

Accounting education: an analysis of trends in the literature

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349

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Abstract

Purpose – There is limited understanding to date of the scope of research around accounting education. The purpose of this paper is to adumbrate and take stock of the key topics of interest and most influential authors in these fields during this period. In doing so, this paper identifies the emerging trends.

Design/methodology/approach – This study analyses 1,440 articles in accounting education to establish the key contributions made in accounting education from 1960 to 2023 across 262 accounting and business education-related journals. The authors use the method of keyword co-occurrence analysis, resulting in 11 topic clusters that represent shared connections between research topics. The authors triangulate this analysis using NVivo, VOSviewer and Kumu.

Findings – *Accounting Education* journal publishes the most, while David Stout is the most cited author. Emerging topics and trends relate to instructional and student factors influencing academic performance, the skills students develop and innovations and changes to the accounting curriculum. A range of employability skills, including ethical reasoning, also strongly featured, as well as curriculum-related research in areas such as delivery modes, student engagement and teaching methodologies.

Originality/value – To the best of the authors' knowledge, this study is the most comprehensive analysis of the accounting education literature to date. In the analysis, the authors also offer researchers and practitioners a closer look at where the discipline is likely heading and which subject interest areas are promising or waning.

Keywords Accounting, Accounting education, Accounting curriculum, Accounting profession, Network visualisation, Thematic analysis

Paper type Research paper

1. Introduction

Accounting and financial information helps organisations assess goals against performance for the purpose of maximising revenue, reducing costs, improving productivity or aligning financial activities with organisational objectives (CPA Australia, 2021; Flavin, 2021). Learning how to *communicate* accounting information is key to a sound commerce education



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([Highviolet, 2020](#); [Low et al., 2013](#)). In recent years, there have been changes to accounting education to meet industry demands and to keep up to date with advances in the accounting professions. This ensures a strong alignment between accounting theory and practice. However, there is limited understanding to date of the scope of research around accounting education. We aim to address this paucity in research by using qualitative software and large data visualisation tools to analyse a comprehensive dataset of articles published since the 1960s across a variety of accounting and business journals.

Accounting and finance education involves teaching a range of skills, adapting to different workplace environments, dealing with professional and personal challenges and providing graduates with a good understanding of financial literacy related to saving and investing ([Low et al., 2013](#)). As Zucchi notes, financial knowledge is important for managing short- and long-term financial goals ([Zucchi, 2021](#)). [Huston \(2010\)](#) categorises these areas into two main teachable components: knowledge elements; and the ability to *apply* the skills acquired (or application elements).

The accounting professional requires upskilling in a number of areas. These include accounting standards and practice and the requirements of registration bodies, associations and training organisations. Education-related changes are also a response to changes in accounting practice. This includes changes in industry shifts, compliance, technology, client needs and ways of working ([Business Fitness, 2020](#); [CPA Australia, 2021](#)). COVID-19 has resulted in a number of challenges such as the impact of the pandemic on entities' financial statements and changes to financial reporting ([Sheerin, 2021](#); [NSW Government Treasury, 2021](#)) and skills required to operate in a COVID-19 environment ([Wilkins, 2021](#)). In addition to making curriculum changes that build students' repertoire of technical and employability skills ([Boyd, 2021](#); [Milford, 2019](#)), future professionals in the post-COVID world are also required to be flexible and resilient in managing unanticipated changes ([International Federation of Accountants, 2021](#); [Muldowney, 2021](#)). Virtual teams, online collaborations, cloud-based technologies, changing fee structures and client relations (e.g. becoming business advisors) are just some of the areas influencing the role of accounting professionals ([CPA Australia, 2021](#)). This study details the publication characteristics in accounting education and outlines the future directions, emerging topics and trends, and their co-occurrence.

2. Literature review

Studies outlining the scope of research in the field have been published before. [Apostolou et al. \(2021\)](#) reviewed 88 articles published during 2020 in five journals. They reviewed the scope of finance and accounting articles using five key categories: "accounting education," "curriculum and instruction," "instruction by content area," "educational technology," "students, and faculty." Their 2020 paper, one of 16th in a series, classifies articles as either empirical or descriptive. Their annual publications in this area have been authoritative in terms of consistently classifying articles published under these categories. The present study differs, as it analyses all available articles in accounting education to date. It is not limited to five key journals.

Models of accounting education also pervade, with some consisting of teaching and learning loops, cognitive processes, technological support and skills outcomes ([Needles and Anderson, 1991](#); [Needles, 2014](#); [Wilson, 2014](#)). The current literature is also predominantly focused on developing both soft and technical skills ([Babu and Barghathi, 2020](#)), as it has been in the past, and calls persist for accounting education to address employability issues as well as incorporating alternative forms of assessment. However, to our knowledge, there has been no comprehensive study on curriculum changes in accounting education to describe

these patterns over time. The emergence of big data also increases the challenge among accounting instructors, curriculum designers and program directors to fully equip accounting students with the right skills for their future jobs (Dewu and Barghathi, 2019). We aim to address this by uncovering the key players and emerging trends over time. This will provide a greater understanding of not only thought leaders in accounting education but also reveal strategic partnerships, the global nature of research in accounting education, knowledge flows and impactful papers.

