



## Educational Leadership for Sustainability: A Qualitative Literature Review on Environmental Conservation in Higher Education

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### ABSTRACT

This qualitative literature review examines the role of educational leadership in advancing sustainability and environmental conservation within higher education institutions (HEIs), with particular emphasis on the Indonesian context. Universities are increasingly recognized as key agents of societal transformation, yet their ability to embed sustainability into curricula, operations, and community engagement largely depends on leadership capacity. Drawing on 65 selected studies published between 2010 and 2025, this review identifies leadership as a transformative force that mobilizes resources, fosters participatory governance, and cultivates sustainability-oriented cultures. The findings underscore that visionary and adaptive leadership approaches are essential for integrating sustainability into institutional missions and addressing contextual challenges such as resource constraints, bureaucratic rigidity, and cultural diversity. In Indonesia, green campus initiatives demonstrate progress but remain uneven across institutions, with leadership effectiveness emerging as a decisive factor. The review also highlights research gaps, particularly the lack of empirical studies capturing the lived experiences of leaders and the leadership styles most conducive to sustainability in resource-constrained settings. Overall, the study concludes that sustainability in higher education is less a technical challenge than a leadership endeavor, requiring adaptive, transformative, and collaborative practices to achieve long-term ecological stewardship. Recommendations include enhancing leadership training, strengthening governance frameworks, and advancing mixed-methods research to better capture the multifaceted impact of leadership on sustainability outcomes.

**Keywords:** *Educational leadership, environmental conservation, green campus, higher education, sustainability*

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## Introduction

The global shift toward sustainability has positioned higher education institutions (HEIs) as key actors in environmental conservation. Universities are not only centers of teaching and research but also influential institutions capable of driving societal transformation. As hubs of knowledge production and innovation, they are expected to model sustainable practices, inform public policy, and encourage communities to adopt environmentally responsible behaviors (Purcell et al., 2019; Tilbury, 2011). This role has become increasingly important as climate change, resource depletion, and environmental degradation intensify, demanding coordinated action across sectors, including education (UNESCO Global Independent Expert Group, 2022; Wamsler et al., 2021).

In this regard, universities play a pivotal role in shaping societal values and behaviors by embedding sustainability into curricula, campus operations, and community engagement. Through environmental education and practical initiatives, HEIs can cultivate environmentally conscious graduates who act as agents of change in their communities and professions (Sterling, 2001; Ryan et al., 2010). Moreover, by functioning as living laboratories for sustainable practices, such as energy efficiency, waste reduction, renewable energy use, and green campus initiatives, universities demonstrate tangible solutions that can be adapted by governments, industries, and local communities (Brinkhurst et al., 2011; Fissi et al., 2021). These efforts highlight the transformative capacity of higher education to generate knowledge, model sustainability practices, and disseminate ecological responsibility across society (Purcell et al., 2019; Ramos et al., 2015).

The integration of sustainability into higher education also requires strong institutional leadership and governance frameworks. Transformative leadership enables universities to embed sustainability into their vision, policies, and strategic planning, ensuring that sustainability is not treated as an isolated initiative but as a core institutional value (Budihardjo et al., 2021; Lozano et al., 2013). Leadership commitment further facilitates collaboration with governments, industries, and local communities, creating multi-stakeholder partnerships that amplify the impact of sustainability initiatives (Ramos et al., 2015). Without such leadership and governance, sustainability efforts risk becoming fragmented, symbolic, and unsustainable in the long term (Leal Filho et al., 2020; Wamsler et al., 2021).

However, while policies and frameworks exist, the success of these initiatives largely depends on leadership commitment, vision, and adaptability. Leaders act as change agents who guide institutions through organizational transformation toward sustainability. Their ability to foster participatory decision-making, encourage innovation, and build partnerships is crucial in overcoming institutional inertia and resistance to change (Leal Filho et al., 2020; Lozano, 2006). Leadership in this sense is not only about implementing rules but also about cultivating cultural and behavioral changes within academic communities, changes that encourage sustainable lifestyles, shared accountability, and long-term ecological stewardship.

Despite the growing recognition of sustainability in higher education, there remain significant research gaps. Much of the existing literature has focused on policy frameworks, infrastructure development, and technical solutions, with less attention given to the leadership dimensions that drive these transformations. International scholarship has emphasized leadership for sustainability in Western and developed contexts, yet studies exploring how leadership operates within Indonesian higher education institutions are still limited. Moreover, empirical findings on how educational leaders navigate contextual challenges such as resource constraints, cultural diversity, and institutional resistance are relatively scarce. Addressing these gaps is crucial to ensure that sustainability efforts in higher education are not only aspirational but also actionable and contextually relevant.

Therefore, this study conducts a qualitative literature review to examine how leadership in higher education contributes to environmental conservation and sustainable campus development. By synthesizing both international and Indonesian scholarship, it highlights the strategies, challenges, and outcomes of leadership in advancing sustainability. This approach

provides a holistic understanding of the ways in which leadership practices influence institutional capacity to respond to environmental challenges, and how these practices can be strengthened to support the global sustainability agenda while addressing local educational needs.

### Literature Review

This section reviews the key theoretical and empirical studies that inform the present research. It begins by examining the concept of educational leadership and sustainability in higher education, with particular attention to how institutions respond to global challenges through inclusive, adaptive, and future-oriented practices. It then considers perspectives on intercultural competence, experiential learning, and professional identity development, which are central to understanding pre-service teachers' experiences in international teaching contexts. While these strands of literature have been widely examined, they are often treated as separate domains. By synthesizing these perspectives, this review establishes an integrated theoretical framework to examine how cross-cultural internship experiences simultaneously shape pedagogical growth, intercultural adaptation, and professional transformation.

### *Educational Leadership and Sustainability in Higher Education*

Leadership in higher education has been widely recognized as a critical driver of the successful implementation of sustainability initiatives and the advancement of environmental conservation efforts (Leal Filho et al., 2020; Tilbury, 2011; Wamsler et al., 2021). University leaders play a strategic role in shaping institutional vision and long-term priorities by embedding sustainability principles into strategic plans, policies, and governance frameworks (Lozano et al., 2013; Purcell et al., 2019). Beyond setting direction, leaders are responsible for allocating financial, human, and infrastructural resources in ways that support sustainable campus operations, environmentally responsible research agendas, and sustainability-oriented curricula (Aleixo et al., 2018; Fissi et al., 2021). They also actively engage internal and external stakeholders, including faculty members, administrative staff, students, government agencies, and surrounding communities, to foster shared commitment and collective action toward ecological responsibility (Brinkhurst et al., 2011; Ramos et al., 2015). Unlike managerial roles that primarily emphasize routine administration and compliance, educational leadership highlights transformational qualities such as visionary thinking, participatory governance, ethical decision-making, and the capacity to integrate sustainability into the university's core functions of teaching, research, and community service (Bush & Glover, 2014; Leal Filho et al., 2020). Through these leadership practices, higher education leaders influence institutional policies and operational behaviors while also shaping students' environmental values, attitudes, and competencies, thereby contributing to broader societal awareness and long-term sustainability outcomes (Sterling, 2001; Tilbury, 2011).

Adaptive leadership theory has frequently been applied in the higher education context to explain how institutions navigate complex environmental challenges and respond to sustainability transitions characterized by uncertainty, interdependence, and continuous change (Heifetz, 1994; Heifetz et al., 2009; Leal Filho et al., 2020). In contrast to traditional leadership approaches that focus primarily on technical solutions and formal authority, adaptive leadership emphasizes leaders' capacity to diagnose systemic problems, question entrenched assumptions, and facilitate continuous organizational learning (Northouse, 2022; Uhl-Bien & Arena, 2018). Within the context of sustainability, higher education leaders are required to manage competing priorities, balance academic autonomy with institutional accountability, and align long-term environmental commitments with short-term operational demands (Leal Filho et al., 2020; Wamsler et al., 2021). Leaders who adopt adaptive approaches are therefore better positioned to address the dynamic and multifaceted nature of sustainability challenges, reconcile global sustainability frameworks, such as the Sustainable Development Goals (SDGs), with local socio-cultural and institutional contexts, and mobilize collective action among diverse stakeholders,

including academic staff, students, administrators, and external partners (Lozano et al., 2013; Sterling, 2001). This perspective suggests that sustainability in higher education is not merely a technical or managerial concern, but fundamentally a leadership challenge that requires vision, flexibility, shared responsibility, and collaborative governance to foster enduring institutional transformation (Bolden et al., 2009; Ryan et al., 2010).

### ***Integration of Sustainability into Institutional Missions***

Research has highlighted the growing trend of universities embedding sustainability into their missions, curricula, and governance structures (Lozano et al., 2013, 2019; Purcell et al., 2019; Tilbury, 2011). Leaders play a crucial role in operationalizing sustainability by promoting curriculum innovation, encouraging interdisciplinary research, and fostering partnerships with communities and industries. For instance, embedding environmental literacy across academic programs equips students with knowledge and competencies to address ecological challenges, while campus operations, such as renewable energy adoption, waste reduction, and green building development, serve as living laboratories of sustainability (Aleixo et al., 2018; Brinkhurst et al., 2011; Fissi et al., 2021).

Moreover, higher education leaders often face the challenge of balancing top-down policy implementation with bottom-up engagement from faculty, students, and staff. Studies suggest that sustainability efforts are most effective when leadership ensures participatory decision-making and empowers stakeholders to take ownership of initiatives (Brinkhurst et al., 2011; Ramos et al., 2015). In this sense, leadership functions as a mediator between structural requirements and cultural transformation.

### ***Leadership in the Indonesian Higher Education Context***

In Indonesia, sustainability initiatives have gained momentum through the implementation of green campus programs, supported by government policies and global sustainability rankings such as UI Green Metric (Budihardjo et al., 2021; Ragazzi & Ghidini, 2017; Sari et al., 2023). These initiatives include eco-friendly infrastructure, renewable energy projects, waste and water management, and curriculum reform aimed at enhancing environmental literacy (Rachmadian et al., 2025). However, the literature indicates that leadership effectiveness is uneven across institutions, with some universities excelling in sustainability integration while others struggle due to limited resources, competing priorities, and lack of stakeholder engagement (Masyhuri et al., 2025).

Cultural and socio-economic contexts also influence how sustainability is perceived and implemented in Indonesian universities. Leadership must navigate diverse cultural values, varying levels of ecological awareness, and institutional hierarchies that may resist change. The capacity of leaders to harmonize global sustainability frameworks with local realities is therefore pivotal (Budihardjo et al., 2021; Ryan et al., 2010). This highlights the need for leadership that is contextually grounded, culturally sensitive, and innovative in mobilizing resources.

### ***Challenges and Gaps in Existing Scholarship***

Despite growing attention, scholarship on sustainability in higher education remains heavily focused on policy frameworks, infrastructure, and technical interventions, with comparatively limited focus on leadership dimensions (Sanchez-Carrillo et al., 2021; UNESCO Global Independent Expert Group, 2022). While Western literature emphasizes transformational leadership for sustainability (Sanchez-Carrillo et al., 2021), empirical research from developing contexts, particularly Indonesia, remains scarce. Little is known about how Indonesian higher education leaders negotiate contextual constraints such as limited budgets, bureaucratic rigidity, and competing demands of academic excellence versus ecological responsibility (Masyhuri et al., 2025; Sari et al., 2023).

Furthermore, studies rarely capture the lived experiences of leaders in driving institutional change or the ways in which leadership styles influence the success of sustainability programs. This gap underscores the importance of qualitative inquiry to uncover how leadership practices shape organizational culture, stakeholder engagement, and long-term ecological outcomes.

### **Synthesis**

Taken together, the literature affirms that educational leadership is a decisive factor in promoting sustainability within higher education. Leaders act as visionaries, change agents, and facilitators who mobilize institutions toward ecological stewardship (Sanchez-Carrillo et al., 2021; Masyhuri et al., 2025). While global scholarship provides valuable insights, Indonesian higher education presents unique contextual challenges and opportunities that require deeper exploration (Budihardjo et al., 2021; Sari et al., 2023). Understanding leadership strategies and barriers within this setting is essential for advancing not only institutional sustainability but also national and global environmental goals.

### **Methods**

#### **Research Design**

This study adopts a Qualitative Literature Review (QLR) approach to enable a systematic yet interpretive examination of scholarly works related to educational leadership and sustainability in higher education. The QLR approach is particularly appropriate because it goes beyond merely aggregating existing findings; instead, it emphasizes critical interpretation and synthesis of the literature to develop deeper conceptual understanding and to identify theoretical, methodological, and empirical gaps within the field (Snyder, 2019). Through this approach, the study is able to explore how leadership is discussed, conceptualized, and operationalized in relation to sustainability across various academic contexts.

Unlike systematic reviews that are predominantly quantitative and focus on statistical aggregation or effect size measurement, QLR offers greater analytical flexibility in engaging with a wide range of sources. These include empirical research, conceptual and theoretical papers, as well as policy-oriented documents that shape sustainability practices in higher education institutions. This research design is therefore well suited to the objectives of the study, as it allows for a comprehensive and nuanced understanding of leadership as a multidimensional construct that influences sustainability outcomes in diverse institutional, cultural, and geographical contexts.

#### **Data Sources**

To ensure comprehensive and systematic coverage of relevant scholarship, this review employed a multi-source search strategy encompassing both international academic databases and nationally significant institutional repositories. Major international databases including Scopus, Web of Science, Google Scholar, ERIC (Education Resources Information Center), and ProQuest Education Journals were systematically consulted to identify peer-reviewed journal articles, scholarly books, book chapters, and conference proceedings relevant to educational leadership and sustainability in higher education. These databases were selected due to their broad disciplinary coverage, rigorous indexing standards, and established credibility in disseminating high-quality academic research.

In addition to international sources, this review deliberately incorporated context-specific materials to reflect the dynamics of sustainability practices within the Indonesian higher education system. Locally relevant sources, such as UI GreenMetric World University Rankings reports, official publications and policy documents issued by the Indonesian Ministry of Education, and nationally accredited academic journals, were examined to capture empirical evidence, policy orientations, and institutional initiatives that may not be fully represented in

global databases. The core review period focused on scholarship published between 2010 and 2025 in order to capture recent developments in sustainability leadership and climate-related challenges in higher education. Seminal theoretical and methodological works published before 2010 were retained only when they provided essential foundations for interpreting leadership, adaptive change, or qualitative analysis. This temporal scope allows the review to trace conceptual developments, methodological trends, and emerging research gaps within an evolving global and national context.

### **Search Strategy**

The literature search was carried out using a systematic keyword strategy. Boolean operators (AND, OR) were employed to refine the search and capture a wide range of relevant works. The key terms included “*educational leadership*” AND “*sustainability*”, “*higher education leadership*” AND “*environmental conservation*”, “*green campus*” AND “*leadership practices*”, and “*Indonesia*” AND “*sustainability in universities*.” Filters were applied to restrict results to English- and Indonesian-language publications, while irrelevant results were removed based on relevance to higher education and leadership. This strategy ensured that the review not only covered global scholarship but also incorporated perspectives from the Indonesian context, which is often underrepresented in international discussions of sustainability leadership.

### **Inclusion and Exclusion Criteria**

To ensure the relevance and quality of the selected literature, this review applied clearly defined inclusion and exclusion criteria. Studies were included if they: (1) were published between 2010 and 2025, with the exception of seminal theoretical or methodological works that directly informed the review framework; (2) were peer-reviewed journal articles, scholarly books, book chapters, conference proceedings, or authoritative policy documents; (3) were written in English or Indonesian; and (4) explicitly addressed educational leadership in relation to sustainability, environmental conservation, or green campus initiatives within higher education contexts. Both international and Indonesian-focused studies were considered to allow for comparative and contextual analysis.

Studies were excluded if they: (1) focused on sustainability without addressing leadership dimensions; (2) examined leadership in non-educational or non-higher education settings; (3) were non-scholarly sources such as opinion pieces, blogs, or unpublished manuscripts; or (4) lacked sufficient relevance to the research objectives based on title and abstract screening. This process ensured that the final selection of studies was aligned with the aims of the review and contributed meaningfully to the analysis of leadership in sustainability within higher education.

### **Selection Process**

The initial search across all databases generated more than 350 records. A two-step screening process was then employed. First, titles and abstracts were reviewed to assess relevance to the topic, resulting in the retention of 120 articles. Second, a full-text review was conducted using the inclusion and exclusion criteria, which narrowed the final corpus to 65 articles. These selected sources represented a balanced mix of international studies and Indonesian-specific literature, enabling a comprehensive comparative analysis. To ensure transparency and replicability, the selection process was documented following the logic of the PRISMA framework (Page et al., 2021), although adapted to the qualitative review approach.

### **Data Analysis**

The analysis of the selected literature was conducted using thematic analysis as outlined by Braun and Clarke (2006). The process began with familiarization, where each article was carefully read multiple times to capture both explicit findings and implicit conceptual insights. From this stage, initial codes were generated by identifying key concepts, arguments, and

patterns relevant to leadership and sustainability. The coding was conducted inductively, allowing categories to emerge naturally from the literature rather than being imposed a priori. These codes were then clustered into broader themes, such as visionary leadership, stakeholder engagement, curriculum integration, contextual challenges, and adaptive strategies. The themes were compared across international and Indonesian contexts to highlight similarities, differences, and unique contextual factors shaping sustainability practices in higher education. The synthesis provided a nuanced understanding of how educational leadership contributes to institutional sustainability strategies and cultural transformation.

### ***Trustworthiness and Rigor***

Ensuring the credibility and reliability of the review was achieved through several strategies. Triangulation was applied by consulting multiple databases and integrating both global and local literature, which minimized bias and enhanced comprehensiveness. Transparency was maintained by documenting the search process, inclusion and exclusion decisions, and analytical procedures in detail. In addition, reflexivity was acknowledged throughout the review, recognizing that the researcher's interpretive lens inevitably influences theme identification and synthesis. This reflexive stance helped maintain awareness of potential biases and strengthened the overall rigor of the study.

### ***Ethical Considerations***

As this study relied exclusively on secondary data, no direct human participation was involved. However, ethical integrity was carefully maintained through accurate citation, acknowledgment of intellectual contributions, and avoidance of plagiarism. In synthesizing the findings, the study ensured that authors' original ideas were represented faithfully and that interpretations were grounded in evidence from the reviewed texts.

### **Results**

The qualitative synthesis of the selected studies revealed several interrelated themes regarding the role of educational leadership in promoting environmental conservation within higher education. These themes highlight how leadership practices shape institutional strategies, influence stakeholder engagement, and navigate contextual challenges, both in global and Indonesian settings.

First, the review found that visionary and adaptive leadership emerged as the cornerstone of sustainability initiatives in higher education. Leaders who articulated a clear and long-term vision for environmental responsibility were able to mobilize resources, integrate sustainability into institutional missions, and inspire stakeholders to engage actively. Adaptive leadership practices were particularly important in contexts where sustainability required navigating uncertainties, reconciling global frameworks with local realities, and overcoming institutional inertia. This aligns with international scholarship that emphasizes leadership as a critical factor in enabling cultural and organizational transformation rather than simply enforcing compliance with external policies.

Second, the literature underscored the importance of stakeholder engagement and participatory governance. Studies demonstrated that when leaders fostered inclusive decision-making and empowered faculty, students, and administrative staff, sustainability initiatives achieved broader acceptance and long-term viability. For instance, embedding sustainability into curricula and research agendas was most effective when supported by collaborative structures that encouraged interdisciplinary innovation. Beyond academic functions, leaders also facilitated partnerships with external communities and industries, extending the impact of higher education institutions beyond campus boundaries and reinforcing their role as agents of societal change.

Third, the findings revealed that institutional and contextual factors significantly mediated the effectiveness of leadership in promoting sustainability. In Indonesian universities,

the adoption of green campus initiatives such as renewable energy use, eco-friendly infrastructure, and waste management was closely tied to leadership commitment. However, challenges such as limited financial resources, hierarchical organizational cultures, and varying levels of ecological awareness posed significant barriers. Leadership that was culturally sensitive and contextually grounded proved more effective in harmonizing global sustainability agendas with local socio-economic and cultural realities. This contrasted with studies from Western contexts, where resource availability and institutional autonomy allowed for more ambitious sustainability transformations.

Fourth, the review highlighted curriculum integration and cultural transformation as crucial outcomes of strong educational leadership. Leaders who prioritized environmental literacy and sustainability competencies within curricula created ripple effects that extended into student values and behaviors. This educational dimension positioned universities not only as knowledge producers but also as training grounds for future leaders with ecological mindsets. At the same time, leadership efforts were shown to shape campus culture by fostering sustainable lifestyles, shared accountability, and ecological consciousness within academic communities.

Finally, the analysis revealed several gaps in existing scholarship. While significant attention has been given to policy frameworks and technical solutions for sustainability, relatively fewer studies examined the lived experiences of leaders or the leadership styles that drive effective change in diverse cultural and institutional contexts. Particularly in Indonesia, empirical research remains limited, with most studies focusing on the technical implementation of green campus programs rather than the leadership dimensions underpinning their success. This highlights the need for more contextually grounded studies that explore how leaders negotiate challenges, build coalitions, and cultivate sustainability cultures within universities.

## Discussion

The findings of this Qualitative Literature Review (QLR) reaffirm that leadership plays a central role in advancing sustainability within higher education institutions (HEIs). More importantly, this study positions leadership not merely as an administrative or supportive function, but as a transformative mechanism that shapes how institutions respond to environmental, social, and organizational challenges. The prominence of adaptive and transformative leadership models across the reviewed literature suggests that sustainability in higher education is fundamentally a leadership-driven process rather than a purely technical or policy-oriented endeavor.

This study contributes to the literature by reframing sustainability as a collective and systemic responsibility that requires leadership approaches extending beyond top-down governance. The findings indicate that sustainability initiatives are more effectively institutionalized when leaders promote participatory decision-making, stakeholder engagement, and cross-sector collaboration. In this sense, leadership operates as a facilitator of shared ownership, enabling faculty members, students, administrators, and external partners to contribute actively to sustainability goals. This extends existing scholarship by highlighting that the success of sustainability efforts depends not only on strategic planning but also on leaders' ability to cultivate inclusive institutional cultures.

Furthermore, this study extends adaptive leadership theory by demonstrating its relevance in higher education sustainability contexts, particularly in non-Western and resource-constrained environments such as Indonesia. While adaptive leadership has traditionally been associated with managing complexity and uncertainty, the findings suggest that it also plays a critical role in reconciling global sustainability frameworks with local socio-cultural realities. Leadership, therefore, is not only about responding to change but also about actively shaping institutional capacity to navigate competing priorities, limited resources, and diverse stakeholder expectations.

At the same time, the findings challenge the assumption that sustainability initiatives can be effectively implemented through top-down policy directives alone. The synthesis reveals that

institutional and contextual constraints, such as limited financial resources, hierarchical governance structures, and fragmented policy environments, significantly influence the effectiveness of leadership practices. In the Indonesian context, these challenges are particularly pronounced, requiring leaders to adopt context-sensitive and flexible approaches. This suggests that leadership effectiveness lies less in formal authority and more in the capacity to mediate, negotiate, and mobilize collective action within complex institutional systems.

From a practical perspective, this study highlights several implications for higher education leaders and policymakers. University leaders are encouraged to adopt adaptive and participatory leadership approaches that prioritize stakeholder engagement and align sustainability initiatives with local institutional realities. Strengthening collaboration across internal and external stakeholders can enhance the relevance and long-term impact of sustainability programs. In addition, institutional support in the form of funding, capacity-building initiatives, and flexible governance frameworks is essential to enable leaders to implement sustainability strategies effectively. Without such support, sustainability efforts risk remaining fragmented or symbolic rather than transformative.

Finally, this review identifies a significant methodological gap in the existing literature. While qualitative studies have provided valuable insights into leadership practices and institutional dynamics, there remains a lack of large-scale quantitative and longitudinal research that can measure the impact of leadership on sustainability outcomes more systematically. Future research should therefore integrate mixed-methods and longitudinal designs to capture both the complexity and measurable effects of leadership in sustainability initiatives. Such approaches would contribute to a more comprehensive and empirically grounded understanding of how leadership influences sustainability trajectories in higher education.

## Conclusions

This study demonstrates that leadership is a critical driver of sustainability in higher education, functioning not merely as an administrