Journal of Interdisciplinary Research in Accounting and Finance
ISSN: 2837-1895| Impact Factor:7.11
Volume. 12, Number 2; April-June, 2025;
Published By: Scientific and Academic Development Institute (SADI)
8933 Willis Ave Los Angeles, California
https://sadijournals.org/index.php/jiraf|editorial@sadijournals.org

INTERDISCIPLINARITY IN SUSTAINABILITY PRACTICE: RETHINKING ACCOUNTING EDUCATION AND IMPLICATIONS WITH ENGAGEMENT IN PRACTICE A CRITICAL REVIEW.

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DOI:https://doi.org/10.5281/zenodo.15586369

Abstract: This paper titled Interdisciplinarity in Sustainability Practice: Rethinking Accounting Education and Implications with Engagement in Practice a critical review sought to discuss some of the major issues that arise when attempting to integrate sustainability into the accounting learning environment. When topics like ethics, social responsibility, environmental and social accounting, and, most recently, sustainability, are introduced into the accounting curriculum, these worries become much more pressing. Due to their frequently personal and difficult nature, which seems to sit so awkwardly with the norms of accounting and its educational practices, these topics have not only struggled to find any place in the core accounting curriculum but have also encountered varying degrees of resistance from educators and students. This paper explored through historical and literature review, the accounting fundamental framework looking at its historical perspective. It equally considered broadening the boundaries of accounting through sustainability accounting and provided the linkage between accounting education and the 17 United Nations, sustainable development goals by mapping the SDG's goals' interconnection in the light of accountancy contribution. The paper found that addressing complex and wicked problems in accounting requires interdisciplinary approaches, whereby the accounting discipline must move beyond its technical origins. It therefore concluded that dialogue between accounting and other disciplines is necessary to gain deeper appreciation of the social, technical and moral implications of accounting in context. The paper finally recommended the adoption of the painter Morland's matrix of sustainability integration and also the fifth-dimension model in accounting curriculum to foster its inter-disciplinary approach.

Keywords: Interdisciplinarity, Sustainability, Accounting, education, social responsibility, environmental, social accounting.

1.0. Introduction.

Accounting is often defined as the process of conveying financial information about a business entity to stakeholders such as shareholders and managers. Such financial information assists users (both internal and external) in making informed business decisions. Fundamentally, accounting consists of a series of interconnected processes that record organizational activities and convert them into financial figures. These figures are then adjusted and consolidated to produce comprehensive financial reports, enabling knowledgeable stakeholders make well-informed financial choices (Gray, 2019). The process of modifying, analyzing, and summarizing financial data can be complex, intricate, and sometimes difficult to interpret. Consequently, accounting education—or more accurately, accounting training—often focuses heavily on navigating this complexity. However, this is not the full picture. In a literal sense, assets and profits often do not exist until they are acknowledged by accounting; rather, accounting plays a role in creating them. This highlights that accounting is not merely a tool for reporting financial occurrences but also a process that actively shapes them (Hines, 1988).

Similarly, accounting might seem to be just a set of techniques or methods, but it is a technology that is inherently intertwined with political judgment and ethical considerations (McPhail, 1999). Moreover, the influence of accounting goes beyond the traditional boundaries of its practices and is not limited to economic aspects alone (Gray et al., 2014). Its impact also spans social and environmental dimensions.

By broadening the view of accounting to include collaboration with other disciplines, we can better understand the multi-dimensional nature of complex societal issues. This approach offers a valuable framework that can enhance both practice and research, steering accounting toward a focus on the public good and societal improvement. There remains considerable potential to advance this discussion, and collective involvement is crucial for its success.

In recent years, there has been a growing recognition of sustainability, which has led to the development of various sustainability theories. One of the most prominent is the Triple Bottom Line (TBL) concept, which asserts that for an organization to succeed, it must evaluate its performance in three key areas: people, planet, and profit (Elkington, 1997). The TBL framework, also known as the 3P approach, emphasizes the interconnectedness of social, environmental, and economic performance in achieving sustainability. Elkington (1997) argued that businesses are responsible for both the positive and negative effects they have on society, the environment, and the economy. Therefore, companies must go beyond just making profits and also address societal needs, protect the environment, and prioritize sustainable practices.

In 2018, Elkington further refined the TBL concept, reinforcing that sustainability is built upon three fundamental pillars: social, environmental, and economic—previously known as people, planet, and profit. However, the TBL framework does not fully account for the complexities of integrating quantitative and qualitative data, presenting challenges in combining scientific analysis with sustainability initiatives. Strengthening the link between these elements through effective TBL reporting can help integrate sustainability practices and promote societal well-being (James, 2015). From a sustainability perspective, multiple disciplines—such as geography, urban development, environmental management, sociology, ethics, and philosophy—contribute to a comprehensive understanding of societal changes across various sectors.

Given this, accounting literature has long been concerned with educational issues, in part due to the inherent conflicts in any approach to accounting education. These conflicts arise from accounting's perceived procedural, technical, and "neutral" nature, which is often reinforced by a focus on memorization, getting answers "correct," and generally discouraging critical thinking. Recent pedagogical research has highlighted that accounting students tend to prioritize shallow learning over deeper engagement, shedding light on these concerns.

The inclusion of topics such as ethics, social responsibility, environmental and social accounting, and sustainability in the accounting curriculum has intensified these concerns. These topics, which are often deeply personal and complex, do not easily align with traditional accounting norms and educational practices. As a result, they have struggled to find a place in core accounting curricula and have faced resistance from both educators and students (Deegan, 2016; Collison et al., 2014). However, education goes beyond simply transmitting

knowledge—it shapes our understanding of who we are and how we should act within society, a purpose that many view as far more significant (Thomson & Bebbington, 2005).
According to PricewaterhouseCoopers' 2016 Global Investor Survey, over 60% of investors agree that a company's success in the 21st century will be judged by more than just its financial performance. Similarly, 84% of CEOs in PwC's 2016 Global CEO Survey believe that businesses are expected to meet the needs of a broader range of stakeholders. These findings raise important questions: Has accounting education evolved to keep pace with these changing business priorities? Does the current curriculum meet the needs of modern businesses? Do business school accounting programs effectively integrate sustainability into their teaching and practices? To what extent, and in what ways, has sustainability been incorporated into accounting education? Furthermore, what challenges does this integration process present?
To prepare accounting professionals for the 21st century and ensure they remain relevant in an era of increasing corporate sustainability, accounting schools must address these critical issues (Wall, 2018; Wall et al., 2017). This paper explores the key challenges in integrating sustainability into accounting education. Following this introduction, the discussion is organized into five sections. Section 2 offers an in-depth analysis of sustainability accounting, Section 3 looks at the role of professional accountants in promoting sustainable practices, particularly with respect to the Sustainable Development Goals (SDGs), and Section 4 proposes strategies for broadening the scope of accounting through sustainability-focused education.

Comprehending Sustainability Accounting

Sustainability accounting involves the measurement, analysis, and reporting of a company's social and environmental impacts. Also known as social accounting, corporate social responsibility (CSR) reporting, or non-financial reporting, it is a specialized area of financial accounting that provides external stakeholders with information beyond financial performance (Tilt, 2010). This area of accounting plays a critical role in evaluating the costs related to environmental activities, helping management make informed decisions to reduce negative environmental effects (Ilelaboye & Alade, 2022). By identifying areas for resource efficiency, cost savings, and connecting social and environmental improvements with financial opportunities, sustainability accounting is an essential tool for recognizing, assessing, and managing environmental and social risks.
Emerging around two decades ago, sustainability accounting is a subset of financial accounting that focuses on reporting non-financial information about a company's performance to external stakeholders such as investors, creditors, and regulatory bodies (Wikipedia). While financial accounting is a mandatory requirement, sustainability accounting remains voluntary. However, an increasing number of companies are incorporating social and environmental performance into their reporting frameworks.
Several reporting standards guide sustainability accounting, with the Global Reporting Initiative (GRI) being one of the most widely recognized. The GRI guidelines offer a benchmark for comparing company performance, demonstrating a commitment to sustainable development, and aligning organizational practices with established norms, codes, and voluntary initiatives (Asuquo et al., 2018). The GRI, an international organization, develops sustainability reporting frameworks that are used worldwide (Dura et al., 2021). The impact of globalization has further facilitated sustainability reporting, as businesses understand that transparent sustainability disclosures can boost their brand image and provide a competitive edge (Ebieri, 2018). According to the European Commission (2016), sustainability involves voluntary efforts by businesses to meet sustainability goals that go beyond legal requirements. Companies that integrate sustainable practices into their operations and strategies can enhance stability, gain a competitive advantage, improve corporate performance, and ultimately increase their value.

By adopting sustainability accounting, organizations can assess how environmentally responsible practices influence various facets of their operations, from facility expansion to supply chain management. Omojolaibi et al. (2019) suggest that sustainability accounting facilitates proactive decision-making by helping accountants report on the economic impact of environmentally responsible initiatives, ensuring compliance with environmental standards, and boosting financial performance. The primary goal of sustainability accounting is to provide stakeholders with a comprehensive view of an organization's economic, social, and environmental performance.

This approach is aligned with legitimacy theory, which underpins this study. Legitimacy theory posits that businesses must ensure their operations are socially acceptable and meet the expectations of the communities and environments in which they operate (Deegan, 2014). Imam and Anis (2007) further emphasize that organizations should demonstrate environmental performance and disclose relevant environmental information to maintain legitimacy. This perspective underscores the importance of prioritizing long-term social, economic, and environmental sustainability.

Based on the commonly accepted definitions, sustainability is built on three core dimensions: economic, social, and environmental. Therefore, sustainable development can be evaluated through these three interrelated dimensions.

Economic sustainability: This implies that companies should prioritize long-term financial stability over risky short-term pursuits of high profits. Consequently, large corporations have a responsibility to formulate business strategies that promote consistent and sustainable operations (Ebieri, 2018). Sustainability emphasizes that well-regarded business strategies should avoid actions that could lead to significant losses and instead focus on achieving steady, long-term earnings. The economic impact of such an approach may include the effects of a company's operations on local employment and livelihoods.

Social sustainability: This indicates that businesses should consider the importance of balancing people's lives and well-being as they conduct their operations. Growing societal inequality can lead to a widening gap between the rich and the poor, increasing social instability and the potential for unrest. To prevent this, wealth and opportunities should be more broadly distributed, breaking the cycle of inequality and fostering long-term business stability. Companies should cultivate a strong culture of respect for human dignity across all aspects of their operations, including workplace conditions, fair compensation, and relationships between superiors and subordinates. Employees deserve to be treated with dignity and fairness (Ebieri, 2018). The social impact of such an approach may encompass employee working conditions as well as community-focused initiatives.

Sustainability in the environment: This argument is based on the notion that natural resources are finite and depleting at a rapid rate. Therefore, they should be conserved in a way that allows future generations to enjoy the same standard of living as today. Preserving these resources becomes critically important (Brusseau, 2016). Corporations should take proactive steps to protect the environment, not merely as a legal obligation but as a voluntary commitment to sustainability. The Triple Bottom Line concept holds corporations accountable for maintaining a habitable environment, emphasizing that such measures are essential rather than optional. The environmental impact of corporate actions may include factors such as the quality of discharged wastewater or greenhouse gas emissions from operations.

The Role of Professional Accountants to Promoting Sustainable Practices

Ethics serve as the foundation of the accounting profession within any organization. Professional accountants must apply a conceptual framework to identify risks that may compromise fundamental principles, assess the significance of these risks, and, if they are more than negligible, implement safeguards to either eliminate them entirely or reduce them to an acceptable level. This ensures continued adherence to core ethical values (Musa, 2019).

The role of professional accountants in reporting and promoting sustainability is broad and significant. Beyond assisting in the cost analysis of environmental decisions, they also contribute to the audit and assurance of corporate social reporting. Additionally, their expertise in aggregating data into meaningful insights can be leveraged to support sustainability initiatives (Birt et al., 2020).

Reporting

Professional accountants possess expertise in applying reporting standards and can leverage this knowledge to report on an entity's sustainability performance. Additionally, accounting systems can be adapted to incorporate social and environmental data, facilitating both internal and external reporting.

Cost Analysis

Accountants play a crucial role in evaluating competing investment projects and assessing their economic impact to support social and environmental initiatives. For example, they may analyze the costs and benefits of restoring land after development, selecting materials based on their financial and environmental implications, or weighing the expenses of energy-efficient equipment against long-term energy consumption costs. This process may also involve collecting, processing, and reporting non-financial data.

Audit and Assurance Services

To ensure the accuracy of financial and sustainability data, professional accountants establish and maintain internal controls structured policies and procedures that safeguard the reliability of reported information. Their expertise makes them well-suited for auditing and verifying corporate social responsibility (CSR) reports. Beyond internal controls, independent external organizations can also audit sustainability practices and reports. The Global Reporting Initiative (GRI) Standards highlight the importance of external assurance, emphasizing that:

Assurance should be conducted by independent, competent external entities.

It must follow systematic, documented, and evidence-based procedures.

The assessment should fairly and objectively represent the organization's performance.

Assurance providers must remain unbiased and not unduly influenced by the organization.

The process should evaluate the application of GRI Standards.

Assurance findings and conclusions must be publicly available.

Key Ethical Principles for Professional Accountants

According to Emenike-Wali and Chukwu (2021), professional accountants must uphold key ethical principles to effectively fulfill their roles. These principles include:

Integrity: Accountants must demonstrate honesty and fairness in all professional and business dealings (Musa, 2019).

Impartiality: Accountants should avoid bias, conflicts of interest, and undue influence when making professional or business decisions (Izedonmi, 2012).

Independence: Auditors must remain objective and unbiased, prioritizing the interests of stakeholders relying on financial statements over any personal or corporate affiliations (Arowoshegbe et al., 2017).

Professional Competence and Due Care: Accountants have a continuous responsibility to update their knowledge and skills to ensure they provide competent professional services (Musa, 2019).

Confidentiality: Accountants must protect sensitive business information and refrain from unauthorized disclosures.

Professional Conduct: Accountants should adhere to legal and ethical standards and avoid actions that could damage the reputation of the profession.

Accountants' Role in Achieving the UN Sustainable Development Goals (SDGs)

The United Nations Sustainable Development Goals (SDGs), established in 2015, provide a global framework for addressing pressing challenges such as climate change, poverty, inequality, and environmental degradation. These 17 goals, outlined in 169 specific targets, call for collective action from governments, businesses, and individuals to promote sustainable development.

The importance of high-quality corporate reporting in achieving financial stability and supporting the SDGs was officially recognized during the 32nd session of UNCTAD's Intergovernmental Working Group of Experts on International Standards of Accounting and Reporting (ISAR). Professional accountants play a vital role in this process by measuring, evaluating, and disclosing companies' progress toward SDG targets.

Bakker (2012) of the World Business Forum for Sustainable Development remarked that "accountants are going to save the world," highlighting their contributions to:

Reducing information asymmetry and assessing investment risks.

Developing integrated reporting and audits for sustainability.

Establishing sustainability accounting, reporting, and auditing standards.

Enhancing corporate transparency through governance, risk management, and due diligence.

Supporting anti-corruption measures and ethical business practices.

International organizations such as the International Federation of Accountants (IFAC), the Association of Chartered Certified Accountants (ACCA), ISAR, Fauna & Flora International, the World Business Forum on Sustainable Development, KPMG, and PwC recognize the essential role of accounting in advancing the SDGs.

Given this context, it is essential to outline and promote the integral role of accounting in achieving sustainable development goals

Table 1. Mapping the SDG's Goals interconnection in the light of accountancy contribution.

Goal	Target		Key Accountant's contribution	
4: Quality Education	3, 6	Undertake initiatives to boost the profession's talent pool	Identify innovative ways to contribute to societal goals, such as increasing financial, literacy	Consider how to address inequality in the rates of men and women entering the profession
5: Gender Equality	5	Champion diversity, especially in gender	Create partnerships and support initiatives to increase the number of women in accountancy and finance, as well as in broader finance and business leadership roles.	
8: Decent Work and Economic Growth	1,3	Enhance awareness among accountants of the SDGs and the opportunities they create, and help foster the significant contribution of	Enhance awareness among accountants of the SDGs and the opportunities they create, and help foster the significant contribution of the profession to economic growth	Support the development and adoption of globally accepted standards for financial reporting for the public and private sectors, auditing, and ethics

		the profession to economic growth		
9: Industry, Innovation, Infrastructure	4, 5a	Facilitate the profession's contribution to integrated reporting to rebalance economic and capital market decision making in favor of long-term value creation	Accelerate efforts to influence and drive sound public and private sector governance and financial management	Identify and evaluate opportunities for investment in new technology and infrastructure to enhance the sustainability of organizations
12: Responsible Consumption and Production	6	Provide visible and practical leadership to help drive greater insights and transparency that can lead to a more enlightened and inclusive capital markets system through decisions based on a longer-term perspective	Help companies, especially large and transnational companies, adopt sustainable business practices through integrating sustainability information into their governance, management, and reporting	Further develop support services that help accountants play a role in embedding sustainable development into strategy and operations
13: Climate Action	1-3	Support market-based policy initiatives, such as carbon pricing, as a key policy lever to encourage necessary efficiency gains and investment in new technology	Encourage and support consistency, accessibility, and usefulness of climate-related disclosure and reporting	Keep accountants informed of how they can support their organizations' efforts to lower carbon emissions and adapt to climate change
16: Peace, Justice Strong Institutions	5,6	Advocate for good governance focused on smart regulation, rule of law, and well-functioning national institutions	Enhance the capacity of accountants to monitor and control fraud, corruption, and money laundering	Promote the importance of external public sector auditing in monitoring and reporting on national efforts to implement the SDGs
17: Partnerships for the Goals	9, 13, 14, 16, 19	Collectively consider where the profession can contribute, especially in terms of where its perspective and influence would be valued, and which partnerships and collaborations would enhance its contributions		

Broadening the boundaries of accounting through sustainability accounting education.

The successful integration of sustainability into the curriculum is most effective when there is strong leadership commitment (Lee & Schaltegger, 2014). Various institutional factors play a crucial role in ensuring this integration, including supportive leadership, fostering relationships with non-academic stakeholders such as business communities, and investing in faculty development (Akrivou & Bradbury-Huang, 2015; Painter-Morland et al., 2016; Cornuel & Hommel, 2015).

A widely recognized framework for understanding sustainability integration in business school curricula is the model proposed by Painter-Morland et al. (2016). This framework consolidates insights from Rusinko (2010) and Godemann (2011), building upon previous research on sustainability education (Sammalisto & Lindhqvist, 2008; Lozano, 2006; Ahren, 2009; Moffat, 1988; Christensen et al., 2007; Tilbury et al., 2004; Kuh, 1995). The consolidated matrix outlines five curriculum approaches and emphasizes the importance of co-curricular activities, as these contribute to students' development of self-awareness, reflective thinking, and decision-making aligned with sustainability education and sustainable development (Rusinko, 2010). Furthermore, co-curricular activities can create a "hidden curriculum" that enhances students' practical learning experiences and strengthens their ethical sensitivity (Borges et al., 2017).

Matrix to illustrate integration of sustainability (adapted by Godemann et al. 2011, based on Rusinko 2010)

	Existing structures	New structures
Narrow Curricular	Quadrant 1 **Piggybacking** Integration of sustainability within existing structures by adding sustainability to individual sessions of courses or modules	Quadrant 11 **Digging deep** Integration of sustainability through new standalone modules.
Broad curricular	Quadrant 111 **Mainstreaming** Integration of sustainability within existing structures but with the emphasis on a broader cross curricular perspective. (entire curriculum)	Quadrant 1V **Focusing** Integration of sustainability through new cross-disciplinary offerings such as sustainability-related courses which are required for all business school students and new programmes.

Painter-Morland, M., Sabet, E., Molthan-Hill, P., Goworek, H., & de Leeuw, S. (2016). Beyond the Curriculum: Integrating Sustainability into Business Schools. Journal of Business Ethics, 139(4), 737-754. https://doi.org/10.1007/s10551-015-2896-6

A fifth dimension must be incorporated into existing frameworks, as they do not fully account for the systemic nature of curricular initiatives and the internal and external factors influencing them. This additional dimension, which we propose calling ‘Systemic Institutional Integration,’ is essential for any business school seeking to further embed sustainability into its curriculum. Successful integration requires:

Systemic Thinking and Systemic Leadership – A holistic approach that recognizes the interconnectedness of sustainability challenges and solutions.

Connectedness to Business, the Natural Environment, and Society – A strong alignment with real-world sustainability needs and industry expectations.

Institutional Capacity Building – Strengthening the institution’s ability to support sustainability initiatives at all levels.
Beyond the Curriculum: Integrating Sustainability into Business Schools
The Painter-Morland (2016) matrix aligns with three key approaches business schools adopt in addressing sustainability education:
Teaching Sustainability as a Standalone Subject – This involves designing separate courses that are added to the existing curriculum without significantly altering it (Sterling, 2004; Rusinko, 2010; Sterling, 2013; Snelson-Powell et al., 2016). While this bolt-on approach introduces students to sustainability concepts, it does not necessarily lead to behavioral change or long-term impact (Snelson-Powell et al., 2016).
Embedding Sustainability into the Entire Curriculum – This method integrates sustainability across various subjects, fostering deeper engagement and promoting environmentally responsible behavior (Rusinko, 2010; Snelson-Powell et al., 2016).
Capacity Building – This transformative approach reshapes both the curriculum and the institution itself, equipping students with the skills necessary to address sustainability challenges effectively (Rusinko, 2010).
The holistic approach outlined in this matrix aligns with the findings from a special issue in the Journal of Management Education (2009) titled “Greening and Sustainability Across the Management Curriculum.” A key takeaway from this discussion was that business schools must consider organizational, strategic, and operational factors when integrating sustainability into their curricula (Rusinko, 2010; Snelson-Powell et al., 2016).
Additionally, this perspective is consistent with other models that examine the extent of sustainability integration (Sterling, 2013) and the resources required for varying levels of implementation (Moon & Orlitzky, 2011**).**

Conclusion.

The study using descriptive approach reviewed the importance of sustainability accounting in the current dynamic business world. The role of professional accountant as regards sustainability accounting was critically reviewed. The study equally identified different approaches to broaden sustainability accounting. Based on the aforesaid, we conclude that accounting must embrace interdisciplinarity approach for its survival in the 21st century and beyond. It must go beyond a stand-alone approach for effective problem solving in the business world.

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