Faculty engagement and artificial intelligence: Bibliometric analysis and recent trends

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Abstract
This paper presents a bibliometric investigation of research linking faculty engagement and artificial intelligence (ai) over the period 2014–2025, using scopus as the primary data source. Analytical tools, including vosviewer, were employed to trace publication growth, citation trends, and collaborative networks, as well as to uncover intellectual foundations and thematic developments. The results indicate a sharp increase in scholarly attention after 2020, with the years 2023–2025 marking the highest levels of research activity. Countries like the united states, united kingdom, canada, india, and china emerged as leading contributors, while brazil demonstrated notable impact through highly cited publications despite fewer outputs. Key contributions from scholars including borges, braganza, and koo provided pivotal theoretical grounding for subsequent studies. Thematic clustering revealed that research in this area has expanded from early discussions of technological adoption to broader concerns involving pedagogy, institutional leadership, workload distribution, ethical considerations, and the gigification of academic roles. Although the study is limited by its reliance on a single database and the dynamic nature of citation metrics, it offers novel insights by systematically integrating two fields that have rarely been examined together. The originality of the study lies in mapping how ai is shaping faculty engagement in higher education and in identifying knowledge gaps that open pathways for future interdisciplinary and practice-oriented research.

Keywords: Artificial intelligence, bibliometric, employee engagement, faculty engagement, higher education.

1. Introduction

Faculty engagement

The effectiveness of the teaching community plays a important role in shaping the quality of education received by students (cherwin, 2016). Raina and khatri (2015) highlight that the presence of competent faculty is vital for the indian education system, asserting that despite globalization, teachers will remain central to the learning process. Faculty members are instrumental in achieving educational goals (sudibjo and sutarji, 2020). High-quality education acts as a key driver for both personal and societal advancement, largely dependent on the skills and expertise of faculty (hezekiah et al., 2021). According to chen et al. (2008), faculty bear significant responsibility for designing learning environments that promote student engagement while also serving as mentors, advisors, and guides across academic and co-curricular activities, thereby fostering high levels of student involvement. In higher education, faculty are tasked with preparing graduates and postgraduates to navigate the complex challenges of today's professional world, contributing to substantial national development (patel, 2018). Sustained faculty engagement is essential to ensure continuous growth and improvement in education (john and prabhakaran, 2019).

The idea of engagement initially emerged within academic research and was later embraced by business organizations. In recent years, it has attracted considerable attention among management scholars, sparking growing interest in both studying and measuring engagement. The concept was first introduced by william kahn in 1990, who termed it "personal engagement," Suggesting that individuals can immerse themselves in their work by channeling physical, emotional, and cognitive energy. Maslach and leiter (1997), along with maslach, schaufeli, and leiter (2001), characterized job engagement as the positive opposite of burnout, viewing the two as opposite ends of the same continuum. Similarly, schaufeli, salanova, gonzalez-roma, and bakker (2002) positioned engagement theoretically as the counterpoint to burnout, arguing that burnout is not adequately captured by the maslach burnout inventory (mbi) and should instead be measured using a separate instrument, the utrecht work engagement scale (uwes). Saks (2006) further explored the factors influencing employee engagement and examined its effect on organizational outcomes.

Engagement is a comprehensive concept that reflects emotional, cognitive, and behavioral dedication toward a task, role, or activity. It serves as an overarching term that includes various forms of engagement, such as employee engagement, work engagement, and academic engagement. Work engagement acts as a central element connecting different engagement types, including academic, faculty, teacher, and employee engagement. Academic engagement refers to the active involvement, participation, and commitment of students, educators, or academic staff within the learning environment. Employee engagement, on the other hand, denotes the emotional investment and active involvement of employees in their roles and within the organization. Faculty, staff, and teacher engagement can be viewed as specific forms or subsets of overall employee engagement.

Faculty engagement is considered an advanced form of employee engagement (nagoji and mackasare, 2023). While the concept of faculty engagement was introduced in management theory during the 1990s (kahn, 1990), employee engagement began gaining widespread attention in management practice in the 2000s (saks, 2006). It is defined as a sustained state of focused attention, enthusiasm, and enjoyment in tasks related to faculty responsibilities. In this state, faculty members find motivation aligned with their personal values and strengths, apply their knowledge and skills effectively, and maintain productivity even under challenging conditions (livingston, 2011). Faculty engagement occurs when institutions provide opportunities for learning and professional development, and faculty members actively participate, benefit from, and derive satisfaction from these experiences, leading to professional growth (thirolf, 2017). Specifically, faculty engagement refers to the commitment,

dedication, and passion of faculty members in higher education, reflecting their alignment with institutional goals and values within academic settings (nagoji and mackasare, 2023).

Faculty members who are highly engaged in their work often foster a sense of belonging, trust, and commitment among students. Such engagement helps in building long-lasting, mutually supportive relationships, which in turn enhances academic performance and student satisfaction (barman and ray, 2011). According to khatri and raina (2017), engaged faculty tend to exhibit greater loyalty, higher productivity, a results-oriented approach, and lower turnover intentions. Promoting employee engagement is crucial for achieving the broader objectives of higher education institutions (nazir and islam, 2017). Faculty represent one of an institution's most valuable assets, as their dedication and commitment often lead them to exceed organizational expectations, thereby strengthening their engagement levels (ma, 2022). Nagoji and mackasare (2023) emphasized that engaged faculty demonstrate superior classroom performance, which contributes to enhancing student competencies.

Artificial intelligence

Artificial intelligence (ai) traces its origins back to the 1950s (grzybowski, pawlikowska–łagód, & clark, 2024), with pioneering contributions from notable figures such as alan turing and john mccarthy (meadows & sternfeld, 2023). Turing (1950) introduced the turing test to assess whether a machine can demonstrate behavior indistinguishable from human intelligence (gonçalves, 2023). In 1956, mccarthy coined the term "artificial intelligence" And described it as the study of designing machines capable of replicating human thinking and behavior (mohammed et al., 2024). Over more than six decades, ai research has achieved significant theoretical insights and practical applications (jiang et al., 2022).

Today, ai is increasingly embedded in diverse activities, necessitating effective management within organizations (vasquez, 2022; linden, tilman, & laurent, 2023; auza santiváñez et al., 2023). The global ai market, valued at $150.2 billion in 2023, is projected to expand at a compound annual growth rate of 36.8% from 2023 to 2030 (vasquez, 2022). Ai is broadly defined as the creation of computer systems capable of performing tasks that typically require human intelligence, including learning, problem-solving, and decision-making (russell & norvig, 2021). It enables machines to emulate human cognitive abilities (arachie, dibua & idigo, 2023), allowing them to perceive, process, and retain information, adapt to new inputs, and enhance their performance. These capabilities rely on statistical methods and machine learning algorithms to detect, analyze, and interpret relevant variables (goodfellow et al., 2016).the adoption of advanced information and communication technologies (icts) has been expanding across private and public organizations, with significant growth observed in nigeria during the 1980s and 1990s (nwafor, afuecheta & umetiti, 2024).artificial intelligence (ai) has emerged as one of the most transformative forces in education and work environments. Ai-powered tools—such as intelligent tutoring systems, generative models, learning analytics, chatbots, and automated assessment platforms—are revolutionizing teaching, learning, and administrative processes. Beyond pedagogy, ai also influences decision-making, faculty workload management, research support, and student engagement strategies. While ai offers opportunities to enhance productivity, innovation, and engagement, it also introduces new challenges relating to ethics, workload intensification, stress, and job insecurity (loureiro et al., 2022; liu & cheng, 2025a; koo et al., 2021).

Ranging from education to research, artificial intelligence (ai) has become a transforming power, changing many industries. Skill development is any activity or programme designed to enable employees to update and grade their knowledge and competencies (nwafor, chukwueloka, nwumeh & umetiti, 2024). A worldwide trend changing how research is done, examined, and shared, the incorporation of ai into academic studies (chen et al., 2024).ai technology has great power to change higher education (chen et al., 2020). Their incorporation

Into educational environments has become more common as ai technologies develop, therefore Providing fresh chances to improve learning and teaching experiences (al-jumeily, hussain, abuelma'atti, and tawfik, 2019).

Research gap

Recent studies have examined impact of ai in employee engagement. Jangbahadur et al. (2024) demonstrated how ai-enabled hrm practices improve employee engagement and sustainable performance, while abbas et al. (2022) highlighted hybrid intelligence as a driver of engagement and innovation. Similarly, manresa et al. (2024) and rozman et al. (2023b) emphasized the importance of humanizing ai in workforce management, and sharma, chanana, and chen (2025) mapped the evolution of employee engagement in the age of ai-driven solutions. However, these contributions are largely situated in corporate rather than academic domains, leaving faculty engagement in the context of ai underexplored. Recent studies have begun addressing this gap by examining ai adoption in higher education. Balaskas et al. (2025) analyzed chatgpt adoption, emphasizing the mediating role of trust and risk in shaping faculty perceptions, while zhou et al. (2025) investigated how ai influences innovative work behavior among teachers in china. Likewise, aggarwal et al. (2025) highlighted the potential of ai and metaverse technologies to act as catalysts for faculty and employee engagement in edtech environments. Nwafor et al.(2025) discuss the impact of artificial intelligence (ai) on faculty engagement in academic research

Yet, despite these emerging efforts, the literature on ai and faculty engagement remains fragmented, lacking a systematic synthesis of research trends, intellectual structures, and knowledge gaps. In this context, bibliometric analysis provides a rigorous method for mapping the intellectual landscape of ai and engagement scholarship. Prior works demonstrate its value in synthesizing scattered research: Ivanova, grosseck, and holotescu (2024) unveiled insights into ai integration in teaching; maphosa and maphosa (2023) identified influential areas of ai research in higher education through bibliometric and topic modeling approaches; sahar and munawaroh (2025) combined bibliometric and content analysis to propose a future research agenda; and sahar et al. (2025) emphasized ai's role in sustainable education. Similarly, lin and yu (2024) highlighted the rapid growth of ai-driven engagement tools in educational contexts. These studies collectively underscore how bibliometric approaches can reveal dominant trends, influential publications, and emerging themes across domains. Despite these contributions, a bibliometric synthesis specifically exploring the intersection of faculty engagement and ai in higher education is absent. Faculty are central to the adoption and effective integration of ai in academia, yet their engagement within this technological shift has not been systematically mapped. Addressing this gap, the present study conducts a comprehensive bibliometric analysis of ai and faculty engagement literature and addresses the following research questions (rqs): Rq1: What is the current publication trend in faculty engagement and artificial intelligence studies? Rq2: What is the current citations trend in faculty engagement and artificial intelligence studies? Rq3: Who are the most influential authors on faculty engagement and artificial intelligence studies? Rq4: Which are the most influential journals on faculty engagement and artificial intelligence studies? Rq5: Which are the most influential field of research on faculty engagement and artificial intelligence studies? Rq6: Which are the most influential articles on faculty engagement and artificial intelligence studies? Rq7: Which themes involving faculty engagement and artificial intelligence studies are the most popular among scholars?

