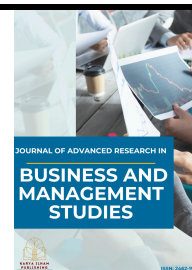




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Teaching Accountants to Doubt: Professional Skepticism as a Critical Competency in Accounting Education in the Era of Artificial Intelligence

Nur Fadzilah Yong^{1,2,*}, Muhammad Hafiz Muhammad Hisham^{1,2}, Abdul Hayy Haziq Mohamad^{1,2,3}, Ashman Shahrudin Khairuddin^{1,2}, Nurul Hayati Yong⁴, Khairul Nazli Razali⁴

¹ School of Business and Management, University of Technology Sarawak, Sibul, Sarawak, Malaysia

² Centre of Technological Readiness and Innovation in Business Technopreneurship (CONTRIBUTE), University of Technology Sarawak, Sibul, Sarawak, Malaysia

³ Centre for Borneo Regionalism and Conservation, University of Technology Sarawak, Sibul, Sarawak, Malaysia

⁴ School of Built Environment, University of Technology Sarawak, Sibul, Sarawak, Malaysia

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ABSTRACT

The integration of artificial intelligence (AI) in accounting education has enhanced learning efficiency and accessibility. However, concerns have emerged regarding students' overreliance on AI-generated outputs and its potential impact on professional skepticism, a critical competency for accounting professionals. This study examines the role of professional skepticism in AI-enabled accounting education through a systematic literature review. Relevant studies published between 2020 and 2026 were retrieved from major academic databases and analysed using a structured screening process. The findings indicate that excessive reliance on AI may reduce students' critical evaluation of accounting information, while professional skepticism remains essential for exercising independent judgment and assessing the reliability of AI-generated outputs. The study concludes that AI should complement rather than replace the development of critical professional competencies. These findings provide useful insights for accounting educators and curriculum developers in preparing future accountants for an increasingly AI-driven profession.

1. Introduction

The rapid advancement of artificial intelligence (AI) has significantly transformed the landscape of accounting education by reshaping how students acquire, process, and evaluate accounting knowledge. The emergence of generative AI, intelligent analytical systems, and automated learning tools have created new opportunities for improving educational accessibility, personalised learning, and learning efficiency. In accounting education, AI-enabled technologies can support students by providing immediate explanations, assisting with complex problem-solving, and facilitating greater engagement with accounting concepts beyond traditional classroom boundaries [1,2]. Consequently,

* Corresponding author.

E-mail address: nurfadzilah@uts.edu.my

higher education institutions are increasingly exploring the integration of AI into accounting curricula to prepare future accountants for a profession where technological capability and digital adaptability have become essential attributes. However, the increasing adoption of AI also raises important concerns regarding how students interact with AI-generated information and whether reliance on such technologies may influence the development of fundamental professional competencies.

Traditionally, accounting education has focused on developing technical knowledge, analytical ability, ethical awareness, and professional judgment to ensure that graduates are capable of making informed decisions in complex business environments. Among these competencies, professional skepticism represents a critical attribute that enables accountants to maintain a questioning mindset, critically evaluate information, and avoid accepting evidence without appropriate assessment [3]. Although professional skepticism has historically been associated with auditing practices, its importance extends beyond audit engagements as accountants increasingly rely on information generated through digital systems, analytical platforms, and automated technologies. The introduction of AI-generated outputs presents a new challenge because these systems can produce information that appears credible and well-structured while potentially containing inaccuracies, biases, or misleading interpretations [4]. Therefore, the ability to question, verify, and critically assess AI-generated information has become increasingly important in preparing future accountants for technology-driven professional environments.

A growing body of research has examined the changing skill requirements of accounting professionals in response to technological transformation. Existing studies highlight the increasing importance of digital literacy, data analytics capabilities, and familiarity with emerging technologies as essential competencies for future accountants [5]. Nevertheless, the integration of AI into accounting practice requires more than technical proficiency alone. Accountants must also possess higher-order cognitive abilities, including critical thinking, ethical reasoning, and professional judgment, to determine the reliability and relevance of information produced by intelligent systems. Within this context, professional skepticism represents a human-centred capability that enables accountants to evaluate technological outputs rather than passively accept them. As AI systems become increasingly involved in generating accounting analyses, recommendations, and explanations, the role of professional skepticism may become even more significant in maintaining the quality and reliability of accounting decisions.

The development of professional skepticism in accounting students is therefore an important consideration for higher education institutions. Universities play a central role in preparing future accountants by ensuring that graduates possess not only technical competencies but also the ability to apply professional judgment in uncertain and evolving environments. Recent discussions on AI integration in accounting education have largely focused on developing students' technological readiness through exposure to AI applications, data analytics, and digital accounting platforms [6]. While these initiatives are important in improving graduates' ability to engage with emerging technologies, concerns remain that excessive emphasis on technology adoption may overlook the development of critical evaluation skills. Students may become proficient in obtaining information from AI systems without necessarily developing the ability to determine whether such information is accurate, appropriate, or suitable for professional decision-making. Thus, accounting education faces the challenge of balancing AI adoption with the preservation of essential human competencies that distinguish professional accountants from automated systems.

Despite increasing scholarly attention toward AI adoption in education and accounting, the relationship between AI usage and professional skepticism development remains insufficiently explored. Existing studies have primarily examined AI acceptance, technology readiness, learning effectiveness, and digital competency development, while limited attention has been given to how

AI reliance may influence students' ability to critically evaluate accounting information. Furthermore, current discussions provide contrasting perspectives regarding the educational implications of AI. While some scholars highlight AI's potential to enhance learning outcomes and provide valuable academic support, others caution that excessive dependence on AI-generated solutions may reduce independent reasoning and weaken students' engagement in critical analysis [7]. These unresolved issues highlight the need for a systematic examination of existing literature to understand how professional skepticism can be strengthened within AI-enabled accounting education.

Therefore, this study aims to examine the role of professional skepticism as a critical competency in accounting education in the era of AI through a systematic literature review. Specifically, this study focuses on two key dimensions: students' reliance on AI-generated outputs and the development of critical evaluation skills as determinants of professional skepticism. By synthesising existing studies published between 2020 and 2026, this research contributes to the emerging discourse on AI integration in accounting education by highlighting the importance of developing accountants who are not only capable of using AI technologies but also able to question, evaluate, and challenge AI-generated information. The findings provide valuable insights for accounting educators and curriculum developers in designing educational approaches that prepare future accountants for an increasingly AI-driven professional environment.

2. Methodology

This study followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA 2020) framework, which provides a standardized approach for systematic reviews by promoting transparent and reproducible reporting of the search strategy, eligibility criteria, study selection, and synthesis process [8]. The PRISMA flow diagram (Figure 1) illustrates each stage of the review process, from identification and screening to eligibility assessment and final inclusion, thereby enhancing the transparency and methodological rigor of the study. Given the interdisciplinary nature of the research topic, which bridges Artificial Intelligence (AI), accounting education, and professional competency development, four academic databases were selected to conduct a comprehensive search: Scopus, Web of Science, ERIC, and Google Scholar. These databases were chosen based on their broad coverage of peer-reviewed literature across accounting, education, and technology-related disciplines. Scopus and Web of Science provided extensive coverage of scholarly publications, while ERIC was included to capture education-focused research. Google Scholar was additionally used to identify relevant emerging studies and publications that may not have been indexed across the other databases [9]. The combination of these databases enabled the study to capture diverse perspectives on AI integration and professional competency development in accounting education.

To ensure a comprehensive retrieval of relevant studies, the search strategy employed a combination of keywords and Boolean operators. The search terms included "artificial intelligence", "generative AI", "ChatGPT", "AI-enabled learning", "accounting education", "accounting students", "professional skepticism", "critical thinking", and "evaluation skills". These keywords were selected to capture the technological, educational, and professional competency dimensions of the research topic. Searches were limited to English-language publications from 2020 to 2026 to reflect the rapid development and adoption of AI technologies in educational environments, particularly the emergence of generative AI applications and their increasing use by students and educators [10]. The initial search retrieved a total of 286 records across the four databases. These records were exported to reference management software for organisation and deduplication. After removing 42 duplicate entries, 244 unique studies remained for screening based on their titles and abstracts.

The screening process resulted in the exclusion of 176 records that did not sufficiently address AI within accounting or higher education contexts, professional competency development, or the study objectives. A total of 68 articles were subsequently shortlisted for full-text assessment. In addition to the database searches, 4 additional records were identified through backward citation searching of relevant articles, whereby reference lists were examined to identify potentially relevant studies that were not retrieved through the initial database search. Following the full-text assessment, 31 studies were excluded based on the predetermined eligibility criteria, resulting in a final sample of 41 studies included in the systematic literature review. The selected studies were then subjected to quality appraisal based on methodological rigor, relevance to the research objectives, and clarity of reported findings. This appraisal ensured that the synthesis was informed by studies providing meaningful evidence on AI usage, critical evaluation skills, and professional skepticism in accounting education. The corresponding inclusion and exclusion criteria are presented in Table 1.

Table 1

Inclusion and exclusion criterion

Inclusion Criteria	Exclusion Criteria
Studies published in between 2020 and 2026	Studies published before 2020
Studies focusing on accounting education, higher education, accounting students or future accounting professionals	Studies unrelated to accounting education or higher education
Studies examining AI, generative AI, ChatGPT, or AI-enabled learning technologies	Studies focusing solely on non-AI technologies or technical AI development without educational relevance
Studies addressing professional skepticism, critical thinking, professional judgment, evaluation skills, or related competencies	Studies with no relevance to professional competency, judgment, or critical evaluation
Peer-reviewed journal articles, conference proceedings, and scholarly publications with sufficient methodological information	Editorials, opinion pieces, news articles, blogs, book reviews, and publications without sufficient research information

Following the selection of relevant studies, data extraction was performed using a structured data charting form. Key information was systematically extracted from each study, including author(s), publication year, study design, research objectives, and key findings related to AI usage, AI-generated outputs, professional skepticism, critical thinking, and evaluation skills. This process ensured that relevant information was collected consistently across studies for comparison and synthesis. The selected studies were subsequently analysed thematically to identify recurring patterns, emerging insights, and research gaps concerning students' reliance on AI-generated information and the development of critical evaluation skills as foundations of professional skepticism. The study selection and review process is illustrated in Figure 1, which presents the PRISMA flow diagram outlining the identification, screening, eligibility, and inclusion of studies.

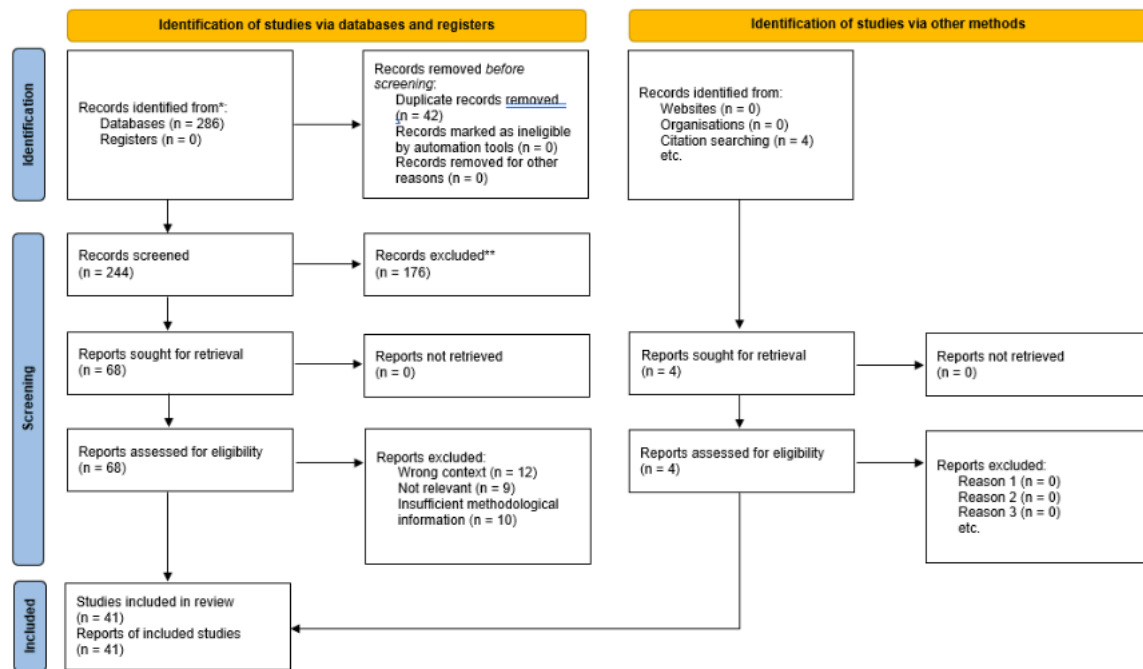


Fig. 1. PRISMA flow diagram of the study selection process

3. Results

3.1 Descriptive Numerical Analysis

A total of 41 studies published between 2020 and 2026 met the inclusion criteria following the systematic search across Scopus, Web of Science, ERIC, and Google Scholar. The number of relevant studies increased considerably over the review period, particularly from 2023 onwards, reflecting the rapid expansion of research on AI-enabled accounting education following the emergence of generative AI technologies. Recent studies have increasingly examined how accounting students use AI for learning, including its role in help-seeking, academic performance, and engagement with accounting-related tasks [11,12]. The majority of the studies were published as peer-reviewed journal articles ($n = 32$), with additional contributions from conference papers and institutional or professional publications. Geographically, Asia accounted for the largest proportion of studies ($n = 16$), followed by Europe and North America, indicating growing research attention to AI adoption and competency development across different educational contexts.

Methodologically, quantitative studies predominated ($n = 19$), followed by qualitative and mixed-methods approaches, reflecting the interdisciplinary nature of research on AI in accounting education. In terms of research focus, studies primarily examined AI adoption and learning outcomes ($n = 17$), followed by critical thinking and evaluation skills ($n = 13$) and professional competencies and skepticism ($n = 11$). Recent accounting education research has increasingly emphasised the importance of requiring students to verify and critically evaluate AI-generated outputs rather than accepting them uncritically [13]. Similarly, emerging evidence suggests that professional skepticism remains an important competency in AI-enabled accounting education, although students' understanding and confidence in applying skepticism may remain uneven across different stages of their accounting education [14]. The relatively smaller proportion of studies directly addressing professional skepticism therefore highlights an important gap in the literature and reinforces the need for further research examining how accounting education can develop students' ability to

critically evaluate AI-generated information and exercise independent professional judgment. A concise overview of the descriptive profile of the included studies is presented in Table 2.

Table 2
Descriptive profile included studies (N = 38)

Year	n	Type	n	Region	n	Methodology	n
2020	2	Peer-reviewed journal articles	32	Asia	16	Quantitative	19
2021	3	Conference Papers	6	Europe	11	Qualitative	13
2022	5	Institutional/professional publications	3	North America	8	Mixed-methods	20
2023	7			Oceania	4		22
2024	9			Other regions	2		
2025	10						
2026*	5						

Note: 2026 includes studies available at the time of the search

3.2 Thematic Analysis

Using an inductive coding process [15], two overarching themes were identified concerning the role of professional skepticism in AI-enabled accounting education. Table 3 presents a concise summary of the thematic findings, while the narrative below elaborates on the subthemes, supporting evidence, and cross-linkages.

Table 3
Thematic analysis of AI-enabled accounting education and professional skepticism

Theme	Sub-theme	Insights	No. of studies (n)
Reliance on AI-Generated Outputs	Increasing Dependence on AI	AI improves learning access but may encourage uncritical reliance on generated outputs.	24
	Accuracy and Reliability Concerns	AI outputs may contain errors, requiring verification before acceptance.	21
Professional Skepticism and Critical Evaluation	Critical Evaluation Skills	Critical evaluation enables students to assess AI-generated information critically.	27
	Independent Professional Judgment	Professional skepticism supports independent judgment and challenges questionable AI outputs.	23

The thematic analysis revealed two dominant themes, each comprising two related subthemes that explain the relationship between AI usage and professional skepticism in accounting education. The first theme, Reliance on AI-Generated Outputs, reflects growing concerns about how students interact with AI-generated information during accounting-related learning activities. In Subtheme 1A, increasing dependence on AI, the reviewed literature indicates that AI-powered tools provide students with rapid access to explanations, calculations, examples, and solutions, thereby enhancing learning efficiency and accessibility. However, the convenience of these tools may also encourage students to rely on generated outputs without independently assessing the underlying information. Recent studies suggest that students increasingly incorporate generative AI into learning activities, although the extent to which such use promotes meaningful learning rather than passive dependence remains an emerging concern [11,12].

Subtheme 1B, accuracy and reliability concerns, further highlights the potential risks associated with uncritical reliance on AI-generated outputs. Although AI can produce sophisticated accounting-related responses, the literature indicates that generated information may contain factual inaccuracies, incomplete explanations, calculation errors, or inappropriate interpretations. Consequently, students cannot assume that AI-generated information is inherently accurate or reliable. The ability to recognise potential errors and verify AI-generated information is therefore particularly important in accounting education, where professional decisions depend on the accuracy and reliability of financial information. Studies advocating the use of reperformance and critical error review similarly emphasise the importance of requiring students to examine and challenge AI-generated accounting outputs rather than simply accepting them [13].

The second major theme, Professional Skepticism and Critical Evaluation, concerns the competencies required to address these limitations and ensure that AI functions as a learning support rather than a substitute for professional judgment. Subtheme 2A, development of critical evaluation skills, indicates that students need to develop the ability to assess the accuracy, relevance, consistency, and reliability of information produced by AI systems. Critical evaluation is particularly important because AI-generated responses can appear authoritative even when the underlying information is incomplete or incorrect. The reviewed literature therefore suggests that accounting education should move beyond teaching students how to use AI tools and place greater emphasis on how to evaluate and challenge AI-generated outputs. This is consistent with emerging pedagogical approaches that incorporate verification, reperformance, and error identification into AI-supported accounting learning [13].

Subtheme 2B, independent professional judgment, establishes the closer connection between critical evaluation and professional skepticism. Professional skepticism requires accountants to maintain a questioning mind, critically assess evidence, and remain alert to information that may be inaccurate or misleading. In an AI-enabled learning environment, these characteristics become increasingly important because students may encounter highly convincing outputs without being able to immediately determine their reliability. Recent evidence focusing specifically on accounting students in AI-supported learning environments suggests that professional skepticism remains an important competency for developing students' capacity to question and evaluate AI-generated information [14]. Rather than positioning AI as a replacement for professional reasoning, the literature therefore supports an approach in which AI tools are used alongside human judgment, verification, and critical assessment.

A critical cross-theme insight emerging from the synthesis is that AI reliance and professional skepticism are closely interconnected. Greater access to AI does not necessarily lead to stronger learning outcomes if students become overly dependent on generated answers and reduce their engagement in independent evaluation. Conversely, appropriately designed learning activities can use AI as an opportunity to strengthen skepticism by requiring students to identify errors, verify information, compare alternative explanations, and justify their conclusions. The effectiveness of AI-enabled accounting education therefore depends not only on students' technical ability to use AI tools but also on their capacity to recognise the limitations of AI-generated information and exercise independent judgment.

Overall, the thematic synthesis indicates that AI should complement rather than replace the development of professional competencies in accounting education. The literature demonstrates clear educational benefits associated with AI accessibility and learning support, but these benefits are accompanied by concerns regarding overreliance, information reliability, and reduced critical engagement. Professional skepticism consequently emerges as an important competency for ensuring that future accountants remain capable of questioning, verifying, and challenging AI-

generated information. The findings suggest that accounting curricula should integrate AI literacy with critical evaluation and professional judgment, enabling students to become not merely effective users of AI but critical and skeptical users of AI.

4. Conclusions

The integration of Artificial Intelligence (AI) into accounting education is reshaping how students access, process, and evaluate accounting information, creating both opportunities and challenges for the development of professional competencies. This review highlights two key findings. First, AI technologies can enhance learning efficiency, accessibility, and academic support; however, excessive reliance on AI-generated outputs may reduce students' engagement in independent reasoning and their tendency to critically evaluate the accuracy and reliability of information. Second, professional skepticism remains a critical competency in enabling future accountants to question information, exercise independent judgment, and challenge potentially inaccurate or misleading AI-generated outputs. These findings indicate that the educational value of AI depends not only on students' ability to use such technologies but also on their ability to critically assess the information they produce.

This study also identifies several limitations within the existing body of literature. Research examining AI in accounting education remains relatively emerging, with many studies focusing primarily on technology adoption, learning effectiveness, and digital competency rather than the development of professional skepticism. Furthermore, the literature is fragmented across accounting, education, and technology disciplines, with limited empirical evidence directly examining how students' reliance on AI influences their critical evaluation and professional judgment. The review also highlights the need for greater attention to educational approaches that explicitly integrate professional skepticism, critical thinking, and AI literacy. While AI technologies can provide valuable learning support, their effective integration requires appropriate curriculum design, educator guidance, and learning activities that encourage students to question, verify, and evaluate AI-generated information rather than accept it uncritically.

In summary, AI has the potential to enhance accounting education, but technological capability should not come at the expense of essential professional competencies. Professional skepticism should remain a central component of accounting education as students increasingly interact with AI-generated information and automated decision-support tools. By synthesising existing evidence, this review contributes to the growing discussion on AI-enabled accounting education and emphasises the need to develop accountants who are technologically capable while remaining critical, questioning, and professionally responsible. Future research should further investigate effective pedagogical strategies for strengthening professional skepticism and critical evaluation skills in AI-enabled learning environments, supporting the preparation of future accountants for an increasingly AI-driven profession.

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