

Mapping Research on Artificial Intelligence in Accounting, Taxation and Business Education—A Bibliometric Analysis Using VOSviewer and Scimago Graphica

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Abstract

Artificial intelligence (AI) has become an increasingly influential force in higher education, particularly in accounting, taxation and business education, where digital competence and analytical skills are essential. Although research in this area has expanded rapidly, the existing literature remains fragmented across disciplines and lacks a systematic overview of its intellectual structure and developmental trends. This study addresses this gap by conducting a bibliometric analysis of research on artificial intelligence in accounting, taxation and business education. Publications were retrieved from the Web of Science Core Collection, resulting in a dataset of 131 peer-reviewed journal articles. Bibliometric and visualisation analyses were conducted using VOSviewer and Scimago Graphica to examine publication trends, disciplinary categories, contributing affiliations, geographic distribution and keyword co-occurrence patterns through network, overlay and keyword cloud visualisations. The results reveal a sharp increase in research output since 2021, coinciding with recent advances in generative AI technologies. The literature demonstrates a strong interdisciplinary orientation, spanning education, business, finance and information systems, and exhibits a globally dispersed pattern of research contributions. Keyword-based analyses indicate that research themes cluster around technological foundations, curriculum and institutional transformation, pedagogical innovation, and behavioural and ethical considerations. More recent studies increasingly focus on generative AI applications, such as ChatGPT, alongside issues related to assessment, academic integrity and AI ethics. Overall, this study provides a systematic mapping of the evolving research landscape and offers insights to inform future research agendas and educational practice.

Keywords: Artificial Intelligence, Accounting Education, Business Education, Generative Ai, Bibliometric Analysis, Vosviewer, Scimago Graphica

Introduction

Artificial intelligence (AI) has emerged as a key driver of transformation in higher education, reshaping how knowledge is produced, delivered and assessed (Kumar et al., 2025; Saleem, 2025; Tran, 2025). Recent advances in machine learning and generative AI technologies have expanded the scope of AI applications beyond administrative support and learning analytics to include content generation, personalised feedback and automated assessment (Kaufmann et al., 2024; Tharapos et al., 2025). These developments have intensified scholarly interest in the pedagogical implications of AI, particularly in disciplines where analytical reasoning, professional judgement and digital competence are central to graduate employability (Li & Zhao, 2022; Nithithanatchinnapat et al., 2024).

Accounting, taxation and business education represent domains in which the impact of AI is especially pronounced (Cheng et al., 2024; Mu et al., 2023; Tharapos et al., 2025). These fields are closely aligned with professional standards, regulatory frameworks and industry practices that are themselves undergoing rapid digital transformation. The integration of AI tools into accounting and business education has been associated with changes in curriculum design, assessment strategies and skill development, while also raising concerns related to academic integrity, ethical use and the evolving role of educators. The recent proliferation of generative AI applications, such as ChatGPT, has further intensified these debates, giving rise to a growing body of empirical and conceptual research across education, information systems and business disciplines (Kaufmann et al., 2024; Kremantzis et al., 2025; Nakatani & Jiang, 2025; Taylor et al., 2025).

Despite this expanding body of work, research on AI in accounting, taxation and business education remains fragmented and methodologically diverse. Existing studies often focus on specific technologies, institutional contexts or pedagogical interventions, providing valuable but partial insights (Laptev & Feyzrakhmanova, 2021; Manrique Molina et al., 2025; Pargmann et al., 2025). Although narrative reviews have contributed to understanding particular issues, such as student acceptance or assessment design, they are limited in their capacity to capture broader patterns of knowledge development, collaboration structures and thematic evolution at the field level. Consequently, a systematic and quantitative overview of the research landscape is still lacking.

Bibliometric analysis offers a robust methodological approach to addressing this gap by enabling large-scale examination of publication trends, intellectual structures and research networks within a defined domain (Medina et al., 2022). By combining quantitative indicators with visualisation techniques, bibliometric methods facilitate the identification of influential contributions, dominant research themes and emerging topics over time. Tools such as VOSviewer and Scimago Graphica have been widely employed in educational and interdisciplinary research to map knowledge domains and to reveal relationships that may not be readily apparent through traditional review approaches (Carmo et al., 2023).