The subsequent sections of this paper are structured as follows: The research methodology and procedures adopted. This is followed by three sections that sequentially present the findings, engage in a critical discussion of the results, and conclude with the implications and limitations of the study.

2. Research methods

This study employed the bibliometric review method, a widely used approach for examining the evolution and intellectual structure of a research domain. Bibliometric analysis is particularly effective in identifying the origins, development, and thematic patterns of scholarly fields through the use of quantitative indicators and visualization techniques (li, wu, & wu, 2017; valtakoski, 2020; mahajan & bandyopadhyay, 2021; raman et al., 2022). To ensure comprehensive data collection, the dimensions database was selected as the primary source of bibliographic records, given its extensive coverage of journals, books, conference proceedings, and patents across multiple disciplines, making it well-suited for cross-domain analysis. For data visualization and mapping, vosviewer software was utilized, as it provides robust tools for constructing and analyzing bibliometric networks, including co-authorship, co-citation, and bibliographic coupling, thereby allowing the identification of research clusters and intellectual linkages within the field.furthermore, this research utilized the scientific procedures and rationales for systematic literature reviews (spar-4-slr) protocol, which has gained recognition as a rigorous and transparent framework for conducting evidence-based reviews. Unlike traditional methods, spar-4-slr enhances the systematicity and replicability of bibliometric research by offering a structured process classified into three stages: Assembling, arranging, and assessing. These stages are additionally categorized into six methodological steps: Identification, acquisition, organization, purification, evaluation, and reporting (paul et al., 2021). Employing this protocol strengthens the methodological rigor of the study by ensuring both comprehensive coverage and quality control in data selection and analysis. Table 1 provides an overview of these six sub-stages and their application in this research.

Table 1: Three main stages of spar-4-slr protocol

Stage 1: Assembling	**Sub-stage 1: Identification** Domain – faculty engagement and artificial intelligence Research questions – Source type – peer-reviewed published conceptual and empirical research articles Source quality – dimensions
	Sub-stage 2: Acquisition Source mechanism – dimensions Search keywords – ("faculty engagement" Or "teacher engagement" Or "academic engagement" Or "work engagement" Or "job engagement" Or "employee engagement") and ("artificial intelligence" Or "ai") Search confined to subjects –all discipline Articles returned from search – 929 research papers
Stage 2: Arranging	**Sub-stage 3: Organization** Organizational framework–not applicable Organizational codes – publication title, journal name, author name, country of affiliation, number of citations, number of publications, author keywords.
	Sub-stage 4: Purification Article type excluded – 322 papers were excluded based on title and

	abstract assessments. Total articles included – 607
Stage 3:Assessing	Sub-stage 5: Evaluation Analysis method – bibliometrics analysis and vosviewer Agenda proposal method – thematic analysis
	Sub-stage 6: Reporting Reporting convention – tables, figures, words Limitation – data taken from dimensions platform and review limited to bibliometric analysis only.

3.   Results
3.1   research question 1: Trends of publication
Table 2: Trends of publication

Year	Number of publication
2014	2
2015	1
2017	2
2018	2
2019	5
2020	10
2021	11
2022	22
2023	67
2024	221
2025	264

Research on faculty engagement and artificial intelligence between 2014 to 2025 (table 2) has progressed from a niche area to a rapidly expanding field. From 2014 to 2018, the number of studies remained very low, with only one or two publications annually, indicating limited exploration of the topic during its early years. A gradual rise began in 2019, reaching five publications, and doubled to ten in 2020, marking the start of broader academic interest. After 2020, the research output entered an exponential growth phase, driven by rapid advances in ai technologies, greater institutional adoption of ai tools in education, and a global push for digital transformation in higher education. The years 2021 and 2022 recorded steady increases, but from 2023 onwards, the growth became dramatic—jumping to 67 publications in 2023 and soaring to 221 in 2024. By 2025, the number has already climbed to 264, signaling both sustained momentum and a transition from theoretical or exploratory work to more applied and experimental research. Overall, the data reveals an exponential growth pattern, highlighting the rapid integration of ai into faculty engagement research and practice.

3.2 research question 2: Trends in citations of publications
Table 3: Trends in citations of publications

Year	Number of citations
2014	40

2015	1
2017	56
2018	0
2019	259
2020	468
2021	1012
2022	649
2023	892
2024	766
2025	99

The citation trend for publications on faculty engagement and artificial intelligence during 2014 to 2025 (table 3) reflects significant fluctuations over the years, indicating varying levels of influence and scholarly attention. In the initial years, citations were modest, with 40 in 2014 and only 1 in 2015, suggesting that early research had limited reach. A spike occurred in 2017 with 56 citations, followed by a drop to zero in 2018, possibly due to fewer impactful publications that year. A major turning point emerged in 2019, when citations surged to 259, and momentum continued strongly into 2020 with 468 citations. The peak influence came in 2021, reaching 1,012 citations, reflecting both the rising interest in ai applications in education and the integration of such research into broader academic discussions. Citations declined to 649 in 2022, rebounded to 892 in 2023, and slightly dipped to 766 in 2024. In 2025, the count so far is 99, which may increase as the year progresses. Overall, the data shows that while the highest citation activity occurred between 2020 and 2023, the topic continues to maintain a strong research presence and relevance.

