

Integrating sustainable practices in higher education pedagogy: Adaptation of the ESG framework

Integrando prácticas sostenibles en la pedagogía de educación superior: Adaptación del marco ASG

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used solely for research purposes. Secondary data, including concepts, theories, and discussions, were drawn from existing literature that was appropriately cited and referenced.

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ABSTRACT

The increasing emphasis on diversity, inclusion and effective approaches to teaching and learning has led to paradigm shift in higher education pedagogy. This study explored approaches to integrate sustainable practices into teaching and learning in higher education informed by the environmental, social and governance (ESG) framework. A qualitative research approach was adopted, drawing on primary data from interviews with selected higher education professionals in the United Kingdom, complemented by secondary data obtained from a comprehensive literature review. Data analysis was conducted using thematic analysis. The results and outcomes from the study indicated that environmental dimension encompassing eco-friendly learning environment, environmental preservation and technology enabled learning contributes to effective teaching and learning higher education. The study further indicated that strengthening the social dimension, encompassing equitable learning opportunities, fostering diversity in teaching and embedding inclusion within pedagogy, significantly enhances teaching and learning effectiveness in higher education. The study revealed that governance dimension shaped by contemporary regulation, quality standards, frameworks and policies plays a vital role in supporting sustainable practices in higher education. The study offers valuable insights for practitioners, professionals, learners and the broader community by outlining a pathway for implementing sustainable practices that promote effective teaching and learning and advance higher education outcomes.

Keywords. Sustainable practice, pedagogy, teaching and learning, ESG framework, higher education.

RESUMEN

El creciente énfasis en la diversidad, la inclusión y los enfoques eficaces de enseñanza y aprendizaje ha provocado un cambio de paradigma en la pedagogía de la educación superior. Este estudio exploró enfoques para integrar prácticas sostenibles en la enseñanza y el aprendizaje en educación superior, tomando como referencia el marco ambiental, social y de gobernanza (ASG). Se adoptó un enfoque de investigación cualitativo, basado en datos primarios obtenidos mediante entrevistas a profesionales seleccionados de educación superior en el Reino Unido, complementados con datos secundarios procedentes de una revisión exhaustiva de la literatura. El análisis de los datos se realizó mediante análisis temático. Los resultados indicaron que la dimensión ambiental, que incluye entornos de aprendizaje ecológicos, preservación ambiental y aprendizaje habilitado por la tecnología, contribuye a una enseñanza y aprendizaje eficaces en la educación superior. Asimismo, el estudio mostró que el fortalecimiento de la dimensión social — que abarca oportunidades de aprendizaje equitativas, el fomento de la diversidad en la enseñanza y la incorporación de la inclusión en la pedagogía— mejora significativamente la efectividad de la enseñanza y el aprendizaje en educación superior. Además, se evidenció que la dimensión de gobernanza, configurada por regulaciones contemporáneas, estándares de calidad, marcos

normativos y políticas desempeña un papel fundamental en el apoyo a prácticas sostenibles en la educación superior. El estudio ofrece aportaciones valiosas para profesionales, académicos, estudiantes y la comunidad en general, al delinear una vía para implementar prácticas sostenibles que promuevan una enseñanza y aprendizaje eficaces y contribuyan al avance de los resultados en la educación superior.

Palabras clave: *Práctica sostenible, pedagogía, enseñanza y aprendizaje, marco ASG, educación superior.*

INTRODUCTION

The United Nations Children's Fund (UNICEF) reported that achieving Sustainable Development Goal 4, necessitates the enhancement of sustainable practices in schools, colleges and universities. In shaping a sustainable future in higher education (HE), the intersection of teaching and research with social equity and environmental preservation has become increasingly compelling and timely. Hays and Reinders (2020) contended that the COVID-19 pandemic revealed the necessity of the education system to adopt more practical and sustainable teaching and learning practices. Accordingly, the purpose of this study is to develop, refine and proliferate a pedagogy in higher education that integrates sustainable practices.