Accordingly, this study aims to map the research landscape on artificial intelligence in accounting, taxation and business education through a bibliometric analysis. Drawing on publications indexed in the Web of Science Core Collection, the study employs VOSviewer and Scimago Graphica to analyse publication outputs, geographic distribution, collaboration networks and keyword co-occurrence patterns. By visualising the intellectual structure and

thematic evolution of the field, the study seeks to identify key research hotspots and emerging directions that may inform future scholarship.

The remainder of this paper is organised as follows. Section 2 describes the data sources and bibliometric methods adopted in the analysis. Section 3 presents the main results, including publication trends, collaboration networks and thematic structures. Section 4 discusses the findings and their implications for research and practice in accounting, taxation and business education. Finally, Section 5 concludes the paper by summarising the main contributions, outlining limitations and suggesting avenues for future research.

Methods and Data Source

Bibliometric Methods

Bibliometric analysis is a quantitative research approach that enables the systematic examination of the structure, dynamics and intellectual foundations of a research field. By analysing publication metadata—such as authorship, keywords and citation information—bibliometric methods facilitate the identification of knowledge relationships, research hotspots and thematic evolution within a given domain. Previous studies have shown that visual bibliometric techniques are particularly effective in revealing the underlying knowledge structure and relational patterns of complex and interdisciplinary research areas.

In this study, bibliometric and visualisation analyses were conducted using VOSviewer and Scimago Graphica. VOSviewer is a widely adopted tool for constructing and visualising bibliometric networks, including co-authorship, co-citation and keyword co-occurrence networks. Owing to its user-friendly interface and capacity to generate clear and interpretable network maps, VOSviewer has been extensively employed in education, business and interdisciplinary research. In the present study, VOSviewer was used to analyse collaboration patterns and thematic structures within the literature through network and density visualisations.

Scimago Graphica was employed to complement the network analysis by providing geographic visualisation of publication outputs. This software enables the integration of bibliometric data with spatial representations, thereby facilitating the visual examination of the global distribution of research activity. The combined use of VOSviewer and Scimago Graphica enhances the robustness of the analysis by offering both relational and geographic perspectives on the research landscape.

Overall, the integration of bibliometric techniques with visualisation tools enables a comprehensive mapping of research on artificial intelligence in accounting, taxation and business education, thereby supporting a systematic understanding of the field's intellectual structure and developmental trends.

Data Source and Data Preparation

The bibliometric data analysed in this study were retrieved from the Web of Science Core Collection, which is widely recognised for its rigorous indexing standards and extensive coverage of high-quality academic literature. To ensure thematic relevance and data consistency, a topic-based search was conducted using the following query: (“artificial intelligence” OR “machine learning” OR “generative AI” OR “ChatGPT”) AND (“accounting

education" OR "taxation education" OR "tax education" OR "finance education" OR "business education"). To enhance the reliability of the dataset and to focus on original research contributions, document types such as review articles, proceedings papers and book chapters were excluded.

Following the application of the search criteria and exclusion filters, a total of 131 peer-reviewed journal articles were identified and included in the final dataset. The records were exported in plain text format, including full bibliographic information and cited references, to ensure compatibility with VOSviewer and Scimago Graphica. Before analysis, the data were screened to remove incomplete records and to ensure consistency in author names and keywords. The resulting dataset provided a reliable empirical basis for conducting bibliometric and visualisation analyses, enabling the systematic exploration of publication trends, collaboration networks and thematic patterns in research on artificial intelligence in accounting, taxation and business education.

Results

This section presents the results of the bibliometric and visualisation analyses of research on artificial intelligence in accounting, taxation and business education. To provide a comprehensive overview of the research landscape, the results are organised into seven analytical dimensions. First, publication trends over time are examined to illustrate the temporal evolution of scholarly output in this field. Second, the disciplinary categories of the retrieved studies are analysed to identify the major subject areas involved. Third, contributing affiliations are examined to highlight leading institutional actors. Fourth, the geographic distribution of publications is analysed to reveal global patterns of research participation. Fifth, a keyword co-occurrence network is constructed to identify core research themes and their interrelationships. Sixth, a keyword co-occurrence overlay analysis is conducted to capture the temporal dynamics and emerging topics within the field. Finally, a keyword cloud map is used to visualise the relative prominence of high-frequency terms. Taken together, these analyses provide a systematic and multi-dimensional understanding of the intellectual structure, thematic focus and developmental trends of the literature.

