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Artificial Intelligence, Higher Education, and University Social Responsibility: A Bibliometric Mapping Study of Current Knowledge and Emerging Trends

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Abstract. This study presents a bibliometric analysis of research linking artificial intelligence (AI) in higher education (HE) with university social responsibility (USR) concerns between 2015 and 2025. The analysis was based on 330 documents retrieved from Scopus and Web of Science. Using Biblioshiny and VOSviewer, the study analyzes publication trends, citation performance, collaboration structures, and keyword co-occurrence networks to examine how AI-USR research in HE is structured and evolving. Findings indicate that the field remains recent, fragmented, and only partially consolidated. Keyword mapping positions AI adoption, learning applications, assessment, and capability-oriented themes at the center of the knowledge structure, while responsibility-related themes—including governance, privacy, academic integrity, inclusion, and sustainability—remain comparatively peripheral and less centrally integrated. However, these findings reflect thematic visibility within bibliometric metadata rather than the full conceptual depth of responsibility-oriented discussions developed in the reviewed publications. Geographically, production is concentrated in North America, Europe, and East Asia, although several Global South countries also show growing visibility and citation impact. Collaboration networks remain largely nationally organized, with international collaboration relying on a limited number of highly connected countries and institutions. Overall, the study identifies a knowledge-structure gap between AI adoption and institutional responsibility integration in HE and provides a reproducible baseline for future interdisciplinary and context-sensitive research on responsible AI integration in HE.

Keywords: artificial intelligence; higher education; university social responsibility; bibliometric analysis; governance

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1. Introduction

Artificial intelligence (AI) is increasingly embedded in higher education institutions (HEIs) as an infrastructural component that is reshaping teaching, assessment, and institutional decision-making (Chan, 2023; European Union, 2024). Applications of AI range from adaptive learning and intelligent tutoring systems to learning analytics, predictive modeling, automated feedback and assessment, and more recently, generative AI systems. While these technologies promise efficiency and personalization gains (Crompton & Burke, 2023), their growing adoption also raises concerns regarding academic integrity, assessment validity, and critical-thinking development (Nakrowi et al., 2025; Vallespir-Adillon et al., 2025), thereby exposing HEIs to heightened accountability and credibility pressures (Cotton et al., 2024).

These concerns are further reinforced by cybersecurity and privacy risks (Ferhataj et al., 2025; Okulich-Kazarin et al., 2024a; Picasso et al., 2024), unequal access and capability gaps, and the potential reproduction of exclusion through biased or opaque AI systems (Slimi & Villarejo-Carballido, 2023). Within this context, University Social Responsibility (USR) provides a governance lens for situating AI-enabled transformation within institutional accountability and societal expectations. University Social Responsibility refers to HEIs' responsibility to manage the educational, social, and environmental impacts of their activities while generating public value beyond purely academic performance metrics (European Union, 2024; Kouatli, 2019; Latif, 2018; Vallaeys et al., 2022).

Conceptually rooted in the broader principles of corporate social responsibility (CSR) (Meseguer-Sánchez et al. 2020), USR has progressively evolved into a distinct field of inquiry adapted to the specific context of HEIs (Kouatli, 2019), although some studies continue to address USR-related issues using CSR terminology (e.g., Binsawad, 2020; Hu et al., 2020). Drawing on stakeholder theory (Freeman, 1984), CSR extends corporates' responsibility beyond purely economic and legal dimensions (Friedman, 1970) to include ethical, philanthropic, societal, and sustainability concerns (Carroll, 1991). In this perspective, corporates are increasingly expected to contribute proactively to sustainable development and to provide solutions to social and environmental challenges (Rodriguez-Gómez et al., 2020).

However, universities differ fundamentally from corporations in their institutional purposes, societal roles, and stakeholder configurations. Unlike corporations, HEIs are not primarily profit-oriented entities but organizations entrusted with educational, scientific, and societal missions. Failure to enhance the competencies, skills, knowledge, and civic attitudes of their members adequately may significantly affect societal well-being (Latif, 2018). In this perspective, USR refers to HEIs' responsibility for the societal impacts generated by their strategies, structures, policies, and institutional practices (Latif, 2018; Vallaeys et al., 2022). These responsibilities are articulated through four interrelated dimensions: quality education, ethical knowledge production, civic engagement, and responsible management practices (Rodriguez-Gómez et al., 2020). They are operationalized through principles and practices associated with

ethics, inclusion, transparency, and sustainability commitments (European Union, 2024; Latif, 2018). Accordingly, USR frames HEIs not only as educational organizations but also as institutional actors responsible for the ethical, social, and governance implications associated with their transformation processes and operational systems (Rodriguez-Gómez et al., 2020), particularly in relation to public value creation and the development of active and responsible citizens (Lessa et al., 2025; Naro & Travaillé, 2022).

Overall, USR extends beyond the universities' traditional social engagement functions to encompass responsibility for the ethical, societal, and governance implications generated by institutional strategies, technologies, and operational systems (Latif, 2018; Ryan, 2025). In line with recent debates on ethical and human-centered AI governance, Ryan (2025) further highlights that USR functions simultaneously as a normative framework—defining values and ethical commitments—and offering an operational orientation—guiding governance mechanisms, policies, and accountability practices—through which academic missions can be aligned with community welfare and sustainability imperatives.

Building on this perspective, the present study conceptualizes USR as an overarching institutional responsibility framework through which AI-related ethical, social, governance, and sustainability concerns in higher education (HE) can be interpreted. Within this framework, AI-related concerns highlighted in the literature, including transparency, accountability, privacy protection, inclusion, and equitable access, are understood as operational expressions of broader USR commitments associated with responsible institutional conduct and stakeholder-oriented governance. Despite increasing policy attention to responsible AI in education (European Union, 2024), scholarship explicitly linking AI in HE to USR-related concerns remains dispersed across disciplinary conversations and application domains, thereby limiting visibility into the consolidation of the AI-USR research field and the integration of responsibility-oriented themes within broader AI-in-HE scholarship.

A large number of studies have primarily focused on technological innovation and operational applications such as prediction, profiling, automated assessment, adaptive learning, and generative AI systems, often framed through efficiency and performance narratives (Mahrishi et al., 2024) and shaped by professional and country-specific contexts (Yusuf et al., 2024). Consistent with this trend, existing reviews have primarily synthesized technological adoption patterns and the implications of generative AI systems in HE (e.g., Crompton & Burke, 2023; Zawacki-Richter et al., 2019) without specifically examining how responsibility-oriented dimensions are positioned within the field's intellectual and collaborative architecture.

In parallel, a smaller responsibility-oriented stream emphasizes the risks regarding ethical and sustainability-oriented implementation (Cotton et al., 2024), human-centered and civic-oriented frameworks (Slimi & Villarejo-Carballido, 2023), accountability safeguards (Cotton et al., 2024), and ethical governance guidance (Holmes et al., 2022; Ryan, 2025). However, only a limited subset of

studies explicitly connects AI-enabled educational environments to broader societal concerns such as inclusion and non-violence (Okulich-Kazarin et al., 2024a).

From this perspective, the AI-USR intersection can be understood as a relevant analytical domain for examining whether AI-enabled transformation in HE aligns with institutional responsibility commitments relating to ethics, inclusion, transparency, accountability, and sustainability. Within this framework, these responsibility-oriented concerns inform the study's analytical framing and thematic interpretation strategy. In this context, bibliometric mapping is methodologically suited to address this gap by reconstructing a field's knowledge structure and development through reproducible indicators and network relationships (Singh et al., 2021; Zhu & Liu, 2020).

Using co-authorship networks, co-citation structures, and author-keyword co-occurrence patterns, bibliometric mapping can assess the intellectual linkages and collaboration dynamics within the literature (Hussain et al., 2025). Applied to the AI-USR intersection, these techniques can help assess whether USR-related themes and responsibility-oriented concerns, including ethical governance, inclusion, transparency, accountability, and sustainability commitments, form central thematic clusters or remain weakly connected to mainstream AI-in-HE research while also mapping geographic concentration and collaboration pathways. However, relying primarily on publication metadata, the analysis captures thematic visibility and structural positioning within the literature rather than the full conceptual depth developed within complete manuscripts. Consequently, responsibility-related arguments embedded implicitly within full-text discussions may remain partially underrepresented in the mapping results.

Accordingly, the study addressed four research questions:
RQ1. How has AI-USR research in HE evolved over time, and to what extent is the field consolidating?
RQ2. Which geographical production and citation patterns characterize AI-USR research in higher education?
RQ3. Which thematic structure emerges from author-keyword co-occurrence, and how integrated are responsibility-oriented concerns within the broader AI-HE knowledge structure?
RQ4. Which international collaboration structures and knowledge connectivity patterns characterize AI-USR research in HE?

To answer these questions, this study mapped the evolution and structure of AI-USR scholarship in HE and assessed the centrality of responsibility-oriented concerns within the broader AI-in-HE knowledge base. Using bibliometric mapping, the study provides a reproducible baseline for identifying research communities, thematic concentrations, and dominant challenge orientation.

The remainder of this paper is organized as follows: Section 2 presents the methodology, including data sources, search strategy, and analytical indicators; Section 3 reports the results on publication trends, collaboration networks, and

thematic structures; Section 4 discusses the findings, implications, and future research directions; and Section 5 concludes the study.

