



INTERNATIONAL JOURNAL OF
MODERN EDUCATION
(IJMoe)

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SUSTAINABLE ISSUES ON ACCOUNTING EDUCATION: INSIGHTS FROM FIFTY RESEARCH PUBLICATIONS

Muthyaah Mohd Jamil^{1*}, Muslimah Mohd Jamil², Siti Nursyairah Ishammudin³

¹Faculty of Accountancy, Universiti Teknologi MARA, Campus Selangor

 muthyaah@uitm.edu.my

 <https://orcid.org/0000-0002-3216-1592>

²Faculty of Accountancy, Universiti Teknologi MARA, Campus Kedah

 muslimahmj@uitm.edu.my

 <https://orcid.org/0009-0005-7490-0495>

³Office of Internal Audit, International Islamic University of Malaysia, Gombak

 nursyairah@iiu.edu.my

 <https://orcid.org/0009-0003-2487-4415>

*Corresponding Author

Article Info:

Article history:

Received date: 07.08.2026

Revised date: 25.08.2026

Accepted date: 10.09.2026

Published date: 22.09.2026

To cite this document:

Jamil, M. M., Jamil, M. M., & Ishammudin, S. N. (2026). Sustainable Issues on Accounting Education: Insights from Fifty Research Publications. *International Journal of Modern Education*, 8(31), 1134-1148.

Abstract:

The United Nations Sustainable Development Goals have become a focus in accounting education. Accounting curricula need to incorporate Environmental, Social, and Governance (ESG) elements. Numerous articles discuss how to integrate ESG elements into the syllabus. However, the articles remain unorganised. This paper analyses published articles on sustainable elements in accounting education. This paper categorises the published articles into four main studies: conceptual papers, quantitative studies, qualitative studies, and mixed studies. The conceptual studies are further grouped into four themes: trends in the SDGs, conceptual elements of the SDGs, gaps in the literature, and needs for change. Papers in quantitative studies further elaborate on three themes: students' competency, educators' invention, and national interventions. Qualitative studies further elaborate on barriers to implementation, accounting educators' competencies, and changes in teaching pedagogy. The study concludes that five dominant themes require future research. Further exploration of how accounting educators conceptualise the SDGs is needed to help them embed them in their syllabi and educate future graduates. Moreover, students' competencies warrant attention in identifying the factors that influence accounting students to learn about the SDGs. Beyond students, accounting educators, as the main actors in embedding SDG elements, also need further exploration, such as the use of information technologies for classroom delivery. Beyond teaching tools, accounting educators' competencies also warrant further exploration, including whether they need specific skills. To enhance accounting educators' competencies, specific national-level policies are needed. These themes can guide future research on accounting education. This paper helps

bridge the gap between the need for syllabus changes and practitioner cooperation in embedding SDG elements in the current accounting syllabus. The analysis and interpretation involved the researchers' judgements, which are open to subjectivity.

DOI: 10.35631/IJMOE.831065

Keyword:

Accounting Education, Conceptual Paper, Sustainable Ecosystem



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Introduction

The adoption of the Environmental, Social, and Governance (ESG) elements by the United Nations Sustainable Development Goals (SDGs) is growing, even in education systems (United Nations, 2015; UNESCO, 2020). These initiatives have shifted accounting professionals' beliefs about corporate reporting. Traditionally, accounting reporting focused on historical data about organisations' financial performance. ESG provides a framework for achieving the SDGs. SDGs are the outcomes of implementing ESG in organisations or countries.

With the introduction of SDG goals, accounting reporting has changed the landscape, focusing more on broad issues in the ESG framework, such as climate change, accounting for natural resources and social impact on the business. Changes in accounting practices have changed the content and delivery process of accounting courses in higher education systems (Hazelton & Haigh, 2010; Haskin & Burke, 2016).

The higher education organisation had to incorporate the SDG elements in the accounting course. The university needs to redesign the accounting curriculum and pedagogical approaches to ensure the accounting syllabus contains SDG elements. Numerous studies and publications discuss embedding the SDGs in accounting courses. However, published articles lack clear themes.

Therefore, this paper aims to critically classify and synthesise the published articles on incorporating sustainability issues in accounting education. The findings will provide a reference for accounting educators on how to embed sustainability issues in accounting courses. This study may also benefit practitioners by informing how they integrate sustainability issues into accounting education. The paper first discusses the methodology used to analyse the published articles before presenting the findings. This paper aims to provide a

research framework that guides future research directions before concluding with the study's contributions and limitations.