Publication Years

The temporal distribution of publications is presented in Figure 1, illustrating the evolution of research on artificial intelligence in accounting, taxation and business education. As shown, scholarly output in this field remained extremely limited prior to 2018, with only sporadic publications recorded between 2006 and 2011. From 2018 onwards, a gradual increase in publication activity can be observed, indicating the initial emergence of sustained academic interest in AI-related applications within these educational domains.

A pronounced acceleration occurred after 2021, with the number of publications rising sharply. The period from 2023 to 2025 accounts for the majority of the retrieved literature, reflecting a rapid expansion of research activity. In particular, publications in 2025 represent the peak year, comprising nearly half of the total dataset. This surge suggests a strong scholarly response to recent advancements in artificial intelligence, especially the widespread diffusion of generative AI technologies in educational contexts.

Overall, the publication trend indicates that research on artificial intelligence in accounting, taxation and business education is a relatively recent but rapidly developing field. The concentration of studies in the most recent years highlights the increasing relevance of AI to professional education and underscores the dynamic and evolving nature of this research area.

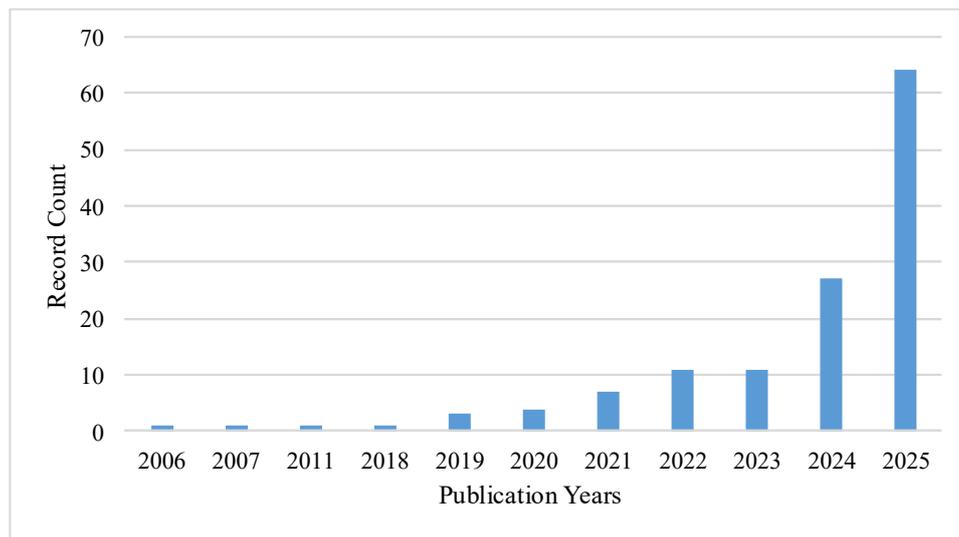


Figure 1: Publication Years

Categories of the Study

The disciplinary distribution of the retrieved publications is presented in Table 1, based on the Web of Science subject categories. As shown, the literature on artificial intelligence in accounting, taxation and business education spans multiple academic domains, reflecting the interdisciplinary nature of this research field.

The largest proportion of publications falls within Education & Educational Research, accounting for over one-third of the total dataset. This indicates that AI-related studies in accounting, taxation and business education are predominantly framed from educational research perspectives, with a strong emphasis on pedagogy, learning outcomes and instructional design. In addition, substantial contributions are observed in Management, Business Finance and Business, which together represent a considerable share of the publications. The prominence of these categories suggests that research in this field is closely aligned with managerial practices, professional competencies and the evolving demands of business and financial education.