2. Research Methodology

This study adopted a quantitative bibliometric overview and science-mapping approach to map global evidence linking AI in HE to USR-related concerns, consistent with bibliometrics guidelines (Singh et al., 2021; Zhu & Liu, 2020). Bibliometrics is highly effective for assessing published documents to quantify productivity, identify collaboration patterns, reconstruct thematic and intellectual structures, and trace knowledge evolution. However, relying primarily on publication metadata, this study captures thematic visibility and structural positioning rather than the full conceptual depth developed within complete manuscripts. Consequently, responsibility-related arguments embedded in full-text discussions may remain partially underrepresented.

2.1 Data Collection and Screening

To ensure comprehensive coverage and thematic coherence, we followed established bibliometric practices (e.g., Zhu & Liu, 2020) and applied a multi-stage retrieval and filtering workflow, as summarized in Figure 1. Primary searches were conducted in Scopus and Web of Science (WoS), two widely used databases in bibliometric research due to their broad coverage of peer-reviewed literature and citation indexing capacities (Singh et al., 2021; Zhu & Liu, 2020). To capture the intersection between AI, USR-related concerns, and HE, three query blocks were combined using the Boolean operator AND. The combined application of these query blocks constituted the initial retrieval stage summarized in Figure 1.

It is worth noting that consistent with holistic conceptualizations of USR as an umbrella framework integrating universities' ethical, social, and environmental commitments (Latif, 2018), the search strategy combined (1) explicit USR terminology, and (2) adjacent responsibility-oriented terms frequently used in AI-in-HE scholarship, including sustainability, SDG ethical AI, and AI governance . In addition, due to the conceptual proximity between CSR and USR, as discussed in Section 1, responsibility-related issues in HE continues to be partially framed through CSR terminology, thereby justifying the inclusion of "corporate social responsibility in higher education" within the search strategy. Full search strings and field specifications are reported in Table 1.

Table 1: Search query blocks and terms (Scopus: TITLE-ABS-KEY; WoS: Topic/TS)

AI	"Artificial intelligence" OR "AI" OR "machine learning" OR "deep learning" OR "neural networks" OR "generative AI" OR "ChatGPT" OR "chatbots" OR "large language models" OR "learning analytics" OR "educational AI" OR "intelligent tutoring systems"
Higher education	"Higher education" OR universit* OR "tertiary education" OR "post-secondary education" OR "higher education institutions" OR "HEIs" OR "colleges and universities" OR "academic institutions"
USR and terms related to responsibility concerns	"university social responsibility" OR "USR" OR "responsible university" OR "socially responsible university" OR "corporate social responsibility in higher education" OR "social responsibility in universities" OR "social responsibility efforts" OR "responsibility initiatives" OR "sustainability in higher education" OR "education for sustainable development" OR "higher education and SDGs" OR "sustainable universities" OR "SDG 4" OR "ethical AI" OR "AI ethics" OR "responsible AI" OR "AI governance"

Searches were conducted on 30 October 2025 without imposing a start date and covered all records indexed up to that date. The earliest publication identified in the dataset dates from 2015. Accordingly, the analytical corpus spanned 2015–2025 while also including a limited number of early-access items indexed by the databases at the time of extraction (Table 2). The inclusion of forthcoming works provided a more accurate representation of the current momentum and rapidly evolving nature of AI-related scholarly activity in HE. Identical eligibility criteria were applied across both databases, restricting records to English-language, peer-reviewed journal articles and review papers, including early-access documents.

To balance breadth and conceptual coherence, database-level refinements relied on broad education- and social science-relevant indexing categories. In Scopus, the analysis was limited to four Scopus subject areas: Social Sciences, Computer Science, Business, Management and Accounting, and Decision Sciences. In WoS, the corpus was refined using five research areas: Education and Educational Research, Computer Science, Business Economics, Social Sciences Other Topics, and Information Science Library Science.

2.2 Data Merging and Final Corpus

Records exported in BibTeX format (Scopus) and plain text format (WoS) were converted and merged using the Bibliometrix package in R (Aria & Cuccurullo, 2017). Duplicate and incomplete records identified through DOI and title-matching procedures implemented within the Bibliometrix workflow in RStudio were removed.

2.3 Analytical Tools and Techniques

Bibliometric analyses were conducted using the Bibliometrix R-package (Aria & Cuccurullo, 2017) and its graphical interface Biblioshiny in R (version 4.2.2), complemented by VOSviewer (version 1.6.18) to generate overlay visualizations of the keyword co-occurrence network in order to improve the graphical readability of thematic structures. Descriptive performance indicators were used to quantify productivity and influence across authors, sources, institutions, and countries, while science-mapping techniques were applied to reconstruct relational structures that may not be captured through publication or citation counts alone (Aria & Cuccurullo, 2017; Cobo et al., 2011). Specifically, conceptual structure, intellectual base, and collaboration structure were analyzed through keyword co-occurrence, co-citation and co-authorship, respectively. Author-supplied keywords were retained to ensure close alignment with authors' intended conceptual framing (Hussain et al., 2025).

Prior to analysis, keyword cleaning and standardization procedures were performed using a thesaurus file and a stopword list to merge spelling variants, abbreviations, singular/plural forms, and semantically equivalent expressions, thereby improving conceptual coherence and reducing noise within the co-occurrence network. Following recommendations in the bibliometric literature, including those of Hussain et al. (2025), co-occurrence and co-citation analyses were performed using full counting, and a minimum occurrence threshold of five was applied in the co-occurrence and co-citation analyses to retain meaningful conceptual relationships while avoiding excessive network

fragmentation. Together, these procedures provided a reproducible mapping of publication trends, collaboration patterns, knowledge bases, and thematic clusters characterizing AI-USR research in HE.

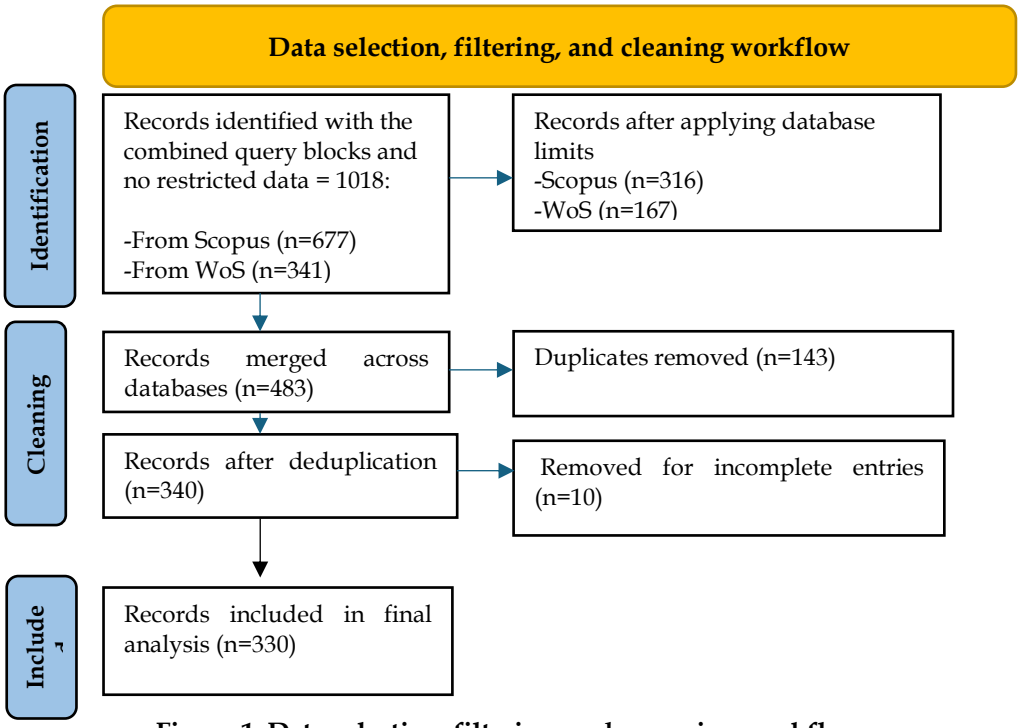


Figure 1: Data selection, filtering, and screening workflow
Adapted from Page et al. (2021)

3. Data Analysis and Findings

3.1 Temporal Evolution and Field Consolidation of AI-USR Research in HE

3.1.1 Descriptive Overview of the Corpus

Table 2 provides an overview of the publication dynamics and structural features of research connecting AI in HE and USR-related concerns. The dataset comprises 330 documents published between 2015 and 2025 across 208 sources, indicating a dispersed publication landscape rather than concentration within a limited set of specialized journals. The annual growth rate (10.5%) indicates an increasing scholarly attention to the field, while the low document average age (0.658 years) and the presence of 26 early-access items highlight the strong recency of this literature stream. Citation levels remain relatively modest (8.03 citations per document), which is consistent with an emerging and partially consolidated research field.

Authorship indicators report 1,092 authors, an average of 3.37 co-authors per document, and 13.94% international co-authorship, pointing to moderate yet progressively internationalized collaboration patterns. Finally, the corpus draws on 10,227 references and is characterized by 1,062 author's keywords and 615 Keywords Plus, reflecting the multidisciplinary configuration of the knowledge base underpinning AI-USR research in HE.