Advancing a just future necessitates the designing and implementation of teaching and research practices that integrate diversity, equity and inclusion (DEI) addressing social impact and environmental relevance. Higher education institutions face an increasing need to embed sustainability into the curriculum, pedagogy and institutional practices. Ugglá and Soneryd (2023) highlighted the role of social systems thinking and environmental consciousness into educational paradigms, noting that universities can function as incubators for civic engagement and critical inquiry. Despite increased emphasis on sustainability, many higher education institutions face ongoing challenges in implementing sustainable practices in teaching and learning in meaningful and measurable ways. This research investigates the challenges involved in embedding teaching and learning practices more closely with environmental, social and governance (ESG) framework. Alhazemi (2024) argued that sustainability integration in HE must go beyond individual programs and be integrated across disciplines to ensure a robust and inclusive pedagogy. Existing literature on sustainability in HE primarily addresses environmental education, campus operations and activities and policy-level ESG reporting (Tasdemir & Gazo, 2020; Dong, 2023; Tang, 2023; Sheehan, Fox, Klassen & Vaidyanathan, 2024). However, empirical research linking ESG dimensions to pedagogical design, curriculum development, faculty competencies and student learning outcomes remains limited. This current study fills these gaps by operationalising ESG within pedagogy and demonstrating how ESG approaches are infused into teaching and learning to foster inclusive and innovative pedagogy. In light of this, the following research objectives and questions were articulated:

Aim and objectives of the study

The purpose of this study is to explore sustainability practices for enhancing higher education through the adaptation of the ESG framework. The specific objectives include:

- Examine how environmental dimensions of sustainable practices influence teaching and learning effectiveness in higher education.
- Determine the influence of social dimension of sustainable practices on teaching and learning effectiveness in higher education.
- Investigate the role of governance dimension of sustainable practices on teaching and learning effectiveness in higher education.

Research questions

To address the research objectives the following questions were answered in this study:

- How does environmental dimension of sustainable practices influence teaching and learning effectiveness in higher education?
- To what extent is the influence of social dimension of sustainable practices on teaching and learning effectiveness in higher education?
- What is the role of governance dimension of sustainable practices on teaching and learning effectiveness in higher education?

LITERATURE REVIEW

Sustainable practices and sustainability in Higher Education

Sustainable practices encompass actions implemented strengthen the sustainability of a given phenomenon, construct or processes providing a foundation for long term impact (Gamage, Ekanayake & Dehideniya, 2022). While the concepts are interconnected, in this study the term *sustainable practices* specifically refers to the methods and actions used to achieve sustainability within higher education. Sustainability refers to the condition in which current stakeholder needs are met without compromising the capacity of future stakeholders to meet theirs.. Sustainability is generally framed around three interrelated dimensions (economic, social and environmental). Filho, Shiel and Paço (2016) conceptualised sustainability in HE reflects an long-term goal of institutions, while sustainable practices are the concrete programmes and strategies that operationalise, this commitment across teaching, research, operations, and governance. Global environmental concerns and growing social inequality have made sustainability essential in education. Higher education scholars acknowledge the transformational potential of including sustainability in curricula, learning and institutional practice (Sterling, 2021; Leal Filho et al., 2016). The concept of sustainability in higher education is central to emphasising the process of embracing environmental goals while upholding social justice and equity in higher education UIHassan, Murtaza and Rashid (2025) argued that sustainability in higher education has become a significant requirement in the era of globalisation and global crises. It refers to the incorporation of sustainable practices, principles, ideologies and values, as well as ethics into universities and colleges across diverse aspects such as teaching and learning, curriculum development, operations, research, student and community engagement, formal and institutional governance. The focus of integrating sustainable practices in higher education is to create an avenue where stakeholders are environmentally conscious, socially responsible and economically aware (UI Hassan et al., 2025).