Furthermore, Computer Science & Information Systems constitutes a notable category, highlighting the technological foundations underpinning AI applications in educational contexts. Although representing a smaller proportion compared with education- and business-oriented categories, its presence underscores the role of information systems and computational approaches in shaping AI-enabled educational practices.

Overall, the category distribution demonstrates that research on artificial intelligence in accounting, taxation and business education is inherently interdisciplinary, bridging educational research with business, finance and information systems. This cross-disciplinary

orientation reflects the complexity of integrating AI technologies into professional education contexts.

Table 1

Categories of the Study

Web of Science Categories	Record Count	% of 131
Education & Educational Research	46	35.115
Management	23	17.557
Business Finance	22	16.794
Business	21	16.031
Computer Science & Information Systems	13	9.924

Top Contributing Affiliations

The leading contributing affiliations are presented in Table 2. As shown, research on artificial intelligence in accounting, taxation and business education is produced by a diverse range of institutions, with no single organisation dominating the field. The University System of Ohio emerges as the most productive affiliation, accounting for the highest number of publications in the dataset. Several other large public university systems in the United States, including the California State University System, the State University System of Florida and the Pennsylvania Commonwealth System of Higher Education, also feature prominently among the top contributors.

In addition to these multi-campus systems, a number of individual universities make notable contributions. Institutions such as Bentley University, Case Western Reserve University, Rutgers University and the Royal Melbourne Institute of Technology (RMIT) illustrate the engagement of both research-intensive and professionally oriented universities in this research area. Furthermore, the presence of institutions from Europe, Asia and the Middle East, including the Bucharest University of Economic Studies, Fuzhou University of International Studies and Trade and the Egyptian Knowledge Bank, indicates an increasingly international participation in AI-related research within accounting and business education.

Overall, the affiliation distribution suggests that research activity in this field is institutionally dispersed rather than concentrated within a small number of elite universities. This pattern reflects the applied and interdisciplinary character of artificial intelligence in professional education, which attracts contributions from a broad spectrum of higher education institutions across different regions.

Table 2

Top Contributing Affiliations

Affiliations	Record Count	% of 131
UNIVERSITY SYSTEM OF OHIO	7	5.344
CALIFORNIA STATE UNIVERSITY SYSTEM	4	3.053
FUZHOU UNIV INT STUDIES TRADE	4	3.053
STATE UNIVERSITY SYSTEM OF FLORIDA	4	3.053
BENTLEY UNIVERSITY	3	2.29
BUCHAREST UNIVERSITY OF ECONOMIC STUDIES	3	2.29
CASE WESTERN RESERVE UNIVERSITY	3	2.29
EGYPTIAN KNOWLEDGE BANK EKB	3	2.29
PENNSYLVANIA COMMONWEALTH SYSTEM OF HIGHER EDUCATION PCSHE	3	2.29
ROYAL MELBOURNE INSTITUTE OF TECHNOLOGY RMIT	3	2.29
RUTGERS UNIVERSITY NEW BRUNSWICK	3	2.29
RUTGERS UNIVERSITY SYSTEM	3	2.29

Publication Countries

The geographic distribution of publications is illustrated in Figure 2, which visualises the countries contributing to research on artificial intelligence in accounting, taxation and business education. As shown, scholarly output in this field exhibits a broad global distribution, spanning North America, Europe, Asia, Oceania, as well as parts of Africa and South America. This pattern reflects widespread international interest in the educational implications of artificial intelligence within accounting and business-related disciplines.

North America emerges as a prominent contributor, with the United States and Canada demonstrating substantial research activity. In Europe, contributions are observed across both Western and Eastern regions, including countries such as the United Kingdom, Germany, Spain and Italy, alongside several Nordic and Eastern European nations. These findings indicate that research on AI-enabled accounting and business education has gained considerable traction within established higher education systems.

Asia represents another major centre of research activity. Countries including China, Japan and India, together with several Southeast Asian nations, show notable participation, highlighting the growing engagement of both emerging and developed Asian economies in AI-related educational research. Contributions from Oceania, particularly Australia and New Zealand, further demonstrate the involvement of professionally oriented education systems in this research domain. In addition, publications from parts of Africa and South America, although more limited in scale, indicate an expanding geographical reach and increasing inclusivity of global research efforts.