Table 2: Main bibliometric information of the dataset

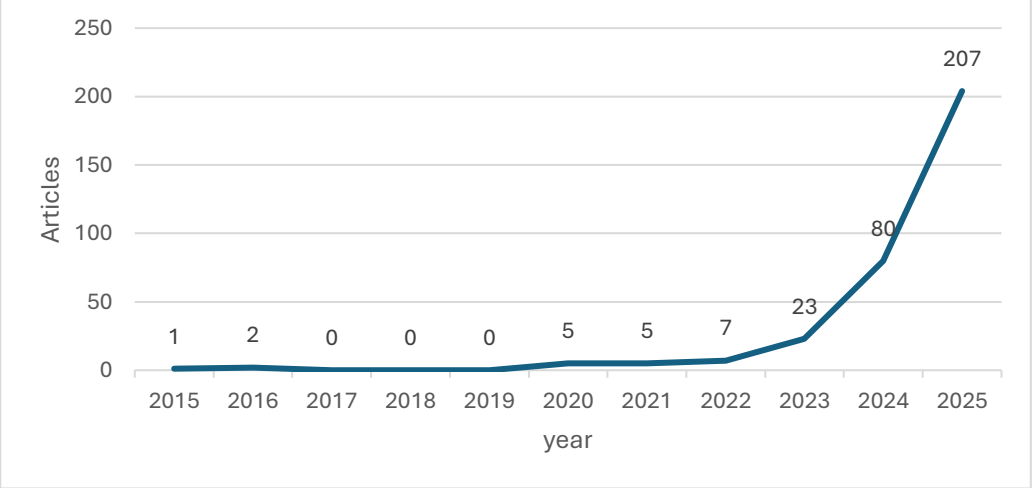
Timespan	2015–2025	Authors' keywords	1,062	Authors of single-authored docs	62
Sources	208	Keywords Plus	615	Single-authored docs	63
Documents	330	Article	304	Co-authors per document	3.37
Annual Growth Rate %	10.5	Article (early access)	22	International co-authorships %	13.94
Document Average Age	0.658	Review (early access)	3		
Average citations per document	8.03	Editorial material (early access)	1		
References	10,227	Authors	1,092		

Source: Biblioshiny

3.1.2 Annual Scientific Production

Figure 2 illustrates the temporal evolution of AI-USR research in HE over the period 2015–2025. Publication activity remained very limited between 2015 and 2016, with no indexed output identified from 2017 to 2019, indicating sporadic scholarly attention and an early developmental stage rather than an established research stream. A gradual increase in publication output is observed from 2020 onwards, with a more pronounced growth trajectory emerging in 2023. Publication activity continued to increase markedly in 2024 and reached its highest level in 2025. However, data for 2025 should be treated as provisional, as the year was still ongoing at the time of data extraction.

Overall, the temporal trajectory depicted in Figure 2 indicates that research connecting AI in HE with USR-related concerns constitutes a recent and growing area of scholarly activity, with publication growth becoming more pronounced during the last three years of the observation period.



Source: Biblioshiny

Figure 2: Annual scientific production on AI-USR research in higher education (2015−2025)

3.1.3 Core Contributing Journals

Table 3 reports the journals belonging to Bradford's Law Zone 1 together with their publication frequency and local h-index values. This core zone comprises 22 documents distributed across the most productive and locally influential sources within the dataset. Among them, *Sustainability* emerges as the leading source in terms of both publication output (14 documents) and local influence (local h-index = 8).

More broadly, Zone 1 includes journals focusing on ethics, sustainability, governance, and educational technology, highlighting the multidisciplinary configuration of the AI-USR publication landscape in HE.

Table 3: Core journals (Bradford's Zone 1) for AI-USR research with document counts and local h-index

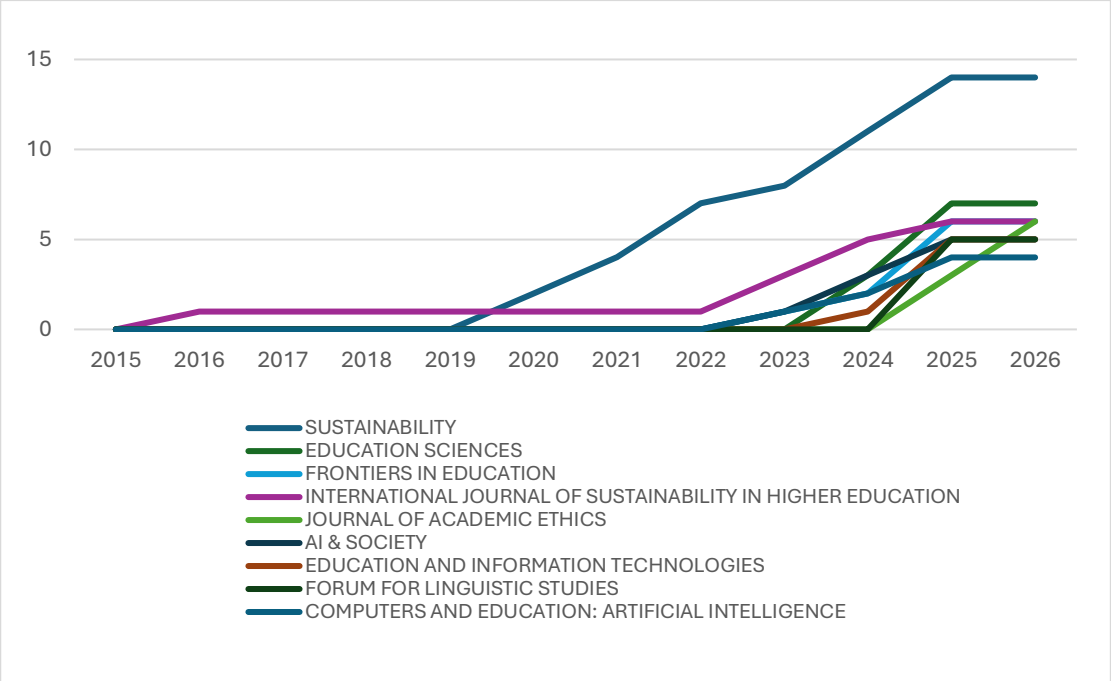
Rank	Source Title	Freq.	Cum Freq.	h-index
1	Sustainability	14	14	8
2	Education Sciences	7	21	3
3	Frontiers in Education	6	27	1
4	International Journal of Sustainability in Higher Education	6	33	3
5	Journal of Academic Ethics	6	39	2
6	AI & Society	5	44	3
7	Education and Information Technologies	5	49	4
8	Forum for Linguistic Studies	5	54	1
9	Computers and Education: Artificial Intelligence	4	58	3
10	International Journal of Educational Technology in Higher Education	4	62	3
11	International Journal of Human–Computer Interaction	4	66	3
12	International Journal of Interactive Mobile Technologies	4	70	2
13	Journal of Academic Librarianship	4	74	2
14	Open Praxis	4	78	2
15	Applied Sciences (Switzerland)	3	81	1
16	Business Horizons	3	84	3
17	Environment and Social Psychology	3	87	1
18	European Journal of Education	3	90	1
19	IEEE Access	3	93	2
20	Interactive Learning Environments	3	96	1
21	International Journal of Artificial Intelligence in Education	3	99	2
22	International Journal of Educational Management	3	102	2

Source: Compiled by the authors from Biblioshiny

3.1.4 Journals' Production Over Time

Figure 3 presents the temporal production trajectories of the leading journals contributing to AI-USR research in HE. It indicates that publication activity remained limited between 2016 and 2019, during which time the *International Journal of Sustainability in Higher Education* appears as the only source maintaining a limited but regular level of publication, with approximately one publication per year. From 2020 onwards, publication activity increased modestly, driven primarily by *Sustainability*.

The most pronounced increase occurred during 2024–2025 when publication output rose concurrently across several leading journals, including *Sustainability*, *Education Sciences*, *Frontiers in Education*, and the *International Journal of Sustainability in Higher Education*. This simultaneous growth across multiple journals indicates increasing publication visibility of research relating to AI-USR and suggests the progressive integration of ethical-, sustainability-, pedagogical-, and governance-oriented concerns within the evolving AI-in-HE literature.



Source: Biblioshiny

Figure 3: Annual production of the top journals' publications on AI-USR research in higher education (2015–2025)

3.1.5 Highest Contributing Authors

Table 4 reports the leading contributors to AI-USR research in HE ranked by h-index, total citations, local citations (LCs)—defined as citations received within the analyzed dataset—and number of publications over the period 2015–2025. Overall, author-level impact remained limited, with the highest observed h-index reaching 2 and shared by a small group of contributors with limited cumulative output comprising *Abbas*, *Artyukhov*, *Artyukhova*, *Bozkurt*, *Okulich-Kazarin,* and *Skowron*, thus suggesting the absence of established leaders.

Furthermore, among these leading contributors, *Abbass* and *Assad* were the earliest to publish on the topic, beginning in 2023, whereas the remaining authors entered the field primarily in 2024 (Figure 4). This pattern highlights the limited presence of long-established specialists and the predominance of recent entrants. Notably, *Artyukhov*, *Artyukhova*, *Okulich-Kazarin*, and *Skowron* each contributed three publications in 2024 and *Alyami*, *Chowdhury*, and *Sozen* reached their highest publication output in 2025 with two publications each.