3.3 research question 3: Top contributing authors
3.3.1   top 10 authors on the basis of publications
Table 4: Top 10 authors on the basis of publications

Auther name	Country	Total publications
Maja rožman	Slovenia	4
Polona tominc polona tominc	Slovenia	4
L r k krishnan	India	3
Mitra madanchian	Canada	3
Jonathan h westover	United states	3
Chetan sharma	India	3
Weifeng chen	United kingdom	3
Ashley braganza	United kingdom	2
Manju shree raman	India	2
Mohsin ali soomro	China	2

From 2014 to 2025 (table 4) the authorship analysis reveals that research on faculty engagement and artificial intelligence is being driven by contributors from a diverse range of countries. At the forefront are maja rožmanand polona tominc from slovenia, each with four publications, indicating their

consistent and leading role in this field. Following closely are l. R. K. Krishnan(india), mitra madanchian (canada), jonathan h. Westover (united states), chetan sharma (india), and weifeng chen (united kingdom), each contributing three publications, reflecting strong international participation from both developed and emerging research hubs. The next tier includes ashley braganza (united kingdom), manju shree raman (india), and mohsin ali soomro(china), each with two publications, showing that contributions are widely distributed across continents. Overall, the list highlights not only the multi-national nature of the research community but also the collaborative and cross-cultural interest in exploring ai's role in enhancing faculty engagement.

3.3.2   top authors on the basis of citations
Table 5: Top 10 authors on the basis of citations

Auther name	Country	Total citations
Fernando josé barbin laurindo	Brazil	533
Mauro mesquita spinola	Brazil	533
Rodrigo franco gonçalves	Brazil	533
Claudia aparecida de mattos	Brazil	533
Weifeng chen	United kingdom	302
Ashley braganza	United kingdom	291
Serap sap	Turkey	291
Ana isabel canhoto	United kingdom	291
Catherine curtis	United states	195
Bon-hak koo	United states	195

In table 5 the citation analysis for faculty engagement and artificial intelligence indicates that a small group of highly influential authors has made a significant impact in the field. Leading the list are fernando josé barbin laurindo**,** mauro mesquita spinola**,** rodrigo franco gonçalves, and claudia aparecida de mattos from brazil, each with 533 citations, reflecting their collaborative work that has garnered substantial academic recognition. Weifeng chen from the united kingdom follows with 302 citations, showing a strong individual research footprint. The next cluster includes ashley braganza (united kingdom), serap sap (turkey), and ana isabelcanhoto (united kingdom), each with 291 citations, suggesting a shared level of scholarly influence. Catherine curtisand bon-hak koo from the united states round out the top 10 with 195 citations each, indicating notable contributions from north america. Overall, the table highlights that while brazil dominates the highest citation counts through collaborative efforts, significant contributions also come from the united kingdom, turkey, and the united states, underscoring the global spread and academic impact of research in this area.

Overall, table 4 and table 5 highlights that high publication output does not always translate into high citation impact, and in this field, some authors with fewer papers have produced highly influential work that resonates strongly within the academic community.

3.4   research question 4: Top influential journals
3.4 .1 top influential journals based on publications
Table 6: Top 10 contributing journals based on publications

Journal name	Total publication
International journal of scientific research in engineering and management	30

International journal for multidisciplinary research	17
Journal of information systems engineering & management	15
Educational administration theory and practice journal	8
Sustainability	7
Journal of informatics education and research	7
Frontiers in psychology	5
International journal for research in applied science and engineering technology	5
Shanlax international journal of management	5
International scientific journal of engineering and management	5

The journal-wise analysis indicates that research on faculty engagement and artificial intelligence is being disseminated across a variety of publication platforms, with some outlets emerging as clear leaders in terms of volume. The international journal of scientific research in engineering and management tops the list with 30 publications, making it the most prominent forum for studies in this area. It is followed by the international journal for multidisciplinary research with 17 publications and the journal of information systems engineering& management with 15 publications, both serving as significant contributors to the field. Mid-range contributors include the educational administration theory and practice journalwith8 publications, as well as sustainability and the journal of informatics education and research, each with **7** publications, reflecting an interdisciplinary engagement from education, technology, and sustainability perspectives. Journals with five publications each — including frontiers in psychology, the international journal for research in applied science and engineering technology, shanlax international journal of management, and the international scientific journal of engineering and management — indicate a steady but more focused contribution. Overall, the data highlights a diverse publishing landscape, where both specialized and multidisciplinary journals play an important role in advancing scholarship on this topic.

3.4.2 top influential journals based on citations
Table 7: Top 10 contributing journals based on citations

Journal name	Citations
International journal of information management	533
Journal of business research	341
International journal of hospitality management	213
International journal of manpower	162
Human resource management	158
Journal of management development	148
Cogent education	147
Education sciences	140
Computers in human behavior	121
International journal of contemporary hospitality management	117

The citation-based journal analysis shows that high-impact research on faculty engagement and artificial intelligence is concentrated in a select group of reputable and widely recognized journals. The international journal of information management leads the list with 533 citations, indicating its strong

influence and the high visibility of the studies it publishes in this domain. It is followed by the journal of business research with 341 citations and the international journal of hospitality management with 213 citations, both reflecting substantial academic reach across business, management, and hospitality-related contexts. Mid-ranked journals such as the international journal of manpower (162 citations), human resource management (158 citations), and the journal of management development (148 citations) highlight the strong link between faculty engagement research and human capital management themes. Further down the list, cogent education (147 citations) and education sciences (140 citations) emphasize the education-specific dimension of the topic, while computers in human behavior (121 citations) reflects the growing integration of technology and behavioral research. The international journal of contemporary hospitality management closes the list with 117 citations, underscoring the relevance of ai and engagement strategies in service-oriented sectors. Overall, the data suggests that while publication volume is spread across many journals, the greatest scholarly influence comes from high-ranking and multidisciplinary outlets.