Methodology

This study used a three-stage research framework, as shown in Figure 1. The systematic literature review analysis involved three stages. Dhlamini (2026) suggested that the systematic literature review process involves data collection, data processing, and data analysis.

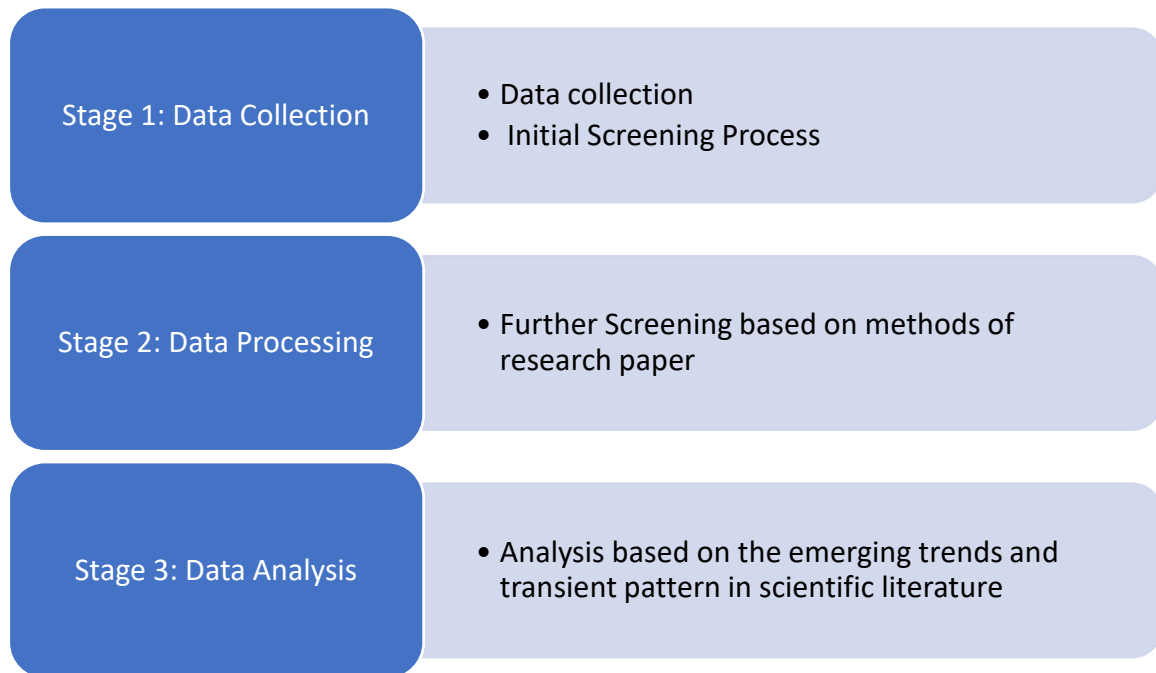


Figure 1: Three Stages Of The Research Methodology

Stage 1: Data Collection

The data were drawn from the Web of Science (WoS) and Scopus databases. The archival keywords are “Sustainable Ecosystem” and “Accounting Education”. The literature types were restricted to English. The data were limited to journal articles and books. There were 82 articles downloaded.

Stage 2: Data Processing

In the second stage, the articles were screened and duplicates were removed. Fifty articles remained relevant for examination. The articles were later categorised into four main types of research papers: conceptual papers, qualitative papers, quantitative papers, and mixed-method papers.

Stage 3: Data Analysis

The papers are being analysed based on four main methodologies in accounting research: conceptual papers, quantitative studies, qualitative studies, and mixed-method studies. Table 1 shows the breakdown of the studies.

Table 1: Breakdown of Published Papers

Types	No of Paper Published
Conceptual	17
Mixed Method	3
Qualitative	18
Quantitative	12

For each study method, the researchers identified possible themes and patterns. The researchers discussed common findings in the previous literature before proposing the new research area in the discussion sections.

Findings

The findings show that the discussion of sustainable ecosystem and accounting education can be organised by method type: conceptual paper, quantitative study, qualitative study, and mixed methods. The discussion begins with the findings found under the conceptual paper.

Conceptual Paper

There are 17 articles retrieved based on the conceptual paper. This paper was categorised based on the years of publication, as in Table 2. The study found that the conceptual paper remains evergreen in discussing the issues pertaining to sustainable ecosystems and accounting education. The modelling of theoretical sustainable discussions in accounting between 2010 and 2019. From 2020 onwards, the concepts of the literature review have shifted toward systematic literature review.

Table 2: Pattern of Conceptual Paper

Year	No of Paper Published	Pattern on conceptual paper
2000-2010	4	Conceptual Framework Literature Synthesis
2010-2019	7	Conceptual Framework Literature Synthesis Theoretical Modelling
2020-2025	6	Conceptual Framework Systematic Literature Review

The conceptual paper discusses trends in discussing sustainable issues in accounting courses, conceptualising sustainable elements into accounting subjects, gaps in incorporating sustainable elements into educational materials, and the need to change pedagogy in teaching, as shown in Figure 2. Trends in discussing sustainable issues in accounting are relatively slow (Mathews, 2001). This is because early accounting subjects ignored sustainability elements. Current accounting focuses more on profit-oriented approaches than on sustainable business in the long run (Grey, 2010). Since resources are limited, companies need to incorporate the effects of environmental degradation into their practices. This calls for changes in accounting education (Hopwood, 2009; Boyce, 2004).

The scholars conceptualised sustainable elements in accounting under the name of Natural Capital Accounting. The papers written by Schaltegger & Burritt (2000) and D'Amore et al. (2025) discussed the clear definition of environmental disclosure reporting. The papers discussed the differences between environmental accounting and sustainability accounting. Environmental accounting covers the determination of environmental elements such as the cost of carbon; meanwhile, sustainability accounting covers the area of Environmental, Social and Governance (ESG). The discussion continues with the development of the accounting framework (Edens & Hein, 2013; Jones, 2010). These papers highlight the mapping to biophysical ecosystems and nature-centric inventory systems. However, these papers urge the incorporation into the education materials.

However, several gaps prevent the framework from being incorporated into the education materials. Current accounting education is heavily focused on financial profits (Berding et al., 2020; Waymire et al., 2021; Frizon & Eugino, 2022). As a result, accounting courses are unable to train students to find the connection between sustainable elements and accounting (De Villiers et al., 2024). Besides that, textbooks and reading materials are not delivered on time to students, widening the gap in the accounting curriculum (Unerman & Chapman, 2014; Bebbington & Unerman, 2018).

In transition towards a sustainable ecosystem, there is a need to change pedagogical approaches in teaching. The educators need to focus more on adopting environmental sciences and environmental regulation in the accounting system (Larrinaga & Bebbington, 2021; Larrinaga, 2014; Pargmann et al. 2025). Educators are requested to add actionable pedagogical tools to deliver accounting subjects, such as incorporating environmental costs in accounting for the cost of goods. The next discussion discusses the articles that use quantitative methodology.

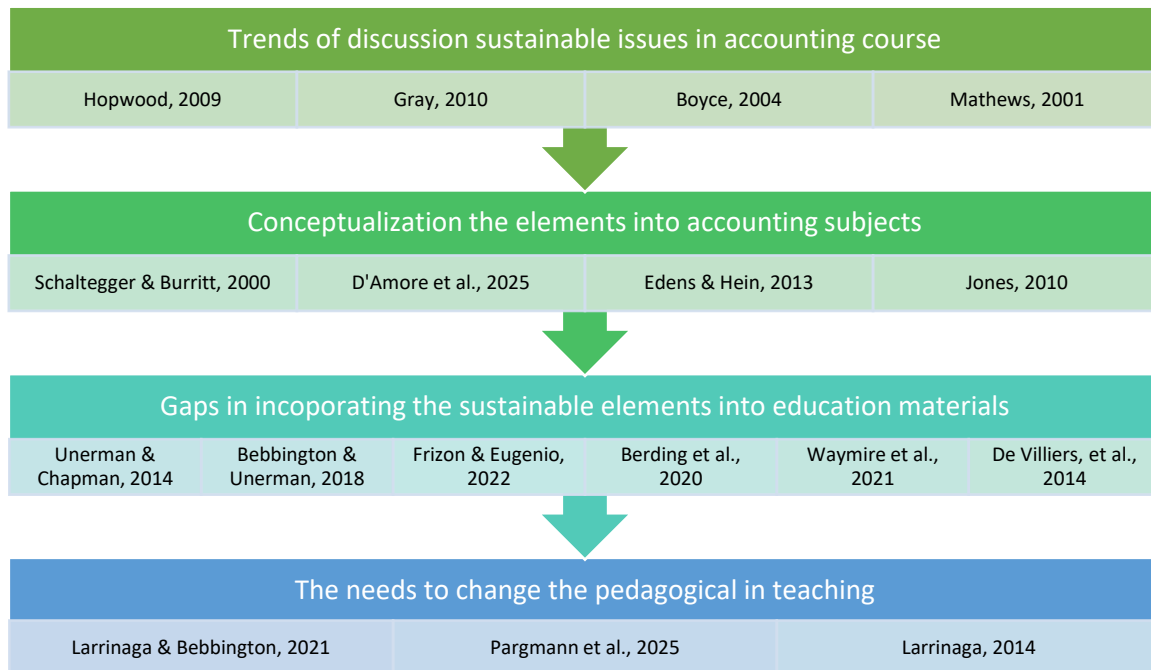


Figure 2: Thematic Analysis for Conceptual Study

Quantitative Study

This study analysed 12 studies that used quantitative methodology. Quantitative studies can be divided into three methods of data collection: content analysis, quantitative case study, and survey as in Table 3.

Table 3: Pattern of Quantitative Study

Types of Quantitative Study	No of Papers Published
Content Analysis	1
Quantitative Case Study	3
Surveys	8

The thematic and quantitative analyses can be divided into the impacts on students' competency, educators' interventions, and national interventions as in Figure 3. The study on students' competency highlighted that students have a high interest in sustainable elements in accounting (Alvarez-Risco et al., 2021; Wilmhurst & Frost, 2001). However, the exposure in the curriculum remains low. Moreover, the study indicates that the graduates lack technical knowledge and practical knowledge in environmental management systems and eco-auditing. In order to improve the students' competency, these studies highlighted that the educators' intervention is needed to improve the teaching of sustainable elements in the syllabus (Zeghal & Ahmad, 1990; Gray & Collison, 2002; Weybrecht, 2017; Zaid, 2020; United Nations, 2021; Youssef et. al, 2023; Zorio-Grima et. al., 2024). The main reason for the huge disparities between the knowledge derived and practitioners is the disconnection between practical practices and theory inside universities (Zeghal & Ahmed, 1990; United Nations, 2021). Students are exposed to practical experiences but are more focused on theoretical discussions. Moreover, discussions on sustainable elements are in elective courses rather than in the core accounting subject (Weybrecht, 2017). In order to reduce the gap, the educators give exposure to the students by having programs that bring in practitioners inside the class (United Nations, 2021), either through engaging the professional body accreditations (Gray & Collison, 2002) or exposing the students via assessment into the corporate government practice (Zaid et al., 2020; Zorio-Grima et. al., 2024).

The curriculum can be drastically changed if there is intervention at the national level. Policymakers need to adjust accounting practice (Barbier, 2013). The adjustment in the recognition of ecosystem degradation can change the landscape of the accounting syllabus. Such practice can significantly change the extent of environmental and ecological coverage in accounting degrees (Collison et al., 2014). Instructions on environmental management accounting inside the current syllabus by the highest institutions are one of the initiatives to bridge the gap between theory and practitioners (Fereirra et al, 2010). These studies are based on the figures gathered mostly through surveys. The next discussion presents the findings from the qualitative study.

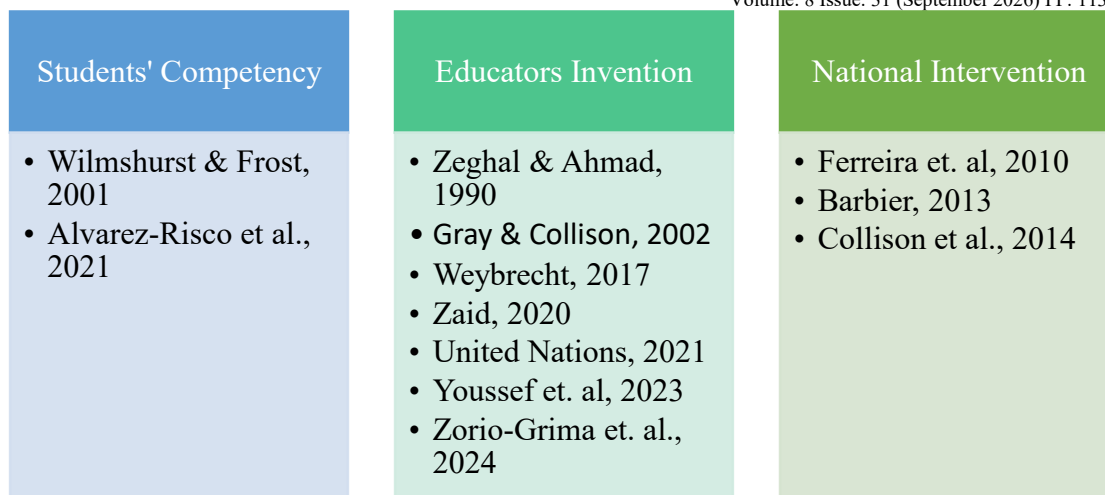


Figure 3: Thematic Analysis for Quantitative Study

Qualitative Study

This study analysed 18 studies that used qualitative methodology. Qualitative studies can be divided into five methods of data collection as in Table 4: critical discourse analysis, action research, case study, experimental and focus group. There are seven published studies on critical discourse analysis, which cover the study on qualitative

Table 4: Pattern of Qualitative Studies

Types of Qualitative Study	No of Papers Published
Critical Discourse Analysis	7
Action Research	3
Case Study	3
Experimental	2
Focus Group	3

The qualitative study focused more on the depth and richness of how the sustainable elements have been practised inside the accounting syllabus. The discussions can be divided into three main themes as in Figure 4: barriers to incorporating sustainable elements in the accounting syllabus, the competency gap, and changes in pedagogical teaching. Among the barriers to implementing SDG elements in the accounting syllabus are the syllabus's focus more on profit-oriented discussions (Ngwakwe, 2012; Milne, 2001; Parker, 2011; Malthus & Fowler, 2009), lack of training among the educators (El-Bassiouny et al., 2020; Biondi & Bracci, 2018) and inconsistency of definition of key concepts (Stechemesser & Guenther, 2012).

The accounting syllabus originated to account for the money invested by the business, which is equal to the money spent (Ngwakwe, 2012; Milne, 2001; Parker, 2011; Malthus & Fowler, 2009). Coverage of social aspects is limited. Embedding sustainable elements in the accounting syllabus is limited to covering the minimum core changes within the syllabus. Another reason is the lack of training among accounting educators (El-Bassiouny et al., 2020; Biondi & Bracci, 2018). These studies demand that accounting educators attend training in incorporating SDG elements into the syllabus.

This issue relates to the discussion on the competency gaps as the second theme in the qualitative study. Among the competencies discussed are the lack of understanding of the recognition of natural accounting and valuation (Biondi & Bracci, 2018; Adams, 2015), the lack of biophysical valuation (Cavanagh et al., 2022) and ecological literacy (Gil-Martin et al., 2022). In other words, accounting educators are required to have multidisciplinary skills in teaching sustainable elements in accounting courses (Thomas, 2004).

Besides competency, accounting educators are required to change their teaching methods. The study showed that using case studies in teaching delivery can expose students to an understanding of students' perceptions of the depreciation of sustainable elements (Hazelton & Haigh, 2010; Rinaldi, 2019; Larson et al, 2025). The usage of gamification techniques as pedagogical tools helps students understand the use of sustainable elements in accounting and decision skills (Vesty et al, 2015). The next discussion discusses findings from the mixed-method study.

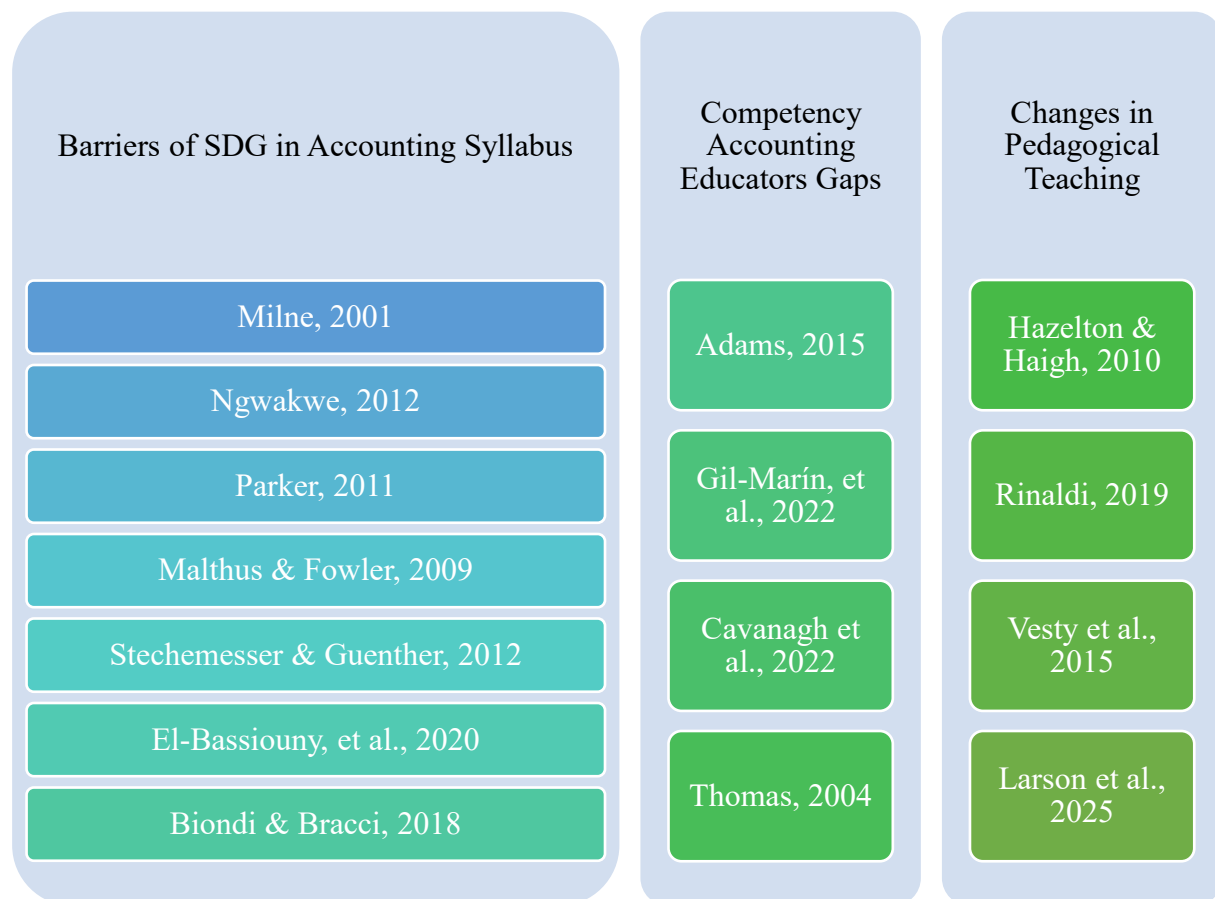


Figure 4: Thematic Analysis for Quantitative Study

Mixed Method Study

This study analysed 3 mixed-method approaches that combined the survey and interview process. These two studies were done in the Malaysian context (Jamil et al., 2021; Abd-Mutalib et al., 2023) and a study in Nigeria (Nnam et al., 2025). Jamil et al. (2021) assessed readiness to integrate environmental innovation into the accounting syllabus. The findings showed that

students have high motivation, but sustainability courses remain hidden within traditional financial reporting.

Abd-Mutalib et al. (2023) focused more on accounting educators. The study examined factors that drive environmental knowledge sharing. The study found that peer knowledge sharing remains the best platform to incorporate environmental knowledge. Nnam et al. (2025) discuss barriers to incorporating SDG integration in accounting systems. The study pointed out that the lack of a support system is the main reason for not incorporating the SDG into the accounting syllabus.

Discussion

This paper analysed published papers based on several themes, including the conceptualisation of SDG elements in the accounting syllabus and the challenges involved. The findings of this study also elaborate on practices to improve students' competency, the invention practices of accounting educators, the efforts of policymakers, and the competency of educators.

Conceptualisation and Challenges Incorporating SDG Elements and Challenges in Accounting Syllabus

Under this theme, the paper presents a conceptual study that lists how the SDG elements are conceptualised, without supporting evidence. The study could be strengthened by adding empirical evidence to support the conceptual frameworks. Moreover, other studies may highlight the standard elements of sustainable accounting. These elements can help accounting educators develop a standardised textbook for discussion across countries. Future studies can develop case-based teaching materials to understand the standardised SDG elements in accounting syllabi.

The studies can explore the specific challenges higher learning institutions face in implementing the SDG elements. Future studies can use case studies to describe the process of incorporating SDG elements into current syllabi, as well as the challenges organisations face. This may help new organisations replicate the process of incorporating SDGs or use it as a benchmark for implementation.

Students' Competency

The discussion on students' competency examines how to improve students' competency in discussing SDG elements in accounting subjects. This study focuses on why students lacked competency in illustrating SDG elements in accounting subjects. Future studies may examine the factors that influence accounting students to learn about SDG elements via quantitative studies.

Inventions by Accounting Educators

This theme discussed how accounting educators instil the SDG elements in accounting subjects. The studies may extend the research by examining how accounting educators use information technology or artificial intelligence to deliver the SDG elements in accounting. Future scholars may explore other mechanisms for delivering the SDG elements in lectures or the classroom.

The intervention of Policy Maker at the National Level

This theme discusses how the policy maker derived the directive approach in ensuring higher education embeds SDG elements in the syllabus. Future studies may highlight the step-by-step process by which national policy drafts translate SDG elements into the syllabus. Further studies may adopt a qualitative case study approach to illustrate the implementation process and its outcomes. This may help other countries replicate the process in their own context.

Competency of Accounting Educators

This theme discusses how the accounting educators derived their competency in delivering the SDG elements in their lectures or classrooms. The studies could expand this by highlighting the specific disciplinary actions accounting educators need to explain the SDG elements. Moreover, future researchers can use a qualitative case study to develop training modules for accounting educators as key references.

Conclusion

This paper highlights the growing number of publications on embedding SDG elements in accounting syllabi. The analysis examined fifty articles to identify research patterns and suggest future research directions. In the initial process, this paper categorises the published papers into four study methodologies: conceptual papers, quantitative studies, qualitative studies, and mixed studies. For each category, this paper develops patterns based on thematic analysis.

The paper aims to highlight several future research directions. This study helps researchers identify areas that warrant further exploration. This study suggests five dominant areas to help new scholars enter the field. These areas include the conceptualisation of SG elements in accounting education and the challenges involved, students' competencies, accounting educators' invention practices, the influence of policy in embedding SDG elements in accounting education, and accounting educators' competencies. This paper helps bridge the gap between practitioners and educators by highlighting key issues in accounting education.

The limitations of this study are that the analysis is based on publicly available journals from 1990 to 2026. The data used for the analyses depend on the databases selected and the keywords used to generate the articles. The analysis also involves researchers' subjective arguments, which depend on their cognitive limitations. Future researchers can use a wider variety of sources to address this paper's limitations.

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- Acknowledgements:** The authors would like to express their sincere gratitude to the Faculty of Accountancy, Universiti Teknologi MARA, Campus Selangor, for providing the necessary resources and support throughout the course of this research. Special appreciation is extended to colleagues and peers who contributed valuable insights and constructive feedback, which greatly enhanced the quality of this paper.
- Funding Statement:** This research received financial support from Faculty of Accountancy, Universiti Teknologi MARA, Campus Selangor under Articles Journal Publication Funding. The funding body had no role in the design of the study, data collection, analysis, interpretation of results, or the decision to publish this manuscript.
- Conflict of Interest Statement:** The authors declare that there is no conflict of interest regarding the publication of this paper. All authors have contributed to this work and approved the final version of the manuscript for submission to the International Journal of Modern Education (IJMOE).
- Ethics Statement:** This study did not involve any human participants, animals, or sensitive data requiring ethical approval. The authors confirm that the research was conducted in accordance with accepted academic integrity and ethical publishing standards.
- Author Contribution Statement:** All authors contributed significantly to the development of this manuscript.
- Declaration on the Use of Artificial Intelligence (AI)** The author(s) declare that generative AI or AI-assisted technologies were used during the preparation of this manuscript. The following tool(s) were used: ChatGPT and Grammarly. The tool(s) were used for data analysis and grammar improvement. All AI-assisted content was reviewed and verified by the author(s), who take full responsibility for the accuracy, originality, integrity, and final content of the manuscript.”
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