Overall, the distribution of publication countries suggests that research on artificial intelligence in accounting, taxation and business education is globally dispersed rather than regionally concentrated. This international pattern underscores the broad relevance of AI-driven transformation in professional education and points to potential opportunities for cross-national collaboration and comparative research in future studies.

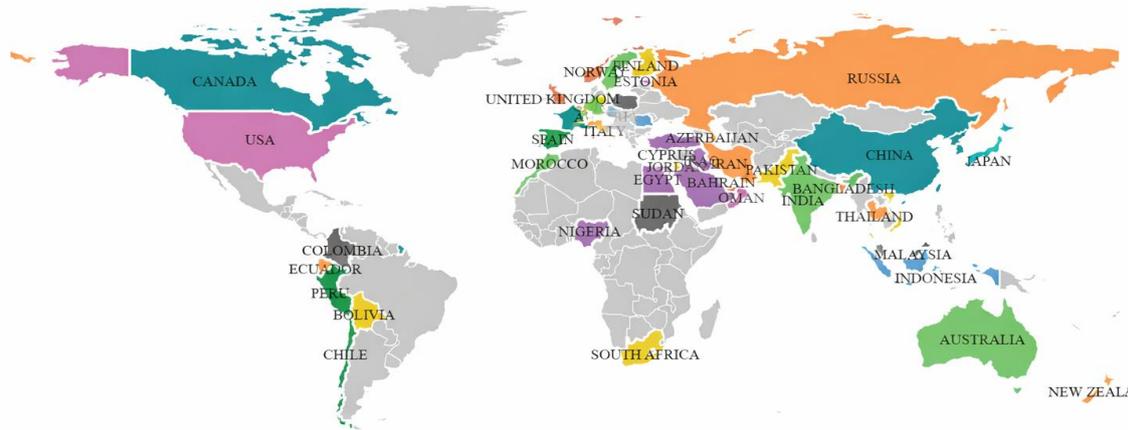


Figure 2: The Publication Countries

Keyword Co-Occurrence Network

Figure 3 presents the keyword co-occurrence network generated using VOSviewer, illustrating the intellectual structure and thematic composition of research on artificial intelligence in accounting, taxation and business education. In this network, node size represents keyword frequency, link thickness indicates co-occurrence strength, and different colours denote distinct thematic clusters.

As shown in the figure, “artificial intelligence”, “accounting education” and “business education” occupy central positions within the network, indicating their role as core concepts linking multiple research themes. Surrounding these central nodes, several interrelated clusters can be identified. One prominent cluster centres on educational transformation and curriculum-related themes, incorporating keywords such as curriculum, curriculum design, curriculum reform, digital transformation and AACSB. This cluster reflects institutional- and programme-level responses to the integration of AI into accounting and business education.

Another cluster focuses on technology adoption and analytics-oriented themes, including terms such as big data, big data analytics, blockchain, deep learning and machine learning. This cluster highlights the technological foundations underpinning AI applications in accounting and business education. A further cluster relates to pedagogical approaches and learning design, with keywords such as experiential learning, active learning, gamification, assessment and educational technology, indicating increasing scholarly attention to student-centred and technology-enhanced instructional strategies.

In addition, a cluster associated with behavioural and ethical considerations is evident, encompassing keywords such as trust, behavioural intention, AI ethics and technology acceptance. This cluster points to growing interest in human–AI interaction and ethical challenges within educational contexts. Overall, the keyword co-occurrence network reveals a well-connected and multidisciplinary research structure that integrates technological, pedagogical, institutional and behavioural perspectives.