Overall, the comparison of table 6 and table 7 shows that quantity and impact do not always align. Some journals act as major publication hubs for researchers in this domain, while others—often with fewer published papers—serve as the primary sources of highly influential and widely cited research. This suggests that for maximizing scholarly influence, publishing in well-regarded, high-impact journals may be more effective than focusing solely on high-volume outlets.

3.5 research question 5: Top field of research
3.5.1top field of research on the basis of publications
Table 8: Top 10 contributing field of research on the basis of publications

Field of research	Publications
Commerce, management, tourism and services	417
Strategy, management and organisational behaviour	310
Information and computing sciences	212
Human resources and industrial relations	114
Education	80
Business systems in context	58
Information systems	44
Philosophy and religious studies	41
Curriculum and pedagogy	40
Human-centred computing	37

The field-wise publication analysis shows that research on faculty engagement and artificial intelligenceis strongly concentrated in business and management-related disciplines. Commerce, management, tourism and services leads with 417 publications, highlighting the dominant role of business-oriented studies in exploring ai's impact on faculty engagement. The second-largest contributor is strategy, management and organisational behaviour with 310 publications, reflecting significant interest in how leadership, organizational culture, and strategic decision-making intersect with ai adoption in academic settings.on the technology side, information and computing sciences accounts for 212 publications, indicating substantial contributions from computer science and it perspectives. Fields more directly tied to workforce dynamics, such as human resources and industrial relations (114 publications), also feature prominently, pointing to the growing interest in ai-driven

engagement and performance management.education-specific research is represented by education (80 publications) and curriculum and pedagogy (40 publications), showing that while the topic is relevant in teaching and learning contexts, the volume is comparatively smaller than in business disciplines. Other specialized areas include business systems in context(58),information systems (44), philosophy and religious studies (41), and human-centred computing (37), suggesting a multidisciplinary approach where ethical, technological, and contextual perspectives converge.overall, the data indicates that while technological and educational aspects are important, the research landscape is heavily dominated by business, management, and organizational studies, reflecting the strong interest in ai's role in shaping institutional strategy and faculty engagement practices.

3.5.2   top field of research on the basis of citations
Table9: Top 10 contributing field of research on the basis of citations

Field of research	Citations
Commerce, management, tourism and services	3,118
Strategy, management and organisational behaviour	2,477
Information and computing sciences	1,515
Business systems in context	899
Human resources and industrial relations	868
Information systems	750
Education	516
Commercial services	491
Education systems	412
Curriculum and pedagogy	340

The citation-based field analysis highlights that the most influential research on faculty engagement and artificial intelligence is concentrated in business and management-related domains. Commerce, management, tourism and services ranks first with 3,118 citations, showing that studies in this area have achieved the widest academic recognition. Closely following is strategy, management and organisational behaviour with 2,477 citations, underscoring the strong scholarly impact of research examining leadership approaches, organizational culture, and strategic use of ai in academic settings. Technological fields also show significant influence, with information and computing sciences receiving 1,515 citations, reflecting the importance of ai's technical foundations in shaping faculty engagement practices. Business systems in context (899 citations) and human resources and industrial relations (868 citations) further highlight the cross-link between technology adoption, workforce management, and institutional strategies. Other contributing areas include information systems (750 citations) and education (516 citations), indicating a solid impact from both the digital systems perspective and the teaching-learning context. More specialized fields, such as commercial services (491 citations), education systems (412 citations), and curriculum and pedagogy (340 citations), while lower in volume, still play an important role in influencing the discourse.overall, the data shows that business, management, and technology-related research not only dominate in publication volume but also in academic impact, suggesting that these fields are central to advancing understanding of ai's role in enhancing faculty engagement.

Overall, the comparison of table 8 and table 9 reveals that while publication volume and citation impact broadly align, certain fields—particularly those linking business strategy with technological applications—achieve greater influence relative to their output.

3.6research question 6: Citations analysis

Citation analysis serves as a fundamental method for evaluating the influence of scholarly works (baumgartner & pieters, 2002; stremersch, verniers, & verhoef, 2007; ding & cronin, 2011). It is based on the premise that citations represent intellectual connections established when one study references another (appio, cesaroni, & di minin, 2014). Within this framework, the significance of a publication is primarily assessed through the frequency of citations it accumulates (donthu et al., 2021).

Table 10: Top 10 article based on citations

Article	Citations
Borges et al.(2021)	532
Braganza et al.(2020)	262
Koo et al.(2021)	195
Wijayati et al. (2022)	160
Malik et al. (2022)	158
Maity & souvik (2019)	148
Rahiman et al.(2023)	144
Almusaed et al. (2023)	140
Wang et al. (2024)	118
Ruel et al (2020)	110

The citation analysis of the top ten articles on faculty engagement and artificial intelligence highlights a small group of studies that have had a substantial academic impact. Borges et al**.** (2021) leads with 532 citations, indicating its significant influence and widespread recognition in the research community. Braganza et al. (2020**)** follows with 262 citations, showing strong engagement despite being published earlier in the adoption curve of ai in education.

Mid-ranked influential works include koo et al. (2021) with 195 citations, wijayati et al. (2022) with 160 citations**,** and malik et al. (2022**)** with 158 citations, reflecting growing attention to ai's integration in faculty engagement during recent years. Earlier contributions such as maity & souvik (2019)**,** with 148 citations, demonstrate that pre-pandemic research also continues to shape the field. Recent publications, including rahiman et al. (2023) with 144 citations**,** almusaed et al. (2023) with 140 citations, and wang et al. (2024) with 118 citations, show that even newer studies are quickly gaining traction, likely due to heightened global interest in generative ai applications. Ruel et al. (2020**)** closes the list with 110 citations, representing a notable early contribution to the emerging research wave. Overall, the table shows that while older articles have had more time to accumulate citations, several recent works have rapidly achieved high impact, indicating a dynamic and fast-evolving research landscape.