The concept of sustainability can be described as infusing sustainable practices in HE, however this has been challenging because of the nuanced elements involved. Hays and Reinders (2020) pointed out that the COVID-19 crisis revealed significant weaknesses in the higher education sector, in terms of approaches and outcomes. This has led to a critical need for shift from traditional teaching methods and advocacy for more innovative, practical and adaptable teaching strategies, stressing the need for sustainability and resilience in pedagogy and the design of educational institutions. Similarly, Uggla and Soneryd (2023) emphasised environmental and systemic thinking in education, demanding a transformation in teaching and research to address social and ecological interdependence. Arguably, in higher education, sustainability is often promoted through hands-on and interdisciplinary learning techniques. Sterling (2021) highlighted transformative learning, which seeks to alter students' thinking and behaviour along with their knowledge. This approach encourages critical reflection, systems thinking, and values-based education.

Despite the advancements in higher education, many institutions are lacking in maximising and supporting sustainability objectives with appropriate curricular or pedagogical transformation (Lozano et al., 2015). Barriers such as resistance from faculty, resource constraints and competing institutional priorities most times hinder the implementation of sustainability initiatives. As such,

more research is needed to ascertain the relevance of specific educational models in fostering sustainable practices for enhancing teaching and learning outcomes. This research would delve into how HEs can foster sustainability by creating novel instructional materials and institutional transformations. Therefore, adding to the ongoing debate by exploring how higher education institutions can design and implement teaching and research approaches that are both environmentally and socially responsible.

ESG framework

Scholars have demonstrated and highlighted the increasing importance of Environmental, Social and Governance (ESG) frameworks in achieving sustainability objectives. ESG metrics are widely used in the private business sectors but now need to be applied more effectively in education sector (Alhazemi, 2024). The ESG framework encourages institutions to take a well-rounded approach to their educational missions. Additionally, diversity, equity and inclusion (DEI) are crucial components of sustainability education. Researchers argued that ignoring the social factors of sustainability can weaken efforts in addressing and attending to major global challenges such as climate change and biodiversity loss (Agyeman et al., 2002; Filho et al., 2025).

The ESG (Environmental, Social and Governance) framework offers a robust model for entrenching sustainable practices in higher education. It entails ensuring that the activities and processes of an entity promote environmental preservation, social equity and ethical governance (Dong, 2023). While ESG is conventionally used to promote sustainability in corporate entities, its principles can be adapted to guide universities in fostering responsible teaching, learning, and institutional operations (Fristamara & Musmini, 2024). ESG is a set of criteria, benchmarks, standards, principles and guidelines for internal and external quality assurance in higher education. The ESG framework serves as a platform for major drivers for sustainable HE, that presents a more professional, transparent and streamlined quality higher education system. Akopyants et al (2024) affirm the importance of the ESG agenda in the educational policies of contemporary universities. Consequently, there needs to be protocols in place to ensure that universities or educational institutions are following the pathways set by ESG areas to make their teaching and learning relevant. This can be in the form of HE regulations that facilitate the capturing of ESG framework in their operations in the following ways: (1) environmental aspects in teaching and learning such as recognising climate change to offer suitable adaptation and mitigation, promoting circular economy practices in HE and assisting in pollution prevention. (2) covering social aspects, including linking teaching and learning to community development, designing teaching and learning to accommodate individuals from diverse socio-cultural contexts, adhering to fair employee practices and welfare and respecting human rights. (3) advance and adhere to governance aspects consisting of principles and ethical standards, diversity within institutional leadership and management, and implementing internal control, due diligence and anti-corruption protocols (Tang, 2023; Akopyants et al., 2024). The ESG framework can be considered holistic for administering sustainability in organisations. However, its practical implementation holds challenges and opportunities of a nuanced nature that makes continuous research justifiable and necessary. HE can put sustainability at the centre of its activities by strengthening its utilization and application of the ESG framework.

Theoretical review: Just Transition Theory

According to Droubi et al. (2023), the just transition is a carbon-to-low-carbon economy transformation for ensuring that sustainability is accomplished fair and equitable manner, without placing communities and countries at disproportionate risks. The Intergovernmental Panel on Climate Change (IPCC) notes that just transition presents a series of principles, procedures and processes ensuring that people, students, workers, places, markets, sectors, regions, economies, and countries are not left behind in transitioning from a high carbon to a low carbon economy. This

can relate to education focusing on equitable social and environmental shifts and strengthened institutions through governance to respond to the demand for inclusive and equitable teaching and learning (Wang & Lo, 2021; Abram et al., 2022). HE can attain just transition by emphasising equitable access, gender equity and international context, use of energy-saving infrastructure, and innovative technology. As the world moves towards a greener environment in response to climate change, HE is expected to pioneer knowledge search, formulation and implementation of sustainable practices.

Spours and Grainger (2024) investigated how further and higher education contributes to the just transition. The authors argued that integrating social ecosystem, environmental obligation, and regulation in education can enhance the position of teaching and learning in ensuring that just transitioning is achieved through research and teaching. In comparison, Kinol et al (2023) explained that colleges and universities can navigate climate justice in higher education based on proposed paradigm shifts towards a transformative role through inclusive teaching and learning engagement. This approach supports the impact of justice-centered research, embracing non-extractive hiring and purchasing practices, and integrating community-based practices across campus operations. In essence, the knowledge of just transition sets a background for this study to give insights into how sustainable practices can be integrated into teaching and learning in HE.

METHODOLOGY

This study employed exploratory research design using primary and secondary data that aligns with the themes of sustainable approaches for teaching and learning. In this study qualitative research design was used to provide comprehensive insights into teaching and learning processes in higher education. Using purposive sampling technique, a sample of 15 from higher education based on United Kingdom were chosen. The sample included instructors, academic staff and student support officers as professional experience and direct participation was required. The sample size of 15 participants was selected to achieve theoretical saturation and get deeper level of understanding. It represents a homogeneous group of professionals within the same institutional context, which improved the rationality and comparability of the data. To achieve thematic saturation while sustaining analytical perspective and manageability, qualitative interview studies usually need between 12 and 15 competent participants (Creswell & Creswell, 2018). The sample size was supported by both practical access and methodological guidelines within the chosen institution. Semi-structured, in-person interviews were used to gather data, which ranged from 10 to 15 minutes for comprehensive discussion of the study. Primary data were collected through semi-structured interviews conducted between March and May 2025. All interviews were carried out in English using online video-conferencing platforms such as Zoom and Microsoft Teams to enable participation across multiple institutions. Each interview lasted approximately 15 to 30 minutes and was conducted in a single session.

An interview guide was developed based on the research questions and the ESG framework. The guide consisted of open-ended questions designed to explore how environmental, social, and governance dimensions of sustainability influence teaching and learning in higher education. Examples of guiding questions included: “How do environmental sustainability practices shape teaching and learning in your institution?”, “How do issues of inclusion, diversity, and equity influence sustainable pedagogy?” and “How do institutional policies and governance structures support sustainability in education?”. Follow-up questions were used to probe and clarify participants’ responses. All interviews were audio-recorded with consent and transcribed verbatim for analysis.

In addition, secondary data was gathered and analysed from existing literature using a convenient sample of 25 journal articles that were surveyed from sources such as Google Scholar,

EBSCO, SCOPUS, and Web of Science databases. The keywords used in the search for the literature include “sustainable”, “teaching and learning” and “HE”. The periods considered for the collection of the data were from 2010 to 2025, to give a robust observation of insights into the research phenomenon.

Saunders et al (2019) posited that qualitative research can be deemed suitable for studies that seek to draw deeper insights into research phenomena and enact interpretations that are focused and applicable. The choice of secondary data analysis aligns with Kelly, Martin-Peters and Farber (2024) that secondary data analysis is relevant when research seeks to answer exploratory questions. Thematic analysis was used to analyse the data after a methodical and controlled multi-stage coding procedure. To find repeating terms, ideas, and patterns throughout the data, open coding was first used. Followed by Axial coding, which involves modifying categories, connecting similar ideas, and creating connections between developing themes. In order to improve dependability, authenticity, clarity, and general analytical rigor, topics were finally examined and validated through iterative comparison, reflective appraisal, and analytical discussion.

The research was designed and carried out with ethical considerations. Ethical approval was obtained from the research ethics committee of the participating higher education institution before data collection. A consent form and information sheet were given to each participant. The study focused solely on participants’ professional positions and experiences in a research setting. Anonymity and confidentiality were guaranteed to participants, and all data was handled in compliance with institutional ethical rules to ensure privacy and protection of data.

RESULTS

The thematic analysis of the key research questions based on insights from interviewees are as follows:

Theme 1: Environmental dimensions of sustainable practices influence teaching and learning effectiveness in higher education.

The respondents one, two and eleven made some inferences that environmental sustainability can be promoted by experiential learning by encouraging outdoor classrooms, eco-friendly campus and classrooms. It was established that environmental dimensions of sustainable practices significantly improve teacher-student engagement by integrating curriculum and interdisciplinary teaching with real-world applications. More so, respondents three, four, six and ten pointed out that environmental elements of sustainable practices are green infrastructure, ecological furniture and fittings, energy-efficient buildings, creating mental health and wellbeing spaces with comfortable learning environments, which in turn support cognitive function and concentration. Finally, the remaining respondents gave impressions that by embedding environmental responsibility into institutional culture, promoting internalization of sustainable habits by faculty members and students, activation of responsible behaviour for long-term impact.

In summary, HE institutions can implement and adopt environmental practices by making the teaching environment eco-friendly, carbon-neutral and encouraging students to appreciate environmental consciousness beyond the classroom. The codes and quotes from the interviews for research question one is summarised in Table 1.

Table 1. Environmental Dimensions in Sustainable Practices for HE

CODE	QUOTA EXAMPLE	DESCRIPTION
EXPÉRIENTIEL LEARNING	Sustainable campuses by creating outdoor learning opportunities that boost engagement	Environmental features utilised in pedagogy
CURRICULUM INTEGRATION	Environmental topics help students connect science, ethics and economics	Interdisciplinary teaching and research
HEALTHY LEARNING ENVIRONMENT	Green buildings improve learning concentrations and comfort for students	Physical and non-physical environment that are supporting learning
VISIBLE PRACTICES TO INSPIRE LEARNING	Waste recycling and solar panel classes make students more involved in real-world learning of ESG	Institutional role-modelling that impacts students with active learning

Source: Nvivo Software (2020)

Theme 2: Social dimension of sustainable practices on teaching and learning effectiveness in higher education.

The respondents one, four, five and six were of the view that social dimension in HE can be facilitated through ensuring inclusivity, equity, and access in pedagogy. This can be supported by encouraging diverse learning contexts where students from different backgrounds thrive and contribute unique perspectives. Furthermore, the respondents mentioned that socially sustainable institutions prioritize mental health and well-being, providing support systems that enhance students' ability to focus, participate, and succeed in their academic pursuits. The use of collaborations with community interaction and service-learning are needed in HE is key elements of the social dimension. HE can therefore connect academic content to societal challenges, enriching learning outcomes and promoting civic responsibilities.

The respondents two, three, seven and nine stated that socially sustainable environment in HE fosters collaboration over competition, promotes and encourages teamwork as well as driving communication skills critical to effective learning in both academic and future professional settings. In essence, the rest of the respondents expressed that incorporating social justice themes in teaching and learning modules can enhance alignment with social dimension. The faculty and students can benefit from social aspects of sustainable practices in the areas of critical thinking, empathy, ethical reasoning and transformative learning. The codes and quotes from the interviews for research question two are summarised in Table 2.

Table 2. Social Dimensions in Sustainable Practices for HE

CODE	QUOTA EXAMPLE	DESCRIPTION
INCLUSIVE LEARNING ENVIRONMENT	Diverse classrooms and learning environments improves critical thinking and peer learning.	Equity and diversity in HE learning environment drives better engagement.
FOSTERING STUDENT WELL-BEING	Mental health and well-being support boosts students' academic performance.	Social sustainability that aims at ensuring emotional/mental capacity
SERVICE LEARNING AND COMMUNITY	Connecting students to real social issues deepens their understanding	Bridging between the classroom with society.
COLLABORATION OVER COMPETITION	Group-based projects promote communication and reduce academic pressure.	Social dimension encourages teamwork.
CRITICAL SOCIAL CONSCIOUSNESS	Teaching through social justice assists students in becoming ethical thinkers	Building empathy, social awareness and reflective practice.

Source: Nvivo Software (2020)

Theme 3: Governance dimension of sustainable practices on teaching and learning effectiveness in higher education.

Respondents one, two, four, five and seven gave similar insights about how HE need strong governance for providing the necessary structural support for sustainable teaching and learning. This is based on aligning institutional policies with sustainability goals, ensuring adherence, consistency and long-term integration into curricula. The use of transparent, proactive and participatory governance can inspire faculty and student involvement in decision-making, fostering a sense of ownership and accountability in sustainable practices in HE.

The respondents three, six, eight and eleven aligned in their responses stating that governance frameworks can influence how sustainability is integrated in HE by appropriating curriculum design, prioritizing sustainability research and allocating funding. Effective governance ensures that sustainability in HE is not treated as a peripheral concept but is integrated into institutional vision and mission statements, faculty code of conduct development, performance assessments and evaluations targeted towards enhancing educational quality.

In congruence it was affirmed that governance mechanisms and systems play significant role in sustainability through policy development and integration committees or leadership structures that provide platforms for interdisciplinary collaboration and innovation, which enhance both teaching methodologies and learning outcomes. The codes and quotes from the interviews for research question three are summarised in Table 3.

Table 3. Governance Dimensions in Sustainable Practices for HE

CODE	QUOTA EXAMPLE	DESCRIPTION
POLICY INTEGRATION	Sustainability policies guide curriculum planning and design.	Governance ensures alignment between ESG mission and practice.
PARTICIPATORY GOVERNANCE	Faculty and students involved in decision making have more commitment to ESG outcomes.	Engagement increases relevance and ownership
STRATEGIC FUNDING AND PRIORITISING RESOURCES	Funding decisions show what the institution values and prioritise.	Governance as an enabler for sustainability investments.
PERFORMANCE AND ACCOUNTABILITY	Incorporating sustainability into performance reviews enhances how faculty functions	Reinforcing institutional goals through evaluation of ESG.
INTERDISCIPLINARY GOVERNANCE	Sustainability committees bring different departmental perspectives to curriculum planning	Promotes collaboration across disciplines

Source: Nvivo Software (2020)

DISCUSSION

The results of this study show gaps between conceptual commitment and pedagogical practice while confirming and expanding the body of research on the integration of sustainability and ESG principles inside higher education (HE). The discussion shows that sustainability programs in higher education are successful when tackled holistically through curriculum design, leadership and governance, research and innovation, and stakeholder engagement, in line with Alenezi and Alanazi's (2024) ESG-based paradigm. The results also imply that these elements are not equally ingrained in practice. While classroom innovation and curriculum redesign are well-developed, sustainability reporting, assessment procedures, and governance mechanisms receive limited consideration. This somewhat challenges the assumption in prior studies that ESG integration in HE is comprehensive and systematically implemented.

The results support the idea that in order to effectively support the Sustainable Development Goal of high-quality education, sustainable teaching and learning must concurrently address environmental, social, and governance dimensions (Finatto et al., 2024). By showing that using real-world corporate examples like Unilever, IKEA, and Google improves students' applied comprehension of ESG principles, this study expands on previous research. These cases encourage critical reflection on moral decision-making, creating value for stakeholders, and long-term organisational responsibility rather than serving only as illustrative content. This discovery challenges more conventional, theory-based teaching methods that place more emphasis on conceptual comprehension than on practical application. Hence, HE needs to focus on providing learners with tools, techniques, and frameworks, that make indicators of ESG performance identifiable and implementable across their process of receiving knowledge. Indeed, it was observed that teaching and learning can benefit from the ESG framework according to Schmuck (2021) who studied the European HE sectors incorporating principles of the ISO 9001: 2015 quality management standards. More so, the evolution of just transitioning can benefit students being prepared for a decarbonised future through formulations and implementations of teaching and learning based on ESG variables integrated into the course curriculum (Sheehan et al., 2024).

While providing a more analytical viewpoint on implementation challenges, the pedagogical strategies found in this study also align with previous work on sustainability education. Based on prior research studies, it is evident that reducing disciplinary boundaries strengthens sustainability learning; supporting both the transdisciplinary curriculum redesign promoted by Tasdemir and

Gazo (2020) and the systems-based approach suggested by Littledyke, Manolas, and Littledyke (2013). However, the results show that educators' ability to fully implement such transformative approaches is frequently limited by institutional constraints, such as strict program structures and assessment regimes. While Leal-Filho et al. (2018) and Ralph and Stubbs (2014) emphasize faculty commitment and environmentally conscious teaching methods, this study shows that individual effort is insufficient in the absence of coordinated institutional support, leadership engagement, and opportunities for professional development.

Furthermore, the results suggest that HE institutions need to go beyond aspirational sustainability statements and incorporate ESG principles into official quality assurance procedures, staff development frameworks, and inclusive assessment strategies from a policy and governance standpoint. While Gamage et al. (2022) show that active learning strategies like problem-based learning, scenario analysis, and cooperative discussion are effective, this study suggests that their long-term effects rely on institutional regulations and supportive governance structures. Therefore, sustainability should be positioned as a guiding principle that influences institutional culture, pedagogical design, and accountability systems in addition to being a curriculum theme. In congruence, Mokski et al (2023) asserted that the future of sustainable development in higher education institutions relies on effective interdisciplinary pedagogy that views the pursuit of knowledge from the perspective of social and environmental impact. This means that pedagogy strategies that are relevant and sustainable must balance social value with environmental responsibility. The use of technology platforms is blazing the trail for integrating sustainable practices into teaching and learning. This is based on providing inclusive teaching and resource conservation in offering education. This study employs a unique interdisciplinary framework that integrates the concepts of just transition, environmental, social, and governance (esg) frameworks, and transformative pedagogy. This paper examines how higher education (HE) institutions can effectively integrate sustainability into their teaching and research efforts. The framework outlines how these institutions can link their pedagogical practices to sustainable development goals while emphasising equity, inclusion, and social relevance.

Theoretical and practical contributions

The Just Transition Theory specifically informs the analytical lens of this study by foregrounding equity, inclusion and social justice in teaching and learning by the adaptation of the ESG framework within HE pedagogy. Thus, rather than treating sustainable practices as a purely environmental concern, the theory is applicable in this study based on the impact of sustainable practices on students, faculty, institution and communities. It shows how ESG-aligned pedagogical practices can reinforce inclusive teaching and learning, promote fair access and ensure that curriculum is transformative and socially responsible educational.

Figure 1 illustrates how the four main components; Just Transition Theory, ESG Framework, Transformative and Experiential Learning, and Sustainable Pedagogy and DEI converge to promote sustainability in higher education.

Figure 1. Theoretical framework for integrating sustainability in higher education

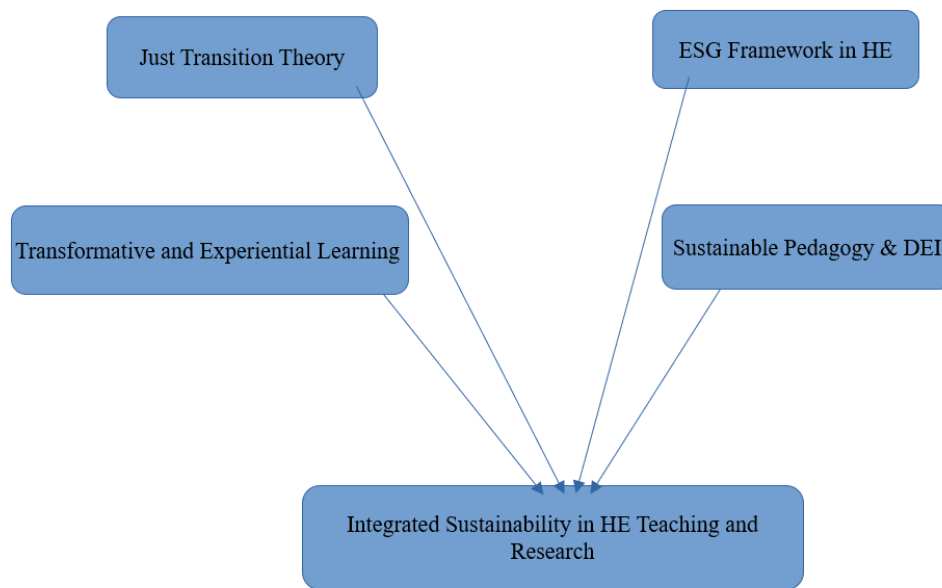


Figure 1 points out the theoretical and conceptual framework that integrates sustainability into higher education teaching and research which is informed from ESG components described in empirical findings. Just Transition Theory presents the normative perspective for diversity, equity and inclusion in teaching and learning as central to HE institutional sustainable strategies. The ESG framework operationalises sustainable practices for pedagogy at the institutional level. Furthermore, HE faculty members can benefit from figure above in terms of the transformative and experiential learning that explains the need pragmatic pedagogy that facilitates student engagement and applied learning competencies. Finally, sustainable pedagogy and DEI are linked as a result of the ESG integrations for inclusive curricula and participation, demonstrating how these principles reinforce effective sustainability integration across teaching, research, and institutional practices.

CONCLUSIONS AND RECOMMENDATIONS

This study has investigated the integration of sustainable practices into teaching and learning using ESG framework. The study was based on exploring how teaching and learning can be enhanced to be positioned as a veritable tool that highlights how sustainable practices can be attained by educating students in diverse forms and means.

From the empirical findings in the thematic analysis, it was concluded and established that the ESG framework can be positioned and embraced immensely in teaching and learning across HE. The findings showed that strategies for sustainable practices for teaching and research can be in the areas of environmental aspects of eco-friendly environments for learning by leveraging technology and digital tools, social dimensions in terms of equal learning opportunities, diversity, and inclusion in pedagogy, as well as governance dimensions in terms of regulation, standards, frameworks, and policies. By demonstrating best practices in their student learning, operations, teaching and research, and community interactions, HE institutions can navigate the challenges of sustainability.

The key recommendations from this study include: the need increased stakeholder awareness and commitment to the goal of a more sustainable world, by enacting teaching and learning

strategies that are integrative of social and environmental sustainability; establishing robust policies, leveraging on technological resources for pedagogy and being open to evolutionary changes in HE towards sustainability. In addition, some practical immediate suggestions to prepare for transitioning include curriculum redesigning and development for sustainability, empowering critical and circular thinking skills among students, and bringing together interdisciplinary approaches from the combination of fields such as business, science, engineering, and medicine.

It is also recommended that embracing innovations in renewable energy, smartboards, sound-proof classrooms and noiseless lectures can fuel sustainable practices for teaching and learning in HE. Finally, consistent with ESG frameworks, we recommend that HE should use energy-saving classrooms and campus buildings to meet environmental needs, provide inclusive programmes and scholarships for underrepresented students and community-based research, ensure annual review of their governance rules and regulations to meet sustainability reporting standards as well as strengthen student representation in various areas of the HE.

LIMITATIONS AND SUGGESTIONS FOR FUTURE RESEARCH

This study was carried out on integrating sustainable practices in higher education to enhance pedagogy using the ESG framework. The study was limited in terms of geographical context using insights from professionals in the UK. Also, the study was limited in terms of methodological constraints using qualitative research based on interviews and literature analysis. In light of the above future research can consider diverse geographical context using insights from countries in Europe or Asia. More so, future studies can build their research using quantitative research approach considering survey and a large number of responses.

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