3. Research methods

3.1 Data

We performed an articles-only search on 18th September 2023 using both Scopus and Web of Science (WoS) with the key term *accounting education*. Scopus revealed 1,450 articles and WoS, 890 articles. Business-related areas accounted for 124 papers (Scopus) and 54 (WoS). Combining the Scopus data and ignoring the WoS data, we found one duplicate entry which was deleted. Ten incorrect data entries were also deleted. We then proceeded with cross-validation by examining each abstract to ensure that they related to our two search terms. Data extraction and analysis was performed separately by the two researchers. Our final data set comprised 1,440 articles across 262 journal titles relating to accounting education. This included all metadata available such as authors, affiliations, titles, author keywords and abstracts. It included only articles that were published in business and related subject classification areas and excluded those in unrelated areas (e.g. medicine and engineering). This resulted in 32 articles with no abstracts available, 279 articles without author keywords and 1,420 articles with no index keywords. A total of 5,267 author keywords were found.

3.2 Data analysis

We used three methods of analysis using the visualisation tools available in Excel, NVivo and Datawrapper. Excel was first used to analyse source titles, cited articles and author keywords. This enabled us to find the most discussed topics, emerging topics and trends in the accounting and finance education literature and other relevant business and higher education journals. In analysing author profiles, we followed a method similar to Lu (2003) by assigning equal credit points for authors: that is, 1 point was given to an author for a solo article, 0.50 points for each author in a co-authored article and 0.33 points was given for each author for papers with three authors, 0.25 points for papers with four authors and so on (Table 2, under “Points” column). We then used NVivo to identify themes detected across each of the abstracts. NVivo is an analysis tool used for organising and analysing unstructured qualitative data (QSR International, 2021). This allowed us to identify major themes and sub-themes in abstracts unavailable to us when analysing them in Excel. Finally, we used Datawrapper, an online visualisation software capable of presenting interactive diagrams to present our findings from both Excel and NVivo.

We also used network analysis to learn more about topics and authors using author keywords and author names. We analysed this data in Kumu. Kumu is an online visualisation and network analysis tool used for large data sets. It uses the Speaker-listener Label Propagation Algorithm for detecting overlapping communities. Communities are item groups within a network that share similar characteristics and interact well with one another by way of association with other items (e.g. groups of authors that tend to work on the same topics or group of keywords that tend to be used together more frequently) (Bedi and Sharma, 2016). Finally, we used VOSviewer to detect and create co-author and keyword co-occurrence maps to show the extent of co-authorship, organisations and countries mentioned

in publications. VOSviewer is a software tool for visualising bibliometric networks. Unlike Kumu communities, clusters in VOSviewer are non-overlapping, which means that an item (e.g. an author) can only belong to one cluster. This is particularly useful in identifying specific networks of authors, organisations or countries to display collaboration networks.

4. Findings

This section has three parts. We first discuss publication characteristics to understand journal and author profiles, including the results from the keyword analysis, followed by emerging topics and trends. It concludes with co-occurrence and co-author networks to determine the connections between authors and keywords, including countries of origin where those collaborations exist.

4.1 Publication characteristics

4.1.1 Journal titles. Most of these articles, unsurprisingly, were published in the journal *Accounting Education* (21.46%), followed by *Journal of Accounting Education* (13.40%) and *Issues in Accounting Education* (5.07%). More than 50% of all publications were published in the top ten accounting and accounting education-based journals with the exception of *Journal of Education for Business* (2.99%).

We found the emphasis of research topics varied across the journals. *Accounting Education*, for example, focuses exclusively on areas such as undergraduate accounting students, their perceptions, engagement, performance and the experiences of international students. The *Journal of Accounting Education* focusses on accounting students' performance, perceptions and evaluations. *Issues in Accounting Education*, *Accounting Research Journal*, *Asian Review of Accounting* and *Meditari Accounting Research* also publish papers on student engagement and performance. Literature reviews are also a feature of the *Journal of Accounting Education*, while an emphasis on professional accounting education and international education standards is associated with *Accounting Education* and *Issues in Accounting Education*.

4.1.2 Authorship. The top ten most cited articles only have around a hundred citations, an average of 107.4 citations between them (Table 1). The most cited paper is Calero *et al.*'s (2009) article on remittances. Other than remittances, researchers tend to cite topics discussing reporting frameworks, changes in the accounting and finance education practice and ethics.

The most cited authors across journals selected are David E. Stout (466 citations), Barbara Apostolou (441), James E. Rebele (437) and Ken McPhail (406). We attributed the same number of citations to all authors in a co-authored article for ease of analysis.

The most prolific authors in accounting education research are David E. Stout (20 articles), Kim Watty (16) and Satoshi Sugahara (16) (Table 2). We find that Kim Watty has the most credit points overall. Barbara Apostolou has the most published articles as the first author in co-authored pieces and Ken McPhail the most solo articles. Hassall and Stout also appear to have the most co-authored pieces. Overall, to say that an author is a "superstar," this will depend on the metrics used for such evaluation. For example, Stout leads in total publications, citations and as a co-author whereas if credit points are the only metric, then Watty ranks first. But, in the case of Apostolou, her publication output is also remarkable. Of her 15 publications, 14 were published as a lead author and have 441 citations.