3.7   research question 7: Bibliographic coupling

Bibliographic coupling measures the extent to which two research articles share common references. It serves as a technique for examining the interconnections among citing documents, thereby offering

insights into the historical as well as current evolution of themes within a research domain (donthu et al., 2020). The method is grounded in the premise that when two studies cite the same references, they are likely to exhibit similarity in subject matter (kessler, 1963; weinberg, 1974). The analysis identified 11 clusters of publications, each representing groups that are most closely aligned in terms of semantics and thematic orientation, as illustrated in figure 1.
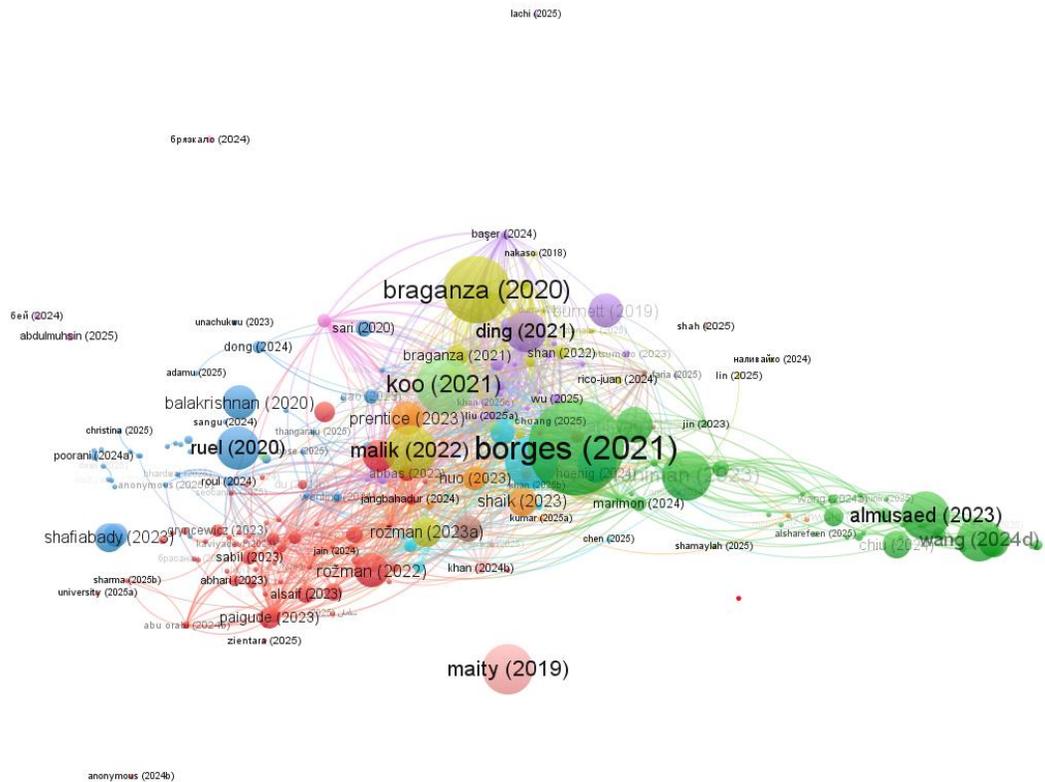

Figure 1: Bibliographic coupling network

Cluster 1 (red) comprises 62 publications, while cluster 2 (green) includes 46. Cluster 3, represented in teal blue, consists of 41 publications, and cluster 4, shown in mustard yellow, contains 22. Similarly, cluster 5 (light purple) has 22 publications, cluster 6 (sky blue) has 18, and cluster 7 (orange) accounts for 11. Cluster 8, indicated in brown, includes 6 publications, followed by cluster 9 (pink) with 5, cluster 10 (yellow-green) with 4, and cluster 11 (light green) with 2 publications.

Table 11: Top 10 documents based on total link strength

Publication	Cluster	Total link strength	Total citations
Jangbahadur et al. (2024)	1	272	7
Manresa et al. (2024)	4	246	10
Liu et al. (2025a)	5	233	1
Abbas et al.(2022)	1	223	14
Başer et al. (2024)	5	220	4
Teng et al. (2025)	5	217	2

Ersoy & ehtayar(2023)	9	216	11
Braganza et al. (2021)	4	209	29
Madanchian & mitra (2025b)	1	207	10
Prasad et al. (2024a)	2	203	1

The bibliometric analysis of the top ten documents on faculty engagement and artificial intelligence underscores the pivotal role of total link strength (tls) as an indicator of scholarly influence within the research network. Tls measures the degree of connectivity and co-citation relationships, reflecting how central a document is to the main structure of the field. Jangbahadur et al. (2024) achieves the highest tls value (272), positioning it as the primary hub in the network, despite having accrued only seven citations. This prominence suggests that the work is extensively linked to other influential studies and serves as a key reference point in ongoing academic discussions. Manresa et al. (2024) (tls = 246) and liu et al. (2025a) (tls = 233) also exhibit substantial link strengths, indicating strong integration into the literature, even though their citation counts remain relatively low—particularly in the case of liu et al., with only one citation. In contrast, braganza et al. (2021) combines a high tls (209) with the largest citation count (29), reflecting both sustained scholarly attention and a solid network presence. The cluster distribution reinforces these observations: Cluster 1 (jangbahadur, abbas, madanchian & mitra) dominates network centrality by linking conceptual frameworks on faculty engagement with ai adoption; cluster 4 (manresa, braganza) balances strong linkages with practical and leadership-oriented insights; and cluster 5 (liu, başer, teng) demonstrates high interconnectivity in technological integration themes. Overall, the data reveal that high tls values, even in the absence of substantial citation counts, signal a document's strategic position in the academic knowledge structure—marking it as a potential driver of future research related to the intersection of faculty engagement and artificial intelligence.

