cross-regional comparisons that account for cultural, linguistic, and policy differences; research on GenAI in academic and professional practices could examine disciplinary norms, doctoral training, and academic labour in varied HE systems; technical evaluation work should connect model performance with pedagogical and governance implications; and ethics-oriented

studies could explore how regions conceptualise originality, authorship, and responsible use within a diversifying global landscape. Methodologically, future research could build on these findings by combining bibliometric analysis with discourse-, policy-, or mixed-method approaches, including systematic cross-national comparisons of AI policies, research funding regimes, platform accessibility, and publishing infrastructures, to better illuminate how GenAI reshapes educational paradigms, epistemic authority, and global knowledge production across regions. Finally, because this review draws primarily on English-language journals indexed in major databases, future work should incorporate multilingual and regional sources to support a more inclusive and genuinely multipolar understanding of GenAI in HE.

CRediT authorship contribution statement

Kun Dai: Writing – original draft, Supervision, Project administration, Conceptualization. **Yabing Liu:** Writing – review & editing, Writing – original draft, Methodology, Conceptualization. **Xiaofan Zhang:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis.

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