Lotka's Law, derived from Biblioshiny, further supports the fragmented authorship structure of AI-USR research; 98.6% of authors (1,078) contributed a single document, while only 0.8% of authors (9) published two documents and 0.5% of authors (5) published three documents. Taken together, these indicators characterize AI-USR research in HE as a recent and only partially consolidated research field in which scholarly influence remains dispersed across a relatively small number of emerging contributors.

Table 4: Top authors in AI-USR research in higher education based on h-index and publication metrics (2015–2025)

Author	h-index	Total citations	Total citations per year	Number of publications	Publication Year-Start	Local citation
Abbas Asad	2	45	17	2	2023	-
Artyukhov Artem	2	34	17	3	2024	5
Artyukhova Nadiia	2	34	17	3	2024	5
Bozkurt Aras	2	14	17	3	2024	3
Okulich-Kazarin Valery	2	34	6	3	2024	5
Skowron Lukasz	2	34	3	3	2024	5
Abbas Sagheer	1	1	0	1	2025	-
Abdalla Etienne Cardoso	1	19	1	1	2024	-
Abdelmagid Ahmed Sadek	1	1	0	1	2025	-
Abdulmajid Benjamar	1	6	0	1	2024	-
Abidi Syed Muhammad Raza	1	8	8	1	2020	-
Abu Eideh Belal	1	1	13,667	1	2025	-
Abulibdeh Ammar	1	190	4	**2**	2024	5
Abulibdeh Rawan	1	189	1	1	2024	5
Acaba Alexandra	1	4	9,5	1	2025	-

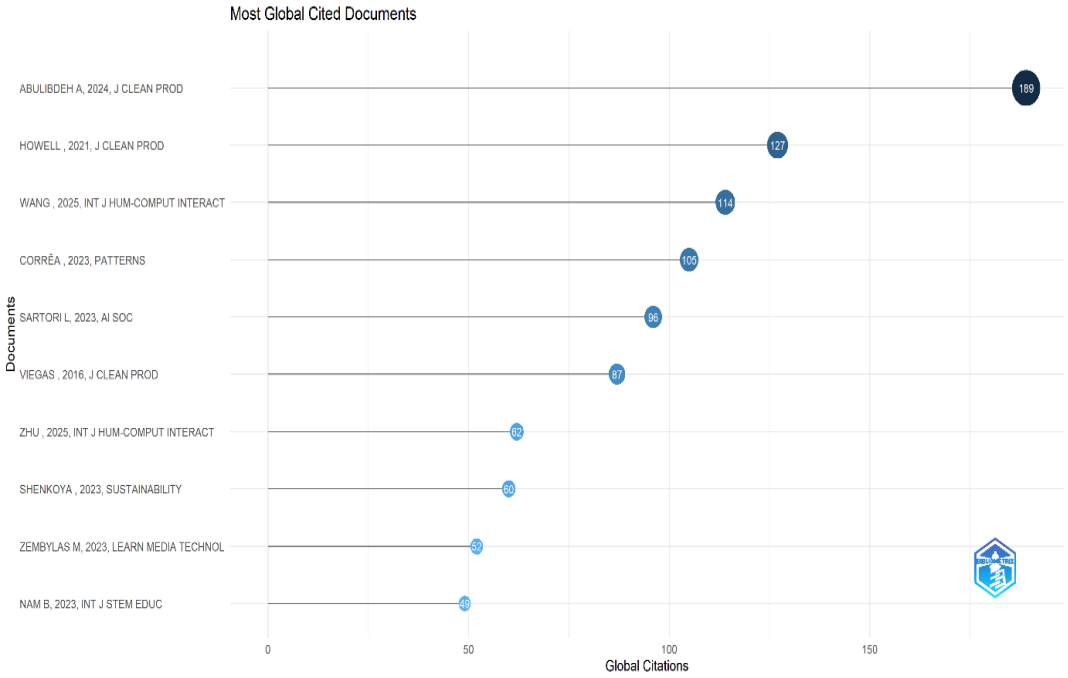
Source: Biblioshiny

Figure 4: Author's production over time (2023–2025)

3.1.6 Top-Cited Publications

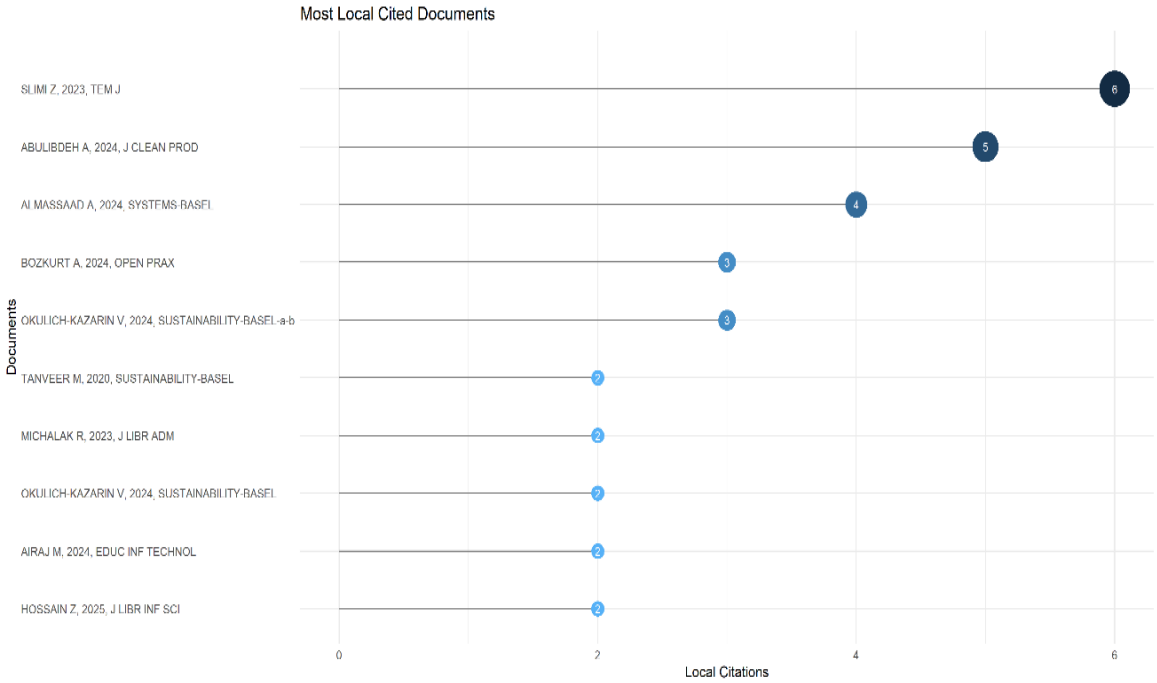
Publication influence was assessed using two complementary perspectives: Global citations (GCs) capture visibility across the broader scholarly ecosystem, whereas LCs—defined as citations received within the analyzed dataset—help identify contributions that shape the field's emerging knowledge base. The most influential publications together with their first authors, publication years, and publication journals are reported in figures 5 and 6. Global citation analysis (Figure 5) shows that citation influence is concentrated within a limited number of contributions. In particular, the document by Abulibdeh et al. (2024) records the highest global visibility with 189 GCs and also ranks as the second-most locally cited publication with 5 LCs, suggesting influence both beyond and within the AI-USR research community.

By contrast, local citation analysis (Figure 6) yields a partially different configuration of influential publications: Slimi and Villarejo-Carballido (2023) emerges as the most locally influential publication within the AI-USR corpus with 6 LCs while ranking 11th in global citations with 48 GCs. Overall, this divergence between global visibility and within-field influence is consistent with an emerging research area in which some publications contribute to the field's internal knowledge structure before achieving wider visibility across adjacent scholarly domains.



Source: Biblioshiny

Figure 5: Most globally cited documents in AI-USR research in higher education



Source: Biblioshiny

Figure 6: Most locally cited documents in AI-USR research in higher education

3.2 Geographic Production and Citation Patterns in AI-USR Research

3.2.1 Most Productive Countries

Analysis of scientific production (Table 5) and citation visibility (Table 6) shows that research connecting AI to USR-related concerns spans both developed and

emerging economies, suggesting that AI-USR represents a globally distributed area of scholarly activity across diverse educational systems.

Among developed economies, the USA and China lead in both publication output and total citations, indicating high productivity and visibility within the mapped corpus. The United Kingdom and Australia also appear among the most productive and most cited countries, consistent with their relatively high publication volume. Among emerging economies, Saudi Arabia records the highest publication output, whereas Qatar exhibits the highest citation visibility relative to volume. Similarly, Brazil records comparatively high citation visibility despite a limited number of publications.

Overall, five of the most productive countries – USA, China, United Kingdom, Australia, and Saudi Arabia – also rank among the most cited countries, which is consistent with their publication volume (tables 5 and 6). However, some highly productive countries (e.g., Spain, 29 documents) do not appear among the top-cited countries, whereas lower-volume countries such as Italy and South Korea, with five publications each, exhibit comparatively high citations-per-document ratio.

Taken together, these patterns indicate that production output and citation visibility are not fully aligned at the country level and, therefore, should be interpreted jointly when assessing the geographical structure of AI-USR research in HE.

Table 5: Scientific production of top ten countries

Ranking	Country	Document
1	USA	78
2	China	53
3	United Kingdom	32
4	Spain	29
5	Australia	21
5	Saudi Arabia	21
6	India	18
7	Canada	16
8	Ireland	15
9	Poland	13
9	South Africa	13
10	Jordan	11

Source: Biblioshiny

Table 6: Top ten cited countries

Ranking	Country	Citation	Document	Citation per document
1	USA	319	78	4.08
2	China	302	53	5.69
3	Brazil	213	7	30.42

Ranking	Country	Citation	Document	Citation per document
4	Qatar	194	7	27.7
5	Saudi Arabia	146	21	6.95
6	United Kingdom	134	32	4.18
7	Italy	104	5	20.8
8	Mexico	72	9	8
9	Australia	70	21	3.33
10	South Korea	69	5	13 .8

Source: Biblioshiny

3.2.2 Institutional Productivity

Analysis at the institutional level (Table 7) shows that leading affiliations originate from a geographically diverse set of countries, including the United Arab Emirates, Saudi Arabia, Spain, South Africa, and China. This distribution reflects broad institutional participation in AI-USR research across multiple geographical regions and HE systems. Among the most productive affiliations, the College of Medicine and Health Sciences at the United Arab Emirates University records the highest publication output (14 documents), followed by Imam Abdulrahman bin Faisal University (13 documents) and the University of Valencia (12 documents). Several institutions from emerging economies, including Qatar University, Universidade Federal do Rio Grande do Sul, and Universitas Muhammadiyah Surakarta, also appear among the leading contributors.

This convergence between the most productive countries (Section 3.2.1) and leading affiliations suggests that universities play an important role in the production of AI-USR research across regions, including the Middle East, Southern Europe, Latin America, Asia, and Africa. It also reflects a geographically distributed pattern of institutional participation within the emerging AI-USR research field. Table 8 further indicates that institutional publication activity remained limited before 2022 but increased markedly during 2023–2025, consistent with the broader temporal growth pattern observed in Figure 2. In particular, institutions such as Imam Abdulrahman bin Faisal University, the University of South Africa, and United Arab Emirates University exhibited marked increases in publication output during the final years of the observation period.

Table 7: Top contributing affiliations

Ranking	Affiliation	Articles	% of corpus	Country
1	College of Medicine and Health Sciences United Arab Emirates University	14	4.24%	United Arab Emirates
2	Imam Abdulrahman bin Faisal University	13	3.94%	Saudi Arabia
3	University of Valencia	12	3.64 %	Spain
4	Universidade Federal do Rio Grande do Sul	10	3.03 %	Brazil
5	University of South Africa	9	2.73 %	South Africa
6	Qatar University	7	2.12 %	Qatar
6	Universitas Muhammadiyah Surakarta	7	2.12 %	Indonesia
7	An Najah National University	6	1.82 %	Palestine
7	Cebu Normal University	6	1.82 %	Philippines
7	East China Normal University	6	1.82 %	China
7	Hangzhou Normal University	6	1.82%	China
7	La Trobe University	6	1.82 %	Australia
7	Universidad César Vallejo	6	1.82 %	Peru
7	Universitas Islam Negeri Sultan Maulana Hasanuddin Banten	6	1.82 %	Indonesia
7	University College London (UCL)	6	1.82 %	United Kingdom
7	University of London	6	1.82 %	United Kingdom
7	University of Limerick	6	1.82 %	Ireland

Source: Biblioshiny

Table 8: Temporal distribution of affiliation production in AI-USR research in higher education (2015–2025)

	2015	2016	2020	2021	2022	2023	2024	2025
University of Valencia	0	0	0	10	10	10	11	12
Imam Abdulrahman bin Faisal University	0	0	0	0	0	9	9	13
Universidade Federal do Rio Grande do Sul	0	0	0	0	0	10	10	10
University of South Africa	0	0	0	0	0	0	4	9
College of Medicine and Health Sciences United Arab Emirates University	0	0	0	0	0	0	0	14

Source: Compiled by authors from Biblioshiny

3.3 Thematic Structure and Integration of Responsibility Concerns

3.3.1 Analysis of Occurrence of Keywords

The analysis of the occurrence of the authors' keywords (Table 9) shows that the conceptual structure of the corpus is centered around "*ai in higher education*" and "*higher education*" as the primary hubs, indicating that scholars frame the field

through higher-education-oriented perspectives. However, responsibility-related vocabulary remains peripheral within the author-keyword structure; among the top-ten most frequent keywords, only four are directly associated with USR-related concerns ("*ethical ai*", "*sustainable development*", "*institutional governance*", and "*education for sustainability*"), and each appears far less frequently than "*ai in higher education*" and "*higher education*".

Table 9: Occurrence of authors' keywords

Authors' keywords	Occurrence	Betweenness
Ai in higher education	330	273.218
Higher education	152	26.653
Ethical ai	127	65.143
Ai literacy	46	2.238
Sustainable development	46	0.031
Ai acceptance	37	0
Curriculum design	31	0.535
Academic integrity	23	0.145
Institutional governance	21	0.02
Education for sustainability	17	0
Educational technology	17	0.017
Human-centered artificial Intelligence	13	0
Ai governance	11	0
Student engagement	11	0
Responsible ai	10	0
Privacy	8	0

Source: Biblioshiny

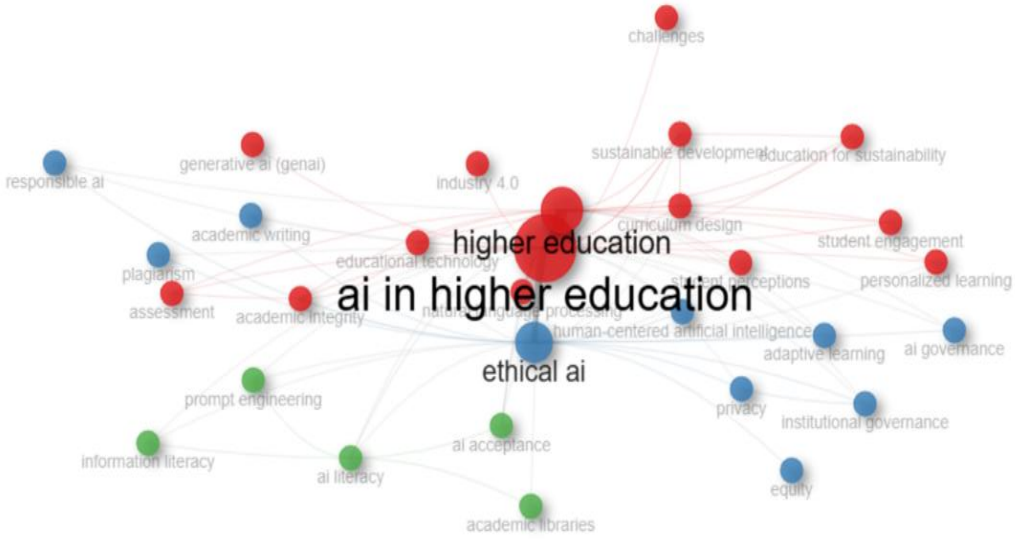
Notably, "e*thical ai*" combines the highest frequency and betweenness centrality among responsibility-related keywords. Betweenness centrality reflects the extent to which a node functions as a bridge within network structures, indicating here that "*ethical ai*" plays a connecting role between governance-oriented concerns and the dominant AI adoption discourse. This pattern suggests that the corpus is organized not only around technical adoption themes but also around ethics- and accountability-oriented concerns (Airaj, 2024; Slimi & Villarejo-Carballido, 2023; Swist et al., 2024; Vallespir-Adillon et al., 2025).

Other frequent terms such as "*ai literacy*", "*ai acceptance*", and "*curriculum design*" indicate implementation- and capability-oriented themes related to AI integration in HE. In contrast, sustainability-related keywords, including "*sustainable development*" and "*education for sustainability*", show relatively low betweenness centrality, signaling that sustainability functions more as a visible framing theme rather than a central integrating dimension within the network (Cotton et al., 2024; Leal et al., 2022).

Lower-frequency yet conceptually relevant keywords such as "*human-centered artificial intelligence*" and "*responsible ai*" further signal the presence of a responsibility-oriented discourse around user-centricity and accountability (Floridi et al., 2018; Jobin et al., 2019), even if these terms do not act as structural bridges in the current network.

3.3.2 Analysis of Co-Occurrence of Keywords

Figure 7 complements Table 9 by identifying the network positions of the most frequent authors' keywords and the main thematic areas they structure within the AI-USR corpus. In Figure 7, node size reflects keyword frequency, link thickness indicates co-occurrence strength, colors represent thematic clusters, and spatial proximity indicates stronger thematic association.



Source: Biblioshiny (Louvain layout)

Figure 7: Authors' keyword co-occurrence network

Figure 7 confirms the hub dominance of "*ai in higher education*" and "*higher education*" and shows three connected clusters. The red cluster groups pedagogical and operational terms, including "*assessment*", "*academic integrity*", "*plagiarism*", "*academic writing*", "*educational technology*", and "*curriculum design*". The green cluster aggregates capability- and adoption-related terms such as "*ai literacy*", "*information literacy*", "*prompt engineering*", "*ai acceptance*", and "*academic libraries*".

The blue cluster integrates governance- and responsibility-oriented terms, including "*ethical ai*", "*responsible ai*", "*privacy*", "*equity*", and "*institutional governance*", with "*ethical ai*" acting as an important connector between governance vocabulary and the central adoption discourse. Several responsibility-related themes (e.g., "*sustainable development*", "*education for sustainability*", and "*responsible ai*") are more peripheral—present but less centrally integrated across the network—consistent with their low or zero betweenness centrality reported in Table 10.

Overall, Table 9 and Figure 7 indicate that research in the field is organized around a core adoption discourse, with responsibility-related themes clustered into three connected layers: (1) academic processes (i.e., "*curriculum design*", "*assessment*", and "*academic integrity*"), (2) enabling capabilities (i.e., "*ai literacy*"), and (3) institutional safeguards (i.e., "*institutional governance*", "*privacy*", and

"*equity*"). Importantly, governance-related terms remain connected to the core network but appear less central than adoption- and pedagogical-related keywords. This suggests that responsibility is currently more visible as an attached governance substream than as the organizing center.

3.3.3 Overlay Visualization of Co-Occurrence of Keywords

The overlay visualization (Figure 8) indicates that capability- and adoption-related keywords and several pedagogical and operational terms (e.g., "*ai literacy*", "*ai acceptance*", "*prompt engineering*", and "*academic integrity*") intensified in 2024–2025, while sustainability-oriented terms (i.e., "*sustainable development*" and "*education for sustainability*") and several governance- and responsibility-oriented terms (e.g., "*privacy*" and "*institutional governance*") appeared earlier. This pattern indicates a temporal shift from sustainability- and governance-oriented vocabulary toward adoption- and capability-related themes during the most recent publication period.

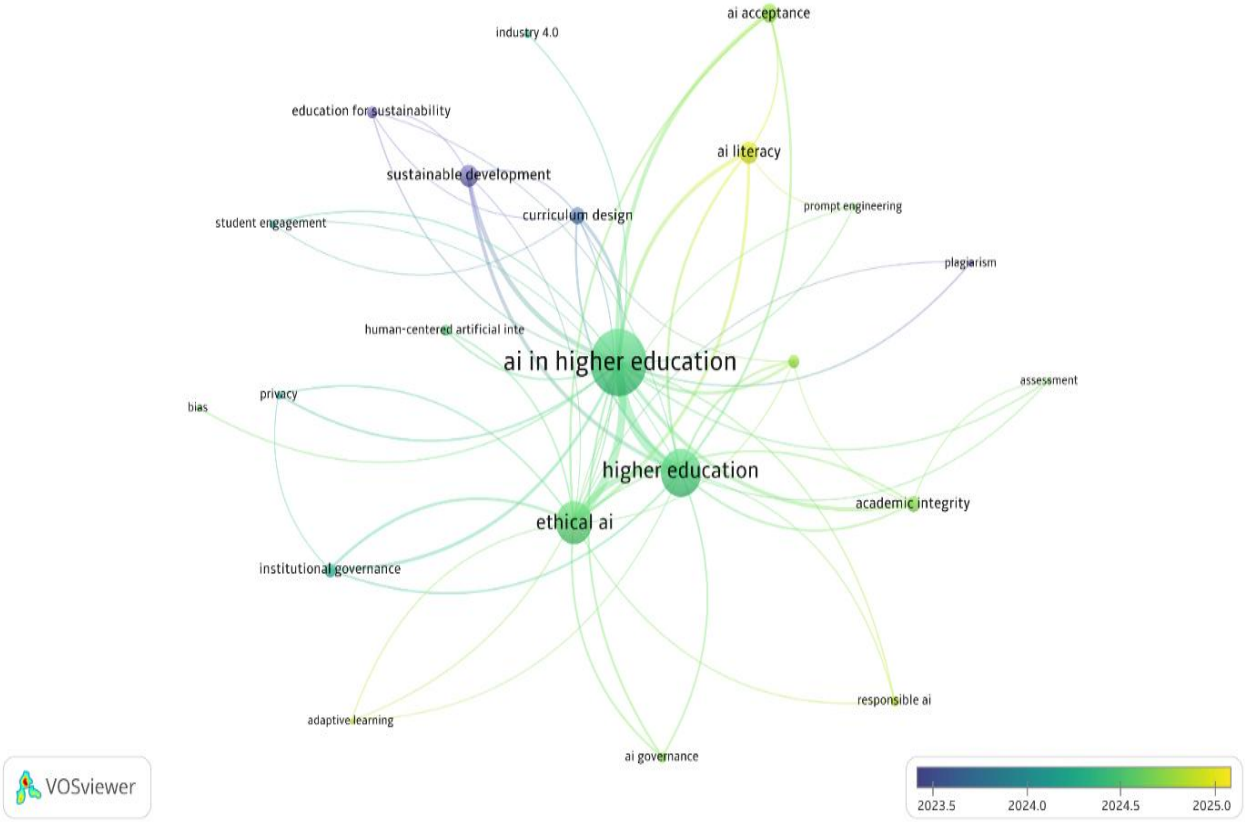


Figure 8: Overlay visualization of keyword co-occurrence based on average publication year

Taken together, Figure 7, Figure 8, and Table 9 indicate that the AI-USR knowledge structure is increasingly organized around capability development, pedagogical adaptation (e.g., curricular redesign), and AI adoption themes, while governance- and sustainability-related concerns remain present but comparatively less central within the evolving keyword network.

3.4 International Collaboration Network and Knowledge Connectivity Patterns

3.4.1 Countries of Corresponding Authors

The analysis of the corresponding authors' countries (Table 10) reveals marked cross-national variation in terms of single country publications (SCPs) and multiple country publications (MCPs). The strong prevalence of SCP indicates that research linking AI, HE, and USR remains largely organized around single-country collaboration, which reflects the predominance of nationally concentrated research activity within the current dataset. Nevertheless, international collaboration patterns remain comparatively limited but are gradually emerging, with countries such as China (6 MCPs), Spain, Australia, and Canada (3 MCPs each) showing comparatively higher levels of international collaboration that can support the circulation of AI-USR framings across systems.

Table 10: Countries of top corresponding authors

Ranking	Country	Articles	Single Country Publications (SCPs)	Multiple Country Publications (MCPs)
1	USA	36	35	1
2	China	27	21	6
3	United Kingdom	14	13	1
4	India	13	12	1
5	Saudi Arabia	12	10	2
6	Australia	11	8	3
7	Spain	9	6	3
8	Canada	8	5	3
8	Turkey	8	8	0
9	Indonesia	7	7	0
9	Philippines	7	6	1
9	South Africa	7	7	0
10	Jordan	6	6	0

Source: Biblioshiny

3.4.2 Authors' Collaboration Network

The co-authorship network (Figure 9) indicates a highly fragmented collaboration structure in AI-USR research, characterized by multiple disconnected clusters and small, self-contained author groups. This configuration indicates that research linking AI in HE to USR concerns is primarily organized around small knowledge-exchange teams rather than around a highly integrated scholarly network.

Consistent with this pattern, no authors' brokerage positions are observed (betweenness centrality = 0 for all nodes), suggesting the absence of boundary-spanning authors capable of connecting otherwise separated communities. Overall, AI-USR knowledge production appears to evolve through parallel micro-communities with limited cross-group integration. For example, the collaboration patterns around Okulich-Kazarin et al. (2024) and Okulich-Kazarin et al., 2024a; 2024b) illustrate recurring co-authorship across multiple publications, reinforcing the relatively localized structure of collaboration in this research field.

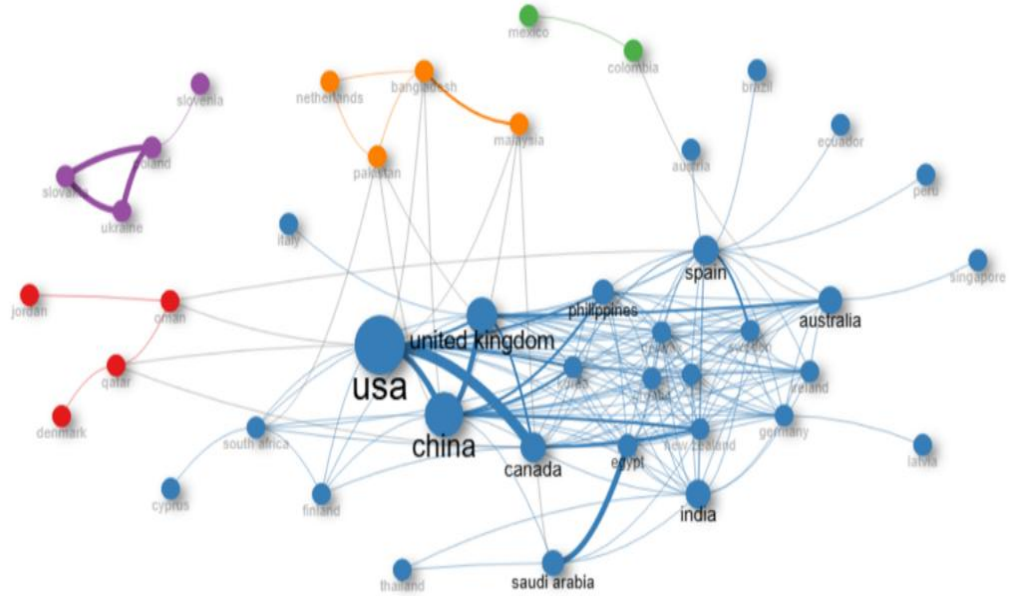
Source: Biblioshiny

Figure 9: Authors' collaborations

3.4.3 Countries' Collaboration Network

Figure 10 presents the network mapping of countries based on co-authorship. The network structure indicates strong connectivity among the USA, China, United Kingdom, Saudi Arabia, Spain, and Australia, whose positions indicate comparatively high levels of international co-authorship and network connectivity. Spain appears particularly significant with the highest betweenness centrality (162.078). More than simply collaborating within one bloc, Spain connects otherwise weakly linked collaboration groups, indicating a bridging position within the collaboration network.

By contrast, the Middle East component comprising Qatar, Oman, and Jordan appears relatively peripheral and largely regionally bounded rather than being fully integrated into the main collaboration network. This configuration indicates that research linking AI in HE to USR concerns is increasingly international, yet the collaboration structure remains asymmetrically integrated across regions.

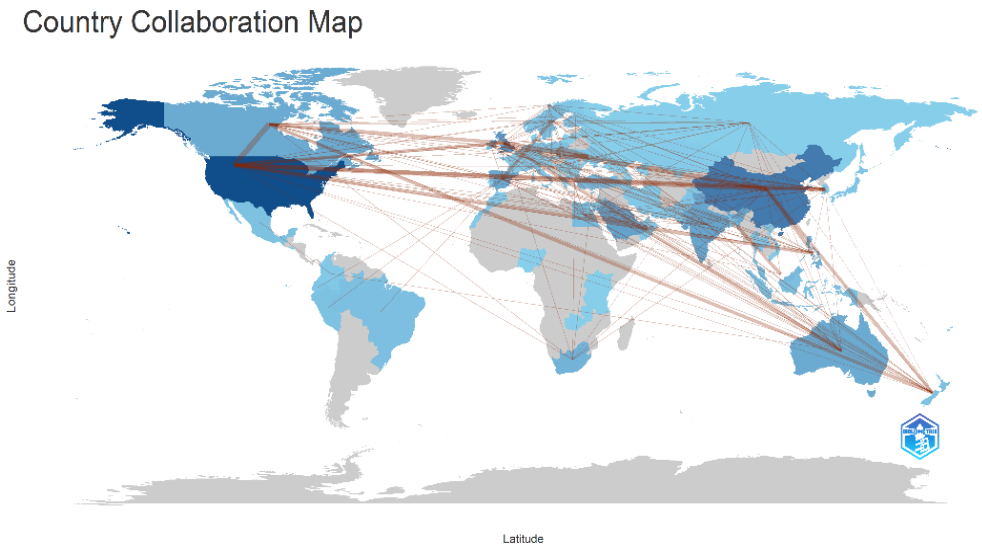


Source: Biblioshiny

Figure 10: Countries' collaboration on AI-USR research

The country collaboration map (Figure 11) adds a spatial representation of country pairs connected by at least one co-authored publication. In conjunction with the network metrics (Figure 10), Figure 11 shows a core collaboration geography organized around repeated links connecting North America, Europe, and the Asia-Pacific (illustrated by the brown lines).

At the same time, the persistence of regional pockets such as the Eastern Europe cluster (e.g., Poland–Ukraine–Slovakia–Slovenia), and South/Southeast Asia patterns (e.g., Bangladesh–Pakistan; Malaysia-related ties) shows that the global collaboration system is asymmetrically integrated. Following Aria and Cuccurullo (2017) and Hussain et al. (2025), this pattern is consistent with an emerging interdisciplinary domain in which collaboration remains partly project-based and characterized by uneven levels of international integration across regions.

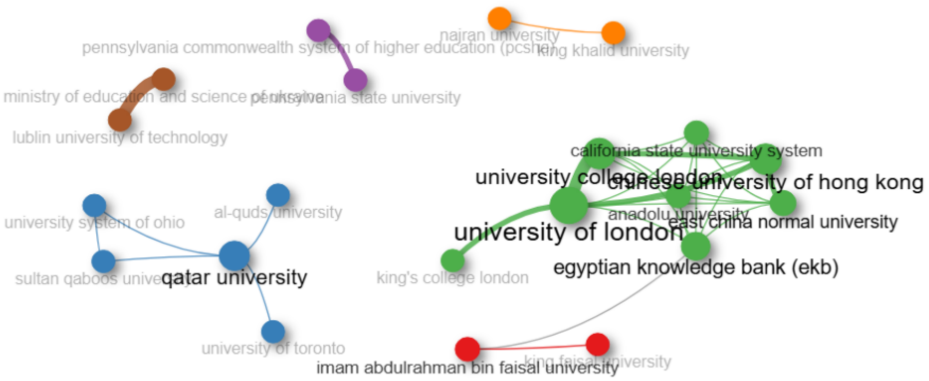


Source: Biblioshiny

Figure 11: Map of collaborating countries

3.4.4 Institutions' Collaboration Network

Complementing the country-level results (figures 10 and 11), Figure 12 examines the institutional layer of AI-USR research by mapping the institutional co-authorship network using Biblioshiny. The network reveals two relatively dense international clusters (green and blue) and several small and weakly connected groups, indicating that institutional collaboration is concentrated in a limited set of partnerships rather than distributed across the field. Within the green core, London-based institutions (University of London, UCL, King's College London) collaborate with transregional partners (e.g., Chinese University of Hong Kong and East China Normal University), suggesting a relatively cohesive collaboration structure with repeated collaboration links across multiple institutions.



Source: Biblioshiny

Figure 12: Institutions' contributions

Within the blue cluster, the Qatar-centered component shows strong internal cohesion but remains weakly connected to other clusters, reinforcing the country

network findings (Figure 10) that collaboration in AI-USR remains unevenly integrated across regions.

When Figure 12 is considered together with Table 10, the comparison provides assuredness and clarity that the leading institutions in the network (Figure 12) are largely located in the same countries that show the highest visibility in corresponding-author statistics (Table 10). This convergence strengthens the identification of the main countries and institutions structuring AI-USR research while also suggesting that cross-national collaboration is enacted through a limited number of organizational gateways rather than a fully consolidated institutional community.

4. Discussion

4.1 RQ1. How has AI-USR research in HE evolved over time, and to what extent is the field consolidating?

Based on 330 documents (2015–2025) retrieved from Scopus and WoS and using reproducible performance and science-mapping indicators, the study examined how research linking AI in HE and USR concerns is structured and evolving. This bibliometric analysis positions the AI-USR intersection as an emerging research front rather than a stabilized stream. Publication activity was sparse before 2020, becoming more regular thereafter, and accelerating sharply in 2024–2025. This trajectory may reflect the increasing number of international recommendations and governance frameworks addressing responsible AI use in education, including UNESCO's 2023 guidance on generative AI in education and the European Union Artificial Intelligence Act (2024).

The earliest indexed record (Winter et al., 2015) positions universities as sites for sustainability-oriented transformation when learning processes are grounded in critical reflection and rational discourse. Building on this baseline, AI in HE is discussed as compatible with USR concerns when it strengthens reflective learning and institutional accountability rather than technical proficiency alone (e.g., Hussain et al., 2025; O'Dea et al., 2026; Okulich-Kazarin et al., 2024b; Picasso et al., 2024; Swist et al., 2024; Tanveer et al., 2020). Yet, responsibility is more often attached as safeguards or contextual qualifiers than as the primary basis for theorizing AI's institutional social role.

Taken together, these findings suggest that the AI-USR field in HE is evolving through a gradual consolidation process in which AI adoption concerns are becoming increasingly institutionalized, while responsibility-related dimensions remain more weakly integrated within the dominant conceptual structure of the field.

4.2 RQ2. Which geographical production and citation patterns characterize AI-USR research in higher education?

Geographically, production and citation patterns depict a multipolar but nationally anchored research space. Output is concentrated in a small set of advanced economies in North America, Europe, and East Asia (Table 5), while several Global South countries—India, Saudi Arabia, South Africa, and Jordan—also appear among the most productive, suggesting an expanding geographical

engagement with AI-USR research across diverse contexts (Almassaad et al., 2024; Bozkurt, 2024; Ferhataj et al., 2025; Hussain et al., 2025). This North–South pattern is further nuanced by impact (Table 6); while the USA and China lead in citations, several highly cited contributions from Brazil, Qatar, Saudi Arabia, and Mexico indicate that Southern settings can also contribute to the field's international visibility and thematic development (Hegazy et al., 2024).

These geographical concentration patterns may also be interpreted in view of the broader national AI and digital policy environments developed in several leading countries. Examples include China's New Generation Artificial Intelligence Development Plan (2017), the American AI Initiative (2020), Saudi Arabia's National Strategy for Data and AI (NSDAI), and Qatar's digital and research policy initiatives developed since the mid-2000s. Collectively, these policy environments may contribute to the growing visibility of AI-USR-related research through investments in digital transformation, governance capacity, and AI-related research development.