4.1.3 Most popular topics. We find that *accounting education* as a keyword represents 10.72% of the most used author keywords. This keyword has been in steady use since the early 1990s. However, there is significant increase in usage since 2009 compared to pre-2009. From 1992 to 2008, there was an average of 5.4 papers published each year using this

Table 1. Most cited articles (top ten)

Rank	Article	Times cited
1	Cheng, M., Green, W., Conradie, P., Konishi, N. and Romi, A. (2014). The international integrated reporting framework: Key issues and future research opportunities. <i>Journal of International Financial Management and Accounting</i> , 25(1), 90-119	131
2	Howieson, B. (2003). Accounting practice in the new millennium: Is accounting education ready to meet the challenge? <i>British Accounting Review</i> , 35(2), 69-103	130
3	Armstrong, M. B. (1987). Moral development and accounting education. <i>Journal of Accounting Education</i> , 5(1), 27-43	128
4	Gray, R., Bebbington, J., and McPhail, K. (1994). Teaching ethics in accounting and the ethics of accounting teaching: Educating for immorality and a possible case for social and environmental accounting education. <i>Accounting Education</i> , 3(1), 51-75	118
5	Lee, T. (1995). Shaping the US academic accounting research profession: The American Accounting Association and the social construction of a professional elite. <i>Critical Perspectives on Accounting</i> , 6(3), 241-261	107
6	Armstrong, M. B. (1993). Ethics and professionalism in accounting education: A sample course. <i>Journal of Accounting Education</i> , 11(1), 77-92	105
7	McPhail, K. (2001). The other objective of ethics education: Re-humanising the accounting profession - A study of ethics education in law, engineering, medicine and accountancy. <i>Journal of Business Ethics</i> , 34, 279-298	102
8	Chiou, C. -C. (2008). The effect of concept mapping on students' learning achievements and interests. <i>Innovations in Education and Teaching International</i> , 45(4), 375-387	97
9	Apostolou, B., Dorminey, J. W., Hassell, J. M., and Watson, S. F. (2013). Accounting education literature review (2010–2012). <i>Journal of Accounting Education</i> , 31(2), 107-162	79
10	Lawson, R. A., Blocher, E. J., Brewer, P. C., Cokins, G., Sorensen, J. E., Stout, D. E., Sundem, G. L., Wolcott, S. K., and Wouters, M. J. F. (2014). Focusing accounting curricula on students' long-run careers: Recommendations for an integrated competency-based framework for accounting education. <i>Issues in Accounting Education</i> , 29(2), 295-317	77

keyword, compared to an average of 34.1 since 2009. This is a significant increase in publications on the topic, showing six times more interest in the past decade compared to previous years. Other than authors using keywords that relate to *education*, the most commonly discussed topic relates to *ethics* (33). Topics of interest in ethics relate mostly to the teaching of ethics. For example, [Miller, Shawver and Mintz \(2020\)](#) investigated ethical decision-making, while [West and Buckby \(2020\)](#) examined ethics education.

4.1.4 Keywords analysis. For triangulation purposes, we compared these Excel results with our NVivo analysis, which examines author keywords and titles and abstracts. We found that the results were consistent. For example, *accounting education* was the most-used keyword in abstracts among 1,230 articles from 1960 to 2023.

Note that a “reference” in NVivo means *frequency of occurrence*. A reference in an abstract, for example, may mean a topic discussed in the actual article (e.g. “In this paper, we examine accounting education[...]”) or mention of related work (e.g. “Accounting education discussed in recent studies[...]”) or mention of unrelated work entirely (e.g. “In contrast to accounting education, we want to focus on [something else]”).

Unsurprisingly, after *accounting education*, the next most prominent keywords/topics in NVivo used by authors relate to *students*. This is followed by the keywords *academic performance* and *accounting profession* (same rank) and *curriculum*. Most recent investigations around academic performance, for example, relate to the acquisition of technical skills ([Campbell et al., 2020](#)), such as writing ([Omodero and Adetula, 2021](#)).

Table 2. Most published authors (top 20)

No. (a)	Full name (b)	Abbreviated name (c)	As solo, first or co-author (d)	As a solo author (e)	As the first author in a co-authored article (f)	As a co-author but not as first author (g)	Points* (h)	Citations (i)
1	Stout, David E.	Stout D.E.	20	1	7	12	7.77	466
2	Watty, Kim	Watty K.	16	4	5	7	7.84	271
3	Sugahara, Satoshi	Sugahara S.	16	2	11	3	7.28	110
4	Apostolou, Barbara	Apostolou B.	15	0	14	1	4.00	441
5	Hassall, Trevor	Hassall T.	14	0	3	11	3.98	231
6	Rebele, James E.	Rebele J.E.	13	1	5	7	4.42	437
7	Sangster, Alan	Sangster A.	12	4	3	5	6.92	150
8	Jackling, Beverley	Jackling B.	12	1	4	7	4.78	194
9	Dellaportas, Steven	Dellaportas S.	12	1	2	9	4.45	112
10	de Lange, Paul	de Lange P.	12	0	3	9	3.37	187
11	Joyce, John	Joyce J.	11	0	1	10	2.64	220
12	Fogarty, Timothy J.	Fogarty T.J.	10	4	4	2	6.83	70
13	Ferguson, John	Ferguson J.	8	1	5	2	2.70	163
14	McGuigan, Nicholas	McGuigan N.	8	1	2	5	3.70	45
15	Paisey, Catriona	Paisey C.	8	0	6	2	3.83	123
16	Reinstein, Alan	Reinstein A.	8	0	4	4	3.33	52
17	McPhail, Ken	McPhail K.	7	5	1	1	5.67	406
18	Boyce, Gordon	Boyce G.	7	3	2	1	4.33	236
19	Marriott, Neil	Marriott N.	7	1	3	4	3.08	112
20	Opdecam, Evelien	Opdecam E.	7	0	3	4	2.75	62

Publications in recent years have primarily examined accounting standards, changes in assessment practices in accounting education and broader changes to the accounting curriculum. Oddly, technical skills are not among the most discussed topics in finance education. We surmise that the reason for this is the low number of published articles in finance education generally and the emphasis in the discipline on financial literacy and personal finance specifically.