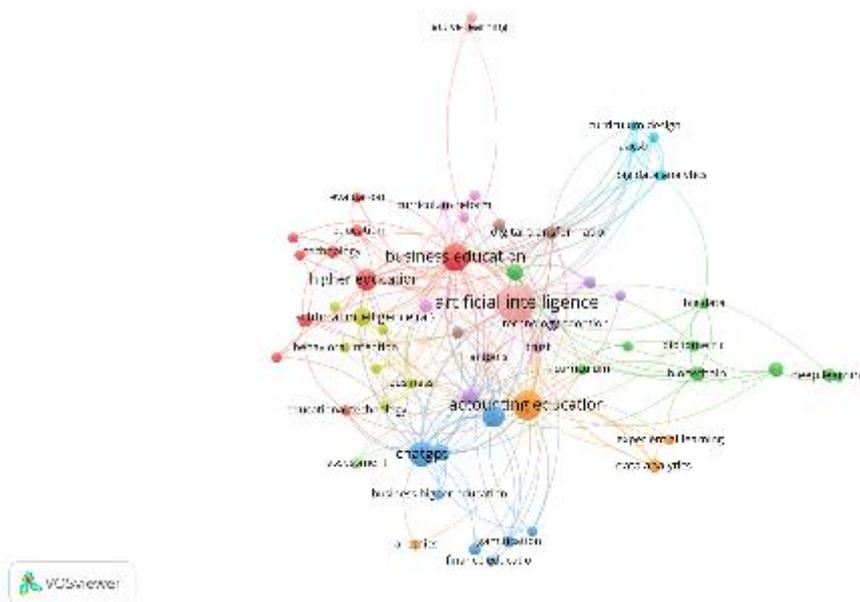


Figure 3: Keyword Co-Occurrence Network.

Keyword Co-Occurrence Overlay

Figure 4 presents the keyword co-occurrence overlay visualisation, which illustrates the temporal evolution of research themes based on the average publication year of keywords. In this visualisation, colour gradients represent the relative recency of topics, with lighter colours indicating earlier research emphases and darker colours corresponding to more recent and emerging themes.

The overlay analysis indicates that earlier studies tended to concentrate on foundational concepts such as big data analytics, curriculum design and accreditation-related issues. These themes reflect initial efforts to align accounting and business education with data-driven approaches and digitally oriented skill requirements. Over time, scholarly attention gradually shifted towards broader themes of digital transformation and technology adoption, suggesting a transition from the use of isolated technological tools to more systemic forms of educational change.

More recent research is characterised by the increasing prominence of keywords associated with generative and interactive AI, including ChatGPT, generative AI, AI tools and large language models. These keywords are closely linked with pedagogical and ethical considerations such as assessment, AI ethics, critical thinking and student perceptions, indicating a growing focus on the implications of generative AI for teaching practices, learning outcomes and academic integrity. This temporal pattern points to an evolution from predominantly technology-oriented exploration towards a more integrated examination of pedagogical, ethical and institutional dimensions.

Taken together, the overlay visualisation highlights the dynamic development of research on artificial intelligence in accounting, taxation and business education, revealing a shift from early analytical and curriculum-focused concerns to contemporary debates surrounding generative AI and its broader impact on higher education.