4.3 RQ3. Which thematic structure emerges from author-keyword co-occurrence, and how integrated are responsibility-oriented concerns within the broader AI-HE knowledge structure? Regarding the conceptual and thematic organization, keyword co-occurrence shows that responsibility framing is present but unevenly integrated; ethics-related terms form the most connected pathway, whereas governance and sustainability terms remain more peripheral and less centrally connected, indicating the limited centrality of responsibility concerns as organizing principles of the field.

Other recurrent terms such as "*ai literacy*", "*ai acceptance*", and "*curriculum design*" further point to the prominence of implementation- and capability-oriented themes related to AI integration in HE. The rising salience of literacy- and integrity-related terms further suggests that operational levers, including capability development (Ng et al., 2025), curriculum adaptation (Holmes et al., 2022), skills development, and assessment safeguards, are becoming the preferred routes through which, responsibility is articulated in practice (Vallespir-Adillon et al., 2025). Taken together, the thematic structure points to a consolidation process in which adoption-oriented work advances faster than the institutionalization of governance and sustainability concerns. This pattern suggests that responsible AI in HE is currently being expressed more through pedagogical and organizational responses than through fully integrated social responsibility frameworks.

In this context, normative frameworks such as ethical and human-centered AI principles appear to operate as reference standards whose institutional impact depends on their translation into concrete educational and governance practices (Floridi et al., 2018; Jobin et al., 2019). However, these patterns should be interpreted as reflecting thematic visibility within keyword structures rather than the full conceptual depth of responsibilities developed in the reviewed publications.

4.4 RQ4. Which international collaboration structures and knowledge connectivity patterns characterize AI-USR research in HE?

The corpus reflects a multi-regional engagement with research linking AI in HE with USR concerns, including notable Global South–Global North co-authored contributions such as Okulich-Kazarin et al. (2024; 2024a; 2024b) and Slimi and Villarejo-Carballido (2023). However, the strong prevalence of SCPs (Table 9) indicates that AI-USR knowledge production remains largely nationally organized within institutional and policy contexts that may vary across HE systems. Cross-border collaboration appears to rely on a limited number of highly connected countries, producing recurrent inter-regional ties connecting North America, Europe, and the Asia-Pacific (Figure 11).

Taken together, these patterns suggest that highly connected systems may exert a stronger influence on the visibility and circulation of AI-USR approaches and practices across regions. As a result, agenda-setting processes and the diffusion of 'best practices may become disproportionately shaped by a small number of highly connected systems. These findings also indicate the potential value of more inclusive North–South and South–South collaboration to support the co-development of context-sensitive governance, integrity, and equity frameworks for responsible AI in HE.

4.5 Theoretical Implications

This research contributes to literature in four ways. First, it provides a global quantitative map of the emerging research stream on AI-USR research in HE. Second, it shows that responsibility-oriented vocabulary remains peripheral relative to operational and capability-oriented terms, indicating limited integration between AI adoption and institutional responsibility commitment. Third, the findings confirm the persistent disconnection between technology-adoption and organizational-responsibility literature (Almassaad et al., 2024) and suggest that dominant technology-adoption perspectives such as TAM, TTF, and activity theory remain insufficient for theorizing responsibility-aligned AI integration in HE (Picasso et al., 2024).

More specifically, the results indicate that current AI-in-HE research tends to conceptualize responsibility primarily through implementation mechanisms such as literacy, curriculum adaptation, integrity safeguards, and governance responses rather than through fully integrated USR frameworks. This suggests the need for stronger theoretical articulation between educational technology adoption, institutional governance, and social responsibility perspectives. Finally, the study establishes a reproducible bibliometric baseline for future qualitative and mixed-method research investigating how AI adoption in HE may be aligned with USR concerns and translated into context-sensitive governance and policy practices.

4.6 Practical Implications

Three practical implications emerge from this bibliometric mapping for AI integration as an educational technology aligned with USR in HE. First, the relatively peripheral positioning of responsibility-related terms suggests that AI adoption in HE may be advancing faster than institutions' capacity to integrate

accountability, integrity, inclusion, and privacy considerations systematically into teaching, assessment, research, and management practices. Such findings highlight the importance of embedding responsibility-oriented principles into AI-related procurement, implementation, and evaluation processes within HEIs (Hegazy et al., 2024) rather than treating them as secondary considerations or reactive considerations.

Second, the prominence of literacy-, acceptance-, and integrity-related themes indicates that socially responsible AI integration is increasingly operationalized through pedagogical and organizational capabilities. This suggests that HEIs may benefit from strengthening AI literacy initiatives, assessment redesign, staff development, and institutional support structures that help students, faculty members, and intermediary actors engage with AI critically, ethically, and effectively (Nakrowi et al., 2025).

Third, the concentration of publications and collaboration networks within high-resource contexts, particularly North America, Europe, and parts of East Asia, highlights the importance of context-sensitive implementation strategies. Institutions operating in resource-constrained environments may require AI governance and educational technology approaches to be adapted to local conditions, including infrastructure availability, digital readiness, and affordability, rather than transferring models developed in better-resourced systems (Tanveer et al., 2020).

4.7 Limitations and Future Research Directions

This study has several limitations that should be considered when interpreting the findings. First, as a bibliometric mapping study, the analysis primarily identifies patterns of productivity, citation impact, collaboration, and thematic organization. Consequently, it does not directly evaluate how AI-USR alignment is implemented or experienced in real-world HE settings. Future research should complement these findings through qualitative, case-based or mixed-method designs examining how responsibility-related principles are operationalized within institutional practices, governance arrangements, and pedagogical contexts.

Second, the corpus is limited to documents indexed in Scopus and WoS and to English-language publications. As a result, relevant contributions published in other databases, regional outlets, or non-English contexts may remain underrepresented. In addition, the analysis relies heavily on metadata, especially titles, abstracts, and authors' keywords, which capture thematic visibility rather than the full conceptual depth of the reviewed publications. Responsibility-related discussions may, therefore, be more substantively developed within the body of articles than reflected in keyword co-occurrence structures alone. Moreover, the study does not differentiate systematically between publications explicitly framed around USR concepts and those addressing responsibility-related concerns indirectly through themes such as ethics, integrity, inclusion, governance, or sustainability. Consequently, the findings should be interpreted as reflecting the visibility and labeling of

responsibility-related themes within the bibliometric structure of the field rather than a definitive measure of the actual depth or prevalence of responsibility-oriented thinking across the reviewed literature.

Third, network interpretations are parameter-dependent on methodological parameters such as thresholds, normalization techniques, and visualization settings. Accordingly, the study prioritizes structural configurations such as fragmentation, brokerage positions, and core–periphery patterns rather than emphasizing exact network indicators values. Similarly, the country collaboration map should be interpreted as a representation of country-pair connectivity above the chosen threshold (minimum edge = 2) rather than as a direct measure of collaboration intensity. Finally, future studies could extend database coverage, incorporate text mining or full-text approaches, and test robustness of network structures across alternative thresholds and normalizations. Additional longitudinal and comparative studies may also help clarify how AI adoption, governance, and responsibility frameworks evolve across different HE systems and policy environments.

5. Conclusion

This bibliometric analysis maps a knowledge-structure gap in the educational technology field of AI in HE. While AI adoption in HE is accelerating, research explicitly connecting it to USR remains recent and only partially consolidated. The 330 documents indexed in Scopus and WoS between 2015 and 2025, position responsibility-oriented themes at the network periphery relative to a dense core organized around AI-in-HE adoption, learning, assessment, and capability-oriented applications.

The mapped evidence indicates that responsible AI in HE is currently expressed less through fully integrated social responsibility frameworks than through operational and institutional concerns related to academic integrity, AI literacy, privacy, governance, and sustainability. Therefore, the field does not lack responsibility-oriented scholarship; rather, these concerns remain unevenly integrated into the broader AI-in-HE knowledge structure.

Overall, the study provides an evidence-based and reproductible baseline for understanding how responsibility is framed within the educational technology literature on AI in HE. It also suggests that future research should strengthen the links between pedagogical innovation, institutional governance, and HEIs' broader social missions through more cross-disciplinary, internationally inclusive, and context-sensitive work on responsible AI in teaching, assessment, research, and management. Within this perspective, USR may be approached not merely as a compliance add-on but as a broader framework for guiding more human-centered and socially accountable AI integration in HE, thereby supporting proactive institutional responses beyond trial-and-error AI deployment.

List of Abbreviations
AI: Artificial intelligence
CSR: Corporate social responsibility
GCs: Global citations
HE: Higher education
HEIs: Higher education institutions
LCs: Local citations
MCPs: Multiple country publications
SCPs: Single country publications
UCL: University College London
USR: University social responsibility
WoS: Web of Science

Declarations
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Data Availability Statement: The merged dataset, cleaned bibliometric corpus, and R-based analysis files used in this study are available from the corresponding author upon request

Ethics Statement: Ethics approval was not required for this study because the analysis relied exclusively on publicly available bibliographic metadata and did not involve human participants or personal data.

Generative AI Disclosure: Generative AI tools were used for language refinement and editorial assistance during manuscript preparation. All conceptual development, methodological design, data collection, analysis, interpretation, and final validation of the manuscript were conducted by the authors.

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