4.2 *Emerging topics and trends*

The major topics discussed in the literature include: instructional and student factors influencing academic performance, the skills students develop and innovations and changes in the accounting curriculum (including assessment, the integration of ethics, the International Financial Reporting Standards [IFRS] and auditing).

4.2.1 Instructional and student factors influencing academic performance. Results from our Excel analysis indicate that accounting education researchers focus principally on teaching and learning methodologies and human factors that impact students' academic performance. This is unsurprising. These investigations mainly test differences in academic performance by gender, the different majors, learning styles, prior knowledge, year of study and domestic versus international students, such as female students performing better than males in their *locus of control* in financial literacy (Callaghan and Papageorgiou, 2015) or how adopting one learning style produces better assessment outcomes than other styles (Tan and Laswad, 2015). Examples of these methodologies include experiential learning, active learning and blended learning. They also investigate different modes of delivery and different learning styles. Some authors use "fair play" to allow students to discuss and exchange ideas in learning ethics and cross-cultural frameworks (Witte and Daly, 2014); others use simulations in finance (Marriott, Tan, and Marriott, 2015) and reflective journaling exercises (McGuigan and Kern, 2009). Active learning examples include visual-based instruction (Cook and Hazelwood, 2002) and using case studies (Adler, Whiting and Wynn-Williams, 2004). Other authors have examined learning styles (Adler *et al.*, 2004; McKee, Mock, and Ruud, 1992; Tan and Laswad, 2015), presenting the view that students who use logical approaches to thinking perform better than those who use intuition or divergent perspectives. Learning styles investigations included students' development of key skills (e.g. problem-solving, critical thinking), individual differences, cultural factors and their effects on academic performance, as well as the interaction between learning styles and teaching methodologies.

4.2.2 Skills students develop. Learning styles are essential to skill development in the workplace. Other than problem-solving and critical thinking (Calma and Davies, 2020), research progresses on a number of other important skills for graduates of accounting and finance. These include technical and non-technical skills, sometimes referred to as "hard" and "soft" skills, that is, generic, transferable or employability skills. Specific skills include communication (including professional communication), creative thinking, teamwork, interpersonal, analytical, financial literacy, information communication technology and exercising professional judgment. For example, some researchers who investigate critical thinking do so by proposing empirical methods to assess if their teaching of such skills is effective or not (Wolcott *et al.*, 2002) and if students are developing them (Mohd Ariff, Sharif and Abdullah, 2018; Weil *et al.*, 2013). In terms of communication skills, some have used intervention methods to assess student's problems with grammar, clarity and concision (Stout and DaCrema, 2004), while others investigated the association between communicative competence acquired and students' academic performance (Gardner *et al.*, 2005).

4.2.3 Innovations and changes in the accounting curriculum. Also salient in our Excel and NVivo analysis is the importance of curriculum. Results indicate that most curriculum

research relates to accounting students and changes to the accounting education curriculum. Examples include discussions around ethics, or its incorporation in the curriculum, assessment innovations and gender differences in academic performance. The influence of accounting research on the curriculum and specific changes to auditing education are also present in our analysis of the literature. Examples of innovations include the inclusion of contemporary topics and the application of concepts to solve real-world problems faced by accounting professionals (Tan, 1994; van den Brink *et al.*, 2003). Studies that involve gender relate primarily to gender differences and academic performance (Weil *et al.*, 2001; Gammie *et al.*, 2003; McDowall and Jackling, 2006).

4.2.4 Trends (five years). Emerging topics trend analysis was limited to five-year periods, that is, sub-themes emerging for each five-year period particularly since 1990. We found that research focused on *students*, with a particular emphasis on *accounting students*, followed by discussions around *curriculum* changes and improvements.

The research interests in the top emerging topics that trended upward until the mid-2010s included curriculum/accounting curriculum, as well as *academic performance* and *assessment*. However, there is a marked decline in interest in *students/accounting students*, *ethics* and the *accounting profession*. For example, from 2004 to 2014, we observed a broad range of topics falling under the research area of *ethics*. The most prominent topics investigated are on how to identify ethical dilemmas, issues and conflicts and how to make effective ethical decisions. Other topics included introducing ethics in accounting education courses and the role of ethics in pursuing community or public interest activities in a socially responsible way. From 2015 to 2019, however, the focus shifted to integrating ethics in accounting education and addressing ethical dilemmas, bribery and student plagiarism. Earlier studies on ethics focused on the foundations and fundamentals, while later articles emphasised specific applications of ethical concepts in practice. We also observed that the remaining prominent topics, highlight research on gender, accounting as an academic discipline and blended learning. The latter has been influenced by the COVID-19 pandemic and the shift to online accounting education, which was accompanied by a shift to blended learning.