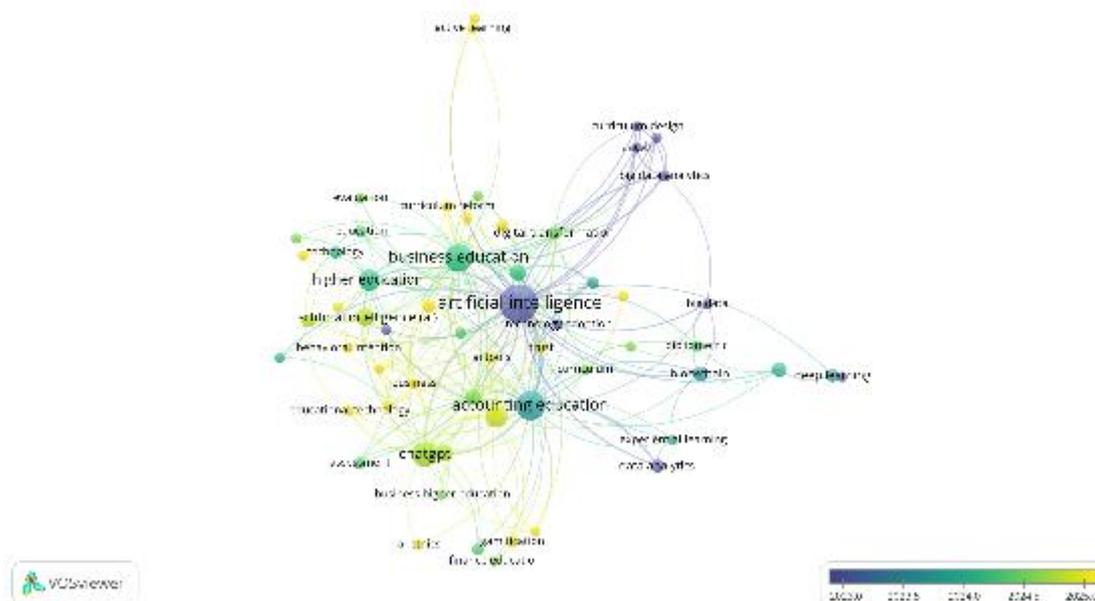


Figure 4: Keyword Co-Occurrence Overlay

Keyword Cloud Map

Figure 5 presents the keyword cloud map, which visualises the relative prominence of high-frequency keywords across the analysed literature. Unlike network-based visualisations, the keyword cloud emphasises the salience of terms according to their occurrence frequency, with larger font sizes indicating greater prominence. Different colours represent thematic clusters identified in the keyword co-occurrence analysis.

As shown in the figure, “artificial intelligence” emerges as the most dominant keyword, underscoring its central role in shaping the research landscape. Closely associated high-frequency terms include “accounting education”, “business education” and “higher education”, highlighting a strong focus on professional and tertiary educational contexts. The prominence of “ChatGPT” and “generative artificial intelligence” further reflects growing scholarly attention to generative AI technologies and their implications for teaching and learning practices.

In addition, several keywords related to curriculum and educational transformation—such as curriculum design, curriculum reform, digital transformation and AACSB—appear prominently in the cloud, indicating sustained interest in programme-level adaptation and accreditation-oriented considerations. Keywords associated with pedagogical strategies and learning processes, including assessment, active learning, experiential learning and gamification, also feature strongly, pointing to an increasing emphasis on instructional innovation in AI-enabled education.

Technological and analytical terms, such as big data analytics, blockchain, machine learning and data analytics, further illustrate the integration of advanced digital technologies into accounting and business education research. Meanwhile, the presence of keywords related to ethical and behavioural dimensions—including AI literacy, technology acceptance, trust

This interdisciplinary positioning reflects the dual role of accounting and business education as both academic and practice-oriented fields, in which curriculum design must respond simultaneously to educational objectives and industry-driven technological change.

Third, the analysis of contributing affiliations and publication countries reveals a geographically and institutionally dispersed research landscape. Rather than being dominated by a small number of elite institutions or regions, research activity is distributed across diverse higher education systems worldwide. This dispersion suggests that the integration of AI into accounting and business education constitutes a global concern shaped by varied institutional contexts and educational traditions. At the same time, the relatively strong presence of institutions from North America, Europe and Asia indicates that research capacity and digital readiness continue to influence patterns of scholarly output.

More importantly, the keyword co-occurrence analyses provide insight into the intellectual structure of the field. The network visualisation shows that research themes cluster around several interconnected dimensions, including technological foundations (e.g. machine learning, big data analytics and blockchain), curriculum and institutional transformation (e.g. curriculum reform, accreditation and digital transformation), pedagogical innovation (e.g. experiential learning, assessment and gamification), and behavioural and ethical considerations (e.g. trust, technology acceptance and AI ethics). The central positioning of “artificial intelligence”, “accounting education” and “business education” underscores the integrative nature of the field, in which technological developments are closely intertwined with educational design and professional development (Nithithanatchinnapat et al., 2024).

The overlay analysis further reveals a clear temporal shift in research focus. Earlier studies tended to emphasise data-driven technologies and curriculum alignment, reflecting initial efforts to incorporate emerging digital tools into accounting and business programmes. More recent research increasingly concentrates on generative AI applications, such as ChatGPT and large language models, alongside issues related to assessment, academic integrity, AI literacy and ethical use (Cheng et al., 2024; George et al., 2025; Tenakwah et al., 2025). This shift suggests that the research agenda is moving beyond questions of technological feasibility towards a more critical examination of how AI reshapes teaching roles, learning processes and educational values.

From a theoretical perspective, these findings indicate that research on AI in accounting and business education is transitioning from a technology-centred phase to a more holistic socio-technical orientation. Rather than conceptualising AI as a standalone instructional tool, recent studies increasingly situate it within a broader educational ecosystem encompassing curriculum design, institutional governance and human–AI interaction (Alwakid et al., 2025; Xiong & Bao, 2025). This evolution creates opportunities for future research to engage more deeply with learning theories, professional identity formation and ethical frameworks.

From a practical perspective, the results carry important implications for educators and policymakers. The prominence of curriculum- and pedagogy-related themes suggests that effective AI integration requires systematic curricular planning rather than isolated technological adoption. At the same time, the growing attention to assessment and ethics highlights the need for clear institutional guidelines and support mechanisms to ensure the

responsible and pedagogically sound use of AI tools in accounting and business education (Anderson et al., 2025).

Despite its contributions, this study has several limitations. The analysis is based on publications indexed in the Web of Science Core Collection and limited to English-language journal articles, which may exclude relevant studies published in other languages or indexed in alternative databases. In addition, bibliometric analysis captures structural patterns in the literature but does not assess the quality or pedagogical effectiveness of individual studies. Future research could address these limitations by incorporating multiple databases, conducting qualitative or mixed-method reviews, or undertaking empirical investigations into classroom practices and learning outcomes.

Overall, this study advances understanding of the evolving research landscape on artificial intelligence in accounting, taxation and business education. By mapping key themes, temporal trends and structural relationships, it provides a foundation for future theoretical development and empirical inquiry in this rapidly expanding field.

Conclusion and Limitations

This study set out to provide a comprehensive bibliometric overview of research on artificial intelligence in accounting, taxation and business education. Drawing on publications retrieved from the Web of Science Core Collection and employing VOSviewer and Scimago Graphica, the study mapped publication trends, disciplinary distributions, institutional and geographic contributions, as well as the thematic structure of the literature. By integrating network, overlay and keyword cloud visualisations, the analysis offers a systematic and multi-dimensional perspective on the development of this rapidly evolving research field.

The findings show that research on artificial intelligence in accounting and business education has expanded sharply in recent years, particularly following the emergence of generative AI technologies. The interdisciplinary distribution of publications demonstrates that this field lies at the intersection of education, business, finance and information systems, reflecting the complexity of AI integration in professional education. In addition, the geographically dispersed pattern of contributing institutions and countries highlights the global relevance of AI-driven transformation across diverse educational contexts.

Keyword-based analyses further indicate that the intellectual structure of the field is shaped by the convergence of technological innovation, curriculum transformation and pedagogical development. While earlier studies focused primarily on data analytics and curriculum alignment, more recent research increasingly addresses generative AI tools, assessment practices, ethical considerations and human–AI interaction. This shift suggests a gradual maturation of the research agenda, moving from exploratory adoption towards more critical and reflective engagement with the educational implications of artificial intelligence.

Despite these contributions, several limitations should be acknowledged. First, the analysis is restricted to English-language publications indexed in the Web of Science Core Collection, which may exclude relevant studies published in other languages or indexed in alternative databases. Second, bibliometric approaches rely on publication metadata and frequency-based indicators, which reveal structural patterns in the literature but do not assess the

quality, pedagogical effectiveness or contextual depth of individual studies. Third, keyword-based analyses are influenced by authors' terminological choices, which may lead to the fragmentation of conceptually related themes.

Future research could address these limitations by incorporating multiple bibliographic databases, conducting qualitative or mixed-method systematic reviews, or combining bibliometric analysis with empirical investigations into teaching practices and learning outcomes. In particular, further studies could examine how generative AI is reshaping assessment design, professional competencies and ethical frameworks in accounting and business education. By extending beyond structural mapping towards theory-driven and practice-oriented inquiry, future research can build on the foundation established by this study to advance understanding in this important and dynamic field.

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