Figure 1 illustrates eleven clusters, which are further examined to identify their thematic areas. Table 12 presents the top three publications from each cluster, ranked according to their total link strength.

Table12: Cluster analysis on the basis of the bibliographic coupling of publications.

Cluster	Colour	Publications	Total link strength	Total citations	Name of publication	Theme
1	Dark red	Jangbahadur et al. (2024)	272	7	"the effect of ai-enabled hrm dimensions on employee engagement and sustainable organisational performance: Fusion skills as a moderator"	"Artificial intelligence in human resource management: Enhancing employee engagement, innovation, and ethical workforce adaptation"
		Abbas et al.(2022)	223	14	"when human meets technology: Unlocking hybrid intelligence role in breakthrough innovation engagement	

					via self-extension and social intelligence"	
		Madanchian & mitra (2025b)	207	10	"frameworks for ai integration in hr and workforce adaptation"	
2	Green	Prasad et al. (2024a)	203	1	"the impact of technology on human resource management: Trends and challenges"	"Technology and generative ai in human resource management and education: Building trust, managing risks, and driving engagement and performance"
		Marimon et al. (2024)	144	13	"trusting in generative ai: Catalyst for employee performance and engagement in the workplace"	
		Balaskas et al. (2025)	115	3	"determinants of chatgpt adoption intention in higher education: Expanding on tam with the mediating roles of trust and risk"	
3	Teal blue	Roul et al. (2024)	147	5	"analysing the role of modern information technologies in hrm: Management perspective and future agenda"	"Strategic integration of modern technologies and psychological contracts in hrm: Balancing ai-driven efficiency with human-centric workforce development"
		Bastida et al. (2025)	138	1	"from automation to augmentation: Human resource's journey with artificial intelligence"	
		Foroudi et al.(2025)	85	0	"bridging beliefs and actions: Unraveling the impacts of ideological psychological contract fulfillment on employee citizenship behavior in the workplace"	
4	Mustard yellow	Manresa et al. (2024)	246	10	"humanizing genai at work: Bridging the gap between technological innovation and	"Ai-driven engagement in the evolving workplace: From

					employee engagement"	generative intelligence to gigification"
		Braganza et al. (2021)	209	29	"gigification, job engagement and satisfaction: The moderating role of ai enabled system automation in operations management"	
		García-navarro (2024)	181	5	"the study of engagement at work from the artificial intelligence perspective: A systematic review"	
5	Light purple	Liu &cheng (2025a)	233	1	"the double-edged sword effect of artificial intelligence awareness among hotel employees"	"Navigating the double-edged impact of ai and automation on workforce dynamics: Balancing opportunities, threats, and human-centric hrm in the hospitality and gig economy"
		Başer et al. (2024)	220	4	"the gig economy and automation: Implications for human resource management in pakistan"	
		Teng et al. (2025)	217	2	"does smart technology, artificial intelligence, robotics, and algorithm (stara) awareness have a double-edged-sword influence on proactive customer service performance? Effects of work engagement and employee resilience"	
6	Sky blue	Wijayati et al. (2022)	175	160	"a study of artificial intelligence on employee performance and work engagement: The moderating role of change leadership"	Artificial intelligence in the workplace: The interplay of leadership, stress, and engagement

		Loureiro et al.(2022)	145	34	"working with ai: Can stress bring happiness?"	for enhanced employee performance
		Divya et al. (2024)	139	9	"the mediating effect of leadership in artificial intelligence success for employee-engagement"	
7	Orange	Prentice et al. (2023)	156	66	"artificial intelligence as a boundary-crossing object for employee engagement and performance"	Leveraging artificial intelligence to drive employee engagement, performance, and innovation across sectors
		Ayu gusti et al.(2024)	152	7	"artificial intelligence for employee engagement and productivity"	
		Zhou et al.(2025)	120	0	"factors influencing innovative work behavior among teachers in the higher education sectors in china: The role of work engagement as a mediator and artificial intelligence as a moderator"	
8	Brown	Radic et al. (2024)	158	1	"the good shepherd: Linking artificial intelligence (ai)-driven servant leadership (sel) and job demands-resources (jd-r) theory in tourism and hospitality"	Integrating ai into leadership, talent management, and emerging technologies enhances employee engagement, resources, and performance, driving innovation, adaptability, and competitive advantage while managing potential challenges.
		Rozman et al.(2023b)	157	43	"integrating artificial intelligence into a talent management model to increase the work engagement and performance of enterprises"	
		Aggarwal et al. (2025)	92	0	"the digital frontier: Ai and metaverse as catalysts for organizational justice	

					and employee engagement in edtech"	
9	Pink	Ersoy &ehtayar(2023)	216	11	"the impact of artificial intelligence on hospitality employees' work outcomes"	"Technology-enabled transformation for employee outcomes and organisational sustainability"
		Abdulmuhsin et al.(2025)	7	4	"empirical insights on organisational sustainability: Exploring the influence of communities of practice and associated technologies"	
10	Peach	Khan et al. (2024b)	137	8	"the role generative ai in human resource management: Enhancing operational efficiency, decision-making, and addressing ethical challenges"	Harnessing artificial intelligence in human resource management for operational excellence, employee well-being, and ethical workforce transformation
		Rick et al.(2024)	70	2	"effects of ai-based technologies on employees' work engagement: Implications for the human-centered design of digital work"	
		Agarwal et al.(2025)	9	0	"artificial intelligence in employee well-being and human resource management"	
11	Light green	Koo et al. (2021)	177	195	"examining the impact of artificial intelligence on hotel employees through job insecurity perspectives"	Balancing technological advancement and workforce well-being: Ai's influence on job security, engagement, and organizational support in the hospitality sector
		Tongkachok et al. (2022)	2	6	"the role of artificial intelligence on organisational support programmes to enhance work outcome and employees behaviour"	

4.   Findings

The objective of this study was to anakyze the intellectual and thematic structure of research on faculty engagement and artificial intelligence (ai) through a bibliometric analysis of publications from 2014 to 2025. The results provide insights into publication and citation patterns, influential contributors, key journals and fields, foundational studies, and emerging research themes. The analysis revealed a steady growth in publications, with a notable surge after 2020. The number of articles increased from 67 in 2023 to 264 in 2025, underscoring the rapid expansion of this research domain. While citation activity peaked in 2021 and stabilized in subsequent years, the pattern suggests that the field is still in a consolidation phase, transitioning from initial conceptual explorations to more applied and practice-oriented research.

In terms of contributions, the findings demonstrate that the research landscape is globally distributed, with slovenia, india, the united kingdom, canada, china, and the united states emerging as the most productive contributors. Interestingly, brazil recorded the highest citation impact despite publishing fewer papers, reflecting the influence of high-quality, collaborative scholarship. This distinction between productivity and citation impact highlights the importance of international collaboration and knowledge networks in shaping the field. Analysis of journals further shows that research is spread across diverse outlets, with multidisciplinary and management-oriented journals dominating in volume. Influential works were concentrated in high-impact journals such as the international journal of information management, journal of business research, and sustainability. At the disciplinary level, management, commerce, and organizational studies led the discourse, followed by computing sciences and information systems, whereas education-focused journals accounted for a smaller but steadily increasing share, indicating a growing pedagogical orientation in the literature.

The intellectual foundation of the domain was shaped by a small set of highly cited studies. Seminal works such as borges et al. (2021), braganza et al. (2020), and koo et al. (2021) received significant citation recognition, confirming their pivotal role in establishing theoretical and practical perspectives on ai adoption, organizational transformation, and faculty engagement. These works continue to serve as anchor points for subsequent research. Furthermore, thematic mapping identified eleven research clusters that collectively illustrate the multidimensional nature of ai–faculty engagement scholarship. These clusters include themes such as ai-driven human resource management, generative ai adoption and trust, technology-enhanced pedagogy, organizational change, gigification of academic work, ethical concerns, decision-making and strategy, institutional policies, digital leadership, workload optimization, and cross-disciplinary collaboration. The breadth of these clusters reflects that ai's impact extends beyond technological applications into pedagogical, organizational, and ethical dimensions of academic engagement. The high total link strength of recent studies further indicates that emerging scholarship is already shaping the future trajectory of the field, making this an evolving and dynamic area of research.

5.   Conclusion

This study makes an attempt to provide a comprehensive bibliometric analysis of research on faculty engagement and artificial intelligence between 2014 and 2025, providing valuable insights into the intellectual foundations, global contributions, and emerging themes in the field. The findings demonstrate that scholarly interest has grown exponentially, particularly after 2020, as higher education institutions increasingly confront the challenges and opportunities presented by ai. The study confirms that research is globally distributed, with both developed and emerging economies making significant contributions, and identifies influential works and journals that continue to shape the discourse. Furthermore, the thematic clusters reveal that the scope of inquiry extends beyond technical adoption to

include organizational transformation, ethics, pedagogy, workload management, and institutional strategy. Taken together, these results underscore that faculty engagement with ai is not merely a matter of technology integration but a multidimensional phenomenon that intersects with leadership, policy, and academic culture.

Despite its contributions, this study has few limitations. First, it relies exclusively on the dimension database, which, while comprehensive, may not capture all relevant publications available in other indexing systems such as scopus , web of science or google scholar. Second, bibliometric analysis is inherently quantitative and does not account for the depth or contextual richness of individual studies.

Building on these findings, future research should adopt a multi-database approach to provide a comprehensive view of the literature. Combining bibliometric analysis with systematic reviews or qualitative meta-syntheses would help capture both structural trends and deeper theoretical insights. Longitudinal studies are also needed to examine how faculty engagement with ai evolves as technologies mature and institutional strategies adapt. Comparative research across disciplines and regions could shed light on context-specific challenges and opportunities, while interdisciplinary approaches integrating educational psychology, ethics, and policy analysis could enrich understanding of the human-centered aspects of ai adoption. Furthermore, case studies at the institutional level may provide actionable insights into best practices for fostering faculty engagement with emerging technologies.

The originality of this study lies in its systematic exploration of the intersection between faculty engagement and artificial intelligence through a bibliometric lens, an area that has received limited attention in the literature. By mapping publication trends, identifying influential works, and uncovering thematic clusters, the study contributes new insights into how research in this domain has evolved and where it is heading. Unlike prior studies that primarily examined ai adoption in education or faculty engagement as separate constructs, this research integrates both perspectives to reveal their interconnectedness. In doing so, it not only consolidates existing knowledge but also highlights underexplored themes such as ethical implications, gigification of academic work, and the strategic role of institutional leadership. These contributions make the study a valuable reference point for scholars, policymakers, and practitioners seeking to understand and advance faculty engagement in the age of artificial intelligence.

Conflict of interest
The authors of this paper declared that they have no conflict of interest to declare

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