The declining interest in *students/accounting students* and *ethics* research is perhaps explained by a more concentrated number of highly focussed publications. For example, *ethics* becomes concentrated on ethical training and integration of ethical considerations into the workplace. The topics of *students/accounting students* has developed into how students are trained in ethics in preparation for professional practice.

We also examined what scholars investigate when we mean *students/accounting students* as a major category. We extracted the top 25 sub-themes under the “students” theme from NVivo to better indicate the discussions surrounding students, which, as mentioned earlier, primarily refer to accounting students. We identified four major categories of discussion in the literature: papers that compared accounting student types and different cohorts; papers that study non-accounting students and how they perform against accounting students; papers addressing the perceptions of students on curriculum changes and their subject experience; and papers analysing or focussing exclusively on student performance. Two additional, but less significant, categories are papers that investigate undergraduate accounting students and their feedback experiences (Watty *et al.*, 2013) or female students and their academic performance (Alanzi, 2018) or first-year accounting students and their experience of first accounting subjects (Abbott and Palamk, 2018).

Similarly, we analysed the top 25 sub-themes that mention *curriculum* and categorised them. We found that many of the research topics mentioning curriculum include various changes made to improve the accounting curriculum. For example, Lin, Xiong and Liu (2005) revealed the dissatisfaction with the present delivery of the necessary knowledge and skills in accounting among Chinese students and suggested that reforms are necessary.

This is followed by discussions around research in accounting education, which are very limited in number. Finally, a small number of research topics relate to contemporary issues in accounting education. For example, investigations concerning *professional accounting education* include discussions about social responsibility and assessment of practical accounting programs (Evans, 2008; Sikka *et al.*, 2007). Additionally, papers that mention management accounting education studies mainly relate to competencies-based curriculum (van den Brink *et al.*, 2003) and those that investigate international accounting education focus principally on reconciliation of International Financial Reporting Standards and the US Generally Accepted Accounting Principles (Hughes, 2007).

4.3.1 Co-occurrence analysis. Using author keywords in VOSviewer, the result of the co-occurrence analysis is shown in the diagram (Figure 1). Keywords are assigned weights in VOSviewer and are displayed more prominently than items with a lower weight (VOSviewer, 2021). In the below figure, prominent terms such as *accounting education* or *accounting* reflect a higher weighting and, therefore, a higher importance. Items in VOSviewer are non-overlapping; thus, an item belongs to only one cluster (VOSviewer, 2021). This can be conceptualised as a connection of one keyword to another by means of association (e.g. terms mentioned in the same article) and an extended connection of those keywords to other keywords used in other published articles. The more connections one keyword has, the greater the weighting, and therefore, the bigger is its size in the network.



connections between items or topics. They also indicate the subdomains of the accounting and finance education field. The largest cluster (red) includes 19 items/topics related to accounting, blended learning, pedagogy and student engagement. Clusters 1, 3, 4 and 5 lie at the core of the network, indicating their prominence and wider connections with other items in other clusters. However, total link strengths, a measure of co-occurrence strength, are more observed in cluster items *accounting education*, *accounting*, *ethics* and *students* than *academic performance*, *higher education* or *assessment*. Clusters 9, 11 and 12 are found on the periphery and are more isolated than others. Using density visualisation, the centre is denser than in all the other clusters around it. This indicates a more significant number of items in its neighbourhood and higher weights. In network analyses that use bibliometric information, it is common that two or more clusters are denser. In this case, there is a heavy concentration in the centre which indicates no other keyword links closer to the others than the *accounting education* keyword.

Using overlay visualisation provides recent trends in the data and Figure 2 shows the prominence of keywords *technology*, *educational technology*, *blended learning*, *COVID-19*, *e-learning* and *student engagement*. It can be surmised that this is because of the impact of the pandemic, the move to online delivery and issues with engaging with students during this period. Table 3 presents the clusters and a detailed list of cluster items not visible in Figure 1. Consistent with earlier findings, it is no surprise that the most connected hubs, and the most influential, are those that relate to accounting education comprising the following topics: *specific accounting topics* (e.g. *IFRS*), *delivery modes*, *student perceptions and engagement*, *technology* and the *introduction of ethics in the curriculum*. A dynamic version of Figure 1 is also available at: <https://app.vosviewer.com/> and by opening the supplementary file “Supplementary 1 – Co-occurrence map author keywords full counting.json” file.

We also used Kumu to compare the results with VOSviewer. Kumu uses overlapping communities which means an item can belong to more than one cluster. Kumu found 352 communities within our data of author keywords and authors (called “elements” in Kumu). However, many of these communities either have very few keywords and authors that belong to them or their strength of association values are low (i.e. the strength to which keywords or authors are linked together by virtue of their association with each other, such as keywords as

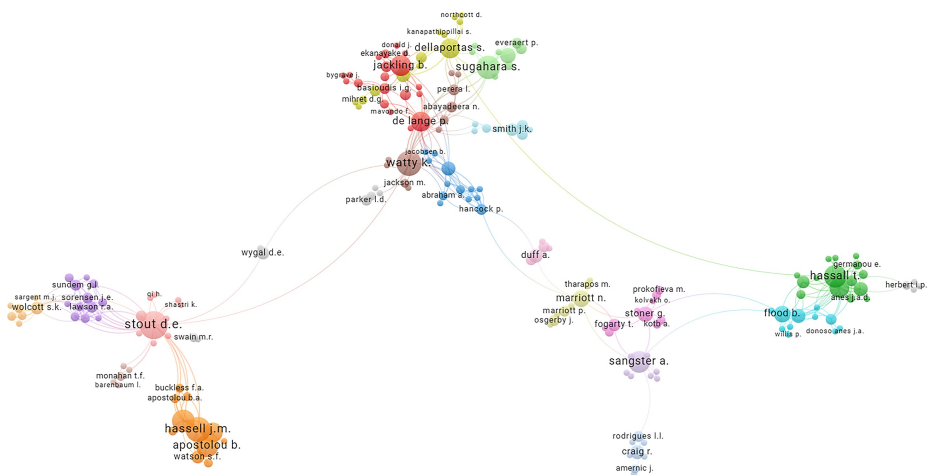


Figure 2. Co-author map

Table 3. Accounting education clusters

Cluster	No. of items	Items/author keywords (selected)
1 (Red)	19	Accounting, accounting information systems, action research, artificial intelligence, auditing, big data, blended learning, communication, data analytics, e-learning, employability, formative assessment, online learning, pedagogy, perceptions, profession, student engagement, student perceptions and technology
2 (Green)	18	Accounting curricula, accounting curriculum, accounting ethics, Australia, business education, business ethics, communication apprehension, communication skills, culture, enron, ethics education, graduate attributes, information technology, learning styles, New Zealand, professional education, professionalism and university accounting education
3 (Blue)	15	Accountancy, accountants, accounting faculty, critical thinking, education, globalisation, higher education, history, pathways commission, perception, professional judgement, public sector accounting, research, Russia and teaching
4 (Gold)	13	Active learning, case studies, cooperative learning, engagement, ethics, experiential learning, forensic accounting, fraud, internal control, international education standards, motivation, professional accounting education and situated learning
5 (Purple)	11	Academic performance, accounting education, accounting major, accounting students, assessment, distance learning, gender, introductory accounting, public accounting, South Africa and student performance
6 (Aqua Blue)	10	Accounting education research, competencies, COVID-19, curriculum development, knowledge, learning, Malaysia, management accounting, skills and teaching methods
7 (Orange)	10	China, corporate governance, critical, curricula, finance, institutional theory, public interest, social, sustainability and universities
8 (Brown)	10	Accreditation, collaborative learning, emotional intelligence, finance education, generic skills, international students, learning outcomes, soft skills, stakeholders and textbooks
9 (Pink)	8	Assurance of learning, curriculum, educational technology, faculty, instruction, literature review, research rigor and students
10 (Light Red)	7	Accounting history, accounting practice, accounting profession, accounting research, financial accounting, IFRS and journal rankings
11 (Light Green)	3	Finance education, financial literacy and personal finance

ties or authors as co-researchers). The communities detected confirm similarities with the earlier VOSviewer clusters. *Accounting education* also appeared as the largest node in the network (an association value of 0.99), with items similar to those in VOSviewer Clusters 1, 2, 3, 4 and 6. This cluster relates to the development of important skills, the teaching and research methods used and examples of country-specific experiences, such as a survey of accounting students' perceptions or performance in a particular country. It also includes, to some extent, discussions around the connections of COVID-19 and its impact on accounting education. Finance education was also rarely featured.

The next largest node was *ethics* (an association value of 0.98). This is similar to VOSviewer Clusters 2 and 4, relating mostly to ethical issues in professional practice and those associated with diversity, public interest, teaching and learning and accounting standards. Finally, *accounting research* (0.97), which is congruent with Clusters 1, 3, 6, 9 and 10. It mostly includes related terms about research and publication quality, accounting bodies, organisations and committees and a mix of contemporary topics in accounting such as sustainability, corporate governance and social responsibility. Either using overlapping or

non-overlapping communities detection, results are consistent. Triangulation of data sources give us confidence in our results.

4.3.2 *Co-author analysis.* The co-author map confirms the key scholars in the network of authors described in the *Authorship* section and Table 2 (Figure 2). Consistent with Table 2, we see familiar top influencers in accounting education, namely Stout, Watty and Sugahara. The diagram also shows the extent of their collaborations and the further collaborations of these co-authors. With weights assigned, the largest cluster of 14 authors shows the prominence of Paul de Lange and Beverley Jackling (red) in the literature, followed by the green and blue clusters of 13 authors centred around the work of Alan Sangster and Trevor Hassall, respectively. Kim Watty is also shown as having some influence in the network cluster among her co-authors. The prominence of an author in a network is influenced primarily by their links strength (with other authors). As Table 2 confirmed, authors linked to other authors by way of collaboration and authorship place indicate more prominence in their cluster and, by association, in the whole network. A dynamic version of Figure 2 is available at: <https://app.vosviewer.com/> and by opening the supplementary file “Supplementary 2 - Co-author map full counting.json” file.

We also examined the network of organisations and countries of origin where collaborations exist among accounting education authors. Figure 3 illustrates a smaller number of clusters compared to other similar analyses on business-related fields – for example, international business (Calma, Suder and Kenworthy, 2024) or marketing science (Borah *et al.*, 2023) – where a greater number of collaborations exist, we would normally see an extensive map with multiple links to and from various organisations. The linear look of the countries of origin map indicates that universities tend to work in silos – on their own or predominantly with other universities in the same country or state. A dynamic version of Figure 3 is available at: <https://app.vosviewer.com/> and by opening the supplementary file “Supplementary 3 - Co-author map organisations full counting.json” file.

Figure 4 illustrates the co-authorship network based on country affiliations (i.e. referring mostly to the country of the university where the researcher is affiliated) weighted based on the number of documents associated with each country (i.e. one count for each country the document is associated with). The largest number of accounting and finance education publications are associated with the USA (462), Australia (252) and the UK (191) clusters. We also created a map that was weighted based on the number of citations. This indicates that the US publications in the field has the most citations (5,522) followed by Australia (3,566) and the UK (3,087).

5. Discussion

This comprehensive analysis of articles across the many accounting education journals provides an in-depth examination of the evolving landscape of accounting education research. Results from our analysis indicate the ongoing importance of accounting education

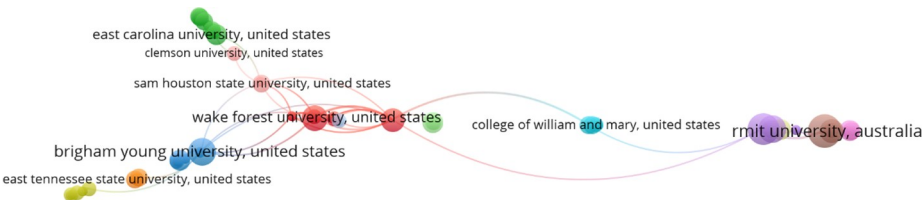


Figure 3. Co-author organisations map

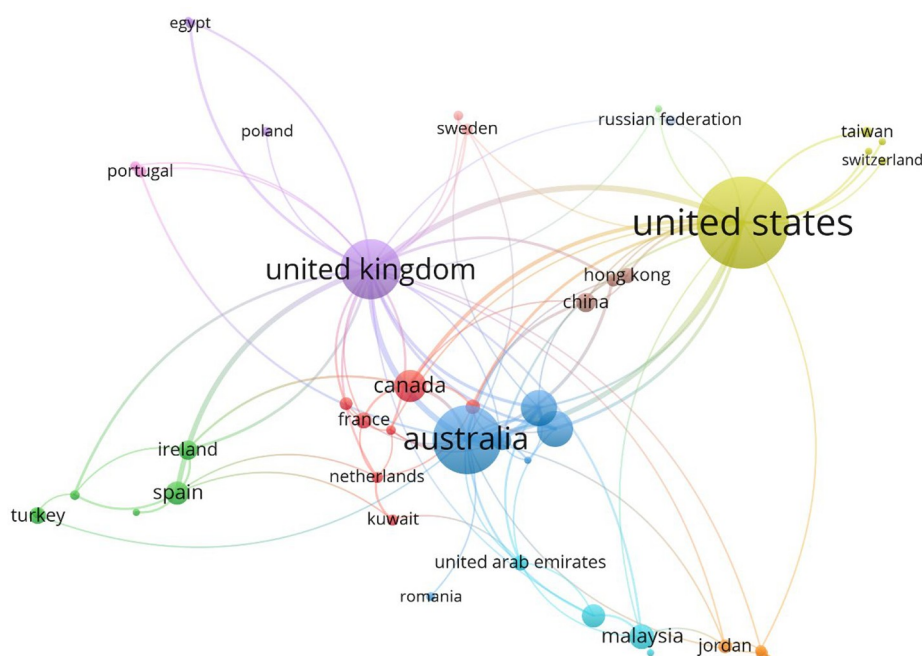


Figure 4. Co-author countries map

and the scope of interests within this field of study, with an increasing focus on curriculum innovation, instructional methodologies, student performance and skill development. The surge in publications – particularly in the areas of ethics, assessment, blended learning, experiential learning and student engagement – signals a shift in pedagogical priorities and industry expectations.

The prominence of journals such as *Accounting Education* and *Journal of Accounting Education* and the influence of authors like David Stout, Kim Watty, Satoshi Sugahara and Barbara Apostolou reflect a maturing field with established thought leaders and recurring themes. Co-author and co-occurrence network analyses further illuminate the collaborative nature of the discipline and the thematic clusters that dominate scholarly discourse – namely, ethics, pedagogy, technology integration and curriculum reform. It was found that *ethics* and *ethics education in accounting* are particularly significant in the Australian and New Zealand contexts and curricula. Why this might be the case is a matter of debate. Certain skills are also emphasised strongly in the literature. These include skills such as *communication*, *critical thinking*, *ethical reasoning*, *technology* and *data analytics*. These skills are often mentioned alongside key discipline-specific accounting knowledge acquisition and development. Finally, *academic performance* is also a strong feature of many publications, which primarily focuses on student marks or how they performed in certain tasks.

Before we discuss where accounting education might go in the future, it is important to recognise that our data did not find any articles pertaining to enrolment challenges facing universities or the size and profile of accounting programs either within individual universities or globally. This might be surprising given the fiscal constraints of higher education institutions, especially since the pandemic. Instead, we saw in our data discussions around

teaching, learning and assessment practices, including innovations, practical strategies and the increasing complexity of the role of accountants in the accounting profession.

There is some concern about the future of accounting education given the reported decline in enrolments particularly in medium and large-sized accounting programs. In the USA, for example, a survey of 78 US colleges and universities reported a noticeable decrease in enrolment based on 20 of 31 respondents (Gabbini *et al.*, 2020). Reasons cited for this include shifts to other business majors that require fewer credit hours. In the 2019 *Accounting Graduates Supply and Demand Report* (AICPA, 2019), Master's and PhD enrolments declined by 6% and 23%, respectively, in the 2017–2018 academic year. But perhaps the two most worrying reasons could be associated with accounting firms not necessarily looking for accounting graduates to fill accounting-related roles (Tysiac, 2019). Non-accounting graduates are instead becoming desirable candidates for accounting-related roles particularly when they bring expertise in data analytics (Hart, 2018). It is not surprising then that data analytics has been recently introduced in contemporary accounting education, including programming languages like Python and R. For example, see Coursera's *Introduction to Accounting Data Analytics and Visualisation* (Coursera, 2021), *Data Analytics and Insights*, an elective course through the Chartered Accountants Australia and New Zealand (CA ANZ, 2021) or *Navigating Data Analytics*, an on-demand event offered by Chartered Professional Accountants Canada (CPA Canada, 2021). While university accounting degrees increasingly offer data analytics, many accounting schools still remain traditional in their offerings. These courses are either pitched as add-on micro-credentials or professional development courses, offering to fill a gap that might exist in current accounting program offerings. Increasingly, however, data analytics is being integrated into accounting courses as a major or specialisation (e.g. the Masters in Accountancy with Analytics Track [Weatherhead School of Management], the Masters of Accounting with Emphasis in Data and Analytics [USC Marshall School of Business]).

Despite the breadth of topics covered, notable gaps persist. There is limited research on enrolment trends, program size and institutional challenges – issues that are increasingly critical given fiscal pressures and declining enrolments in some regions. The shift in hiring practices, where non-accounting graduates with data analytics expertise are favoured for accounting roles, raises questions about the future identity and value proposition of accounting education.

Looking ahead, the discipline must respond to a rapidly changing business environment. As business environments become increasingly complex (Salamah, 2023), disruptions will become more likely, and given the continuing impact of COVID-19, future accounting professionals will need to navigate complex, digitised ecosystems, requiring resilience, adaptability and leadership. The rise of artificial intelligence, machine learning and automation will reshape audit practices and demand new competencies. Cross-cultural management and virtual teamwork will become integral to professional success, suggesting that accounting education must evolve to prepare graduates for global, tech-driven workplaces. Given the importance of teamwork for accounting and finance roles and being core to leadership and equity (Zakaria and Ab Rahman Mutoh, 2022), accounting and finance education will perhaps also be characterised by the inclusion of virtual teams where cross-cultural management skills can be tested.

A noticeable feature of teaching and learning methodologies in the accounting discipline includes topics such as *active learning*, *case studies*, *cooperative learning*, *engagement* and *experiential learning* (Table 3, Cluster 4). This shows that accounting education is evolving from a technical training ground to a dynamic, interdisciplinary field that integrates theory, practice and innovation (Carnegie, 2022). The findings of this study offer a roadmap for

educators, researchers and institutions to align curriculum design with emerging trends, ensuring that graduates are not only technically proficient but also ethically grounded, communicatively competent and digitally literate.

6. Limitations and further research

While this study offers a comprehensive analysis of accounting education literature, several limitations must be acknowledged. First, it is possible that some articles could have been missed particularly if they are only indexed in other databases. Second, relevant contributions from regional journals or non-English publications did not feature in our data set. Third, the analysis primarily reflects trends in English-speaking countries, particularly the USA, the UK and Australia, where accounting education research is most pronounced. As a result, the thematic clusters and author networks may not fully capture the pedagogical innovations, curriculum structures or institutional challenges faced in other regions. Fourth, the study does not account for contextual factors or differences in regulatory environments, professional standards or cultural expectations that shape accounting education globally. Thus, curriculum design, assessment practices and skills development initiatives can only reflect those from our data set.

Further research should aim to address these limitations, including investigations that evaluate the effectiveness, or otherwise, of interventions to improve the student experience, as well as empirical evidence on the importance of financial education on student performance. Comparative studies are also welcome. It would be of significant interest to look into accounting education responding to local needs and contexts while being adaptive in responding to global developments, including digital transformation and sustainability.

7. Conclusion

This study offers a comprehensive analysis of the accounting education literature, drawing on over 1,000 articles. It identifies key trends, influential authors and emerging topics such as instructional methods, student performance, skill development and curriculum innovations. The findings highlight a growing emphasis on ethics, blended learning and data analytics, reflecting shifts in industry demands and educational practices. Network analyses reveal strong thematic clusters and collaboration patterns, though international partnerships remain limited. As accounting education evolves, future directions indicate the need to integrate digital competencies, foster adaptability and enhance leadership and teamwork skills. These insights offer valuable guidance for educators, researchers and institutions seeking to align accounting education with the evolving landscape of the profession.

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Supplementary material

The supplementary material for this article can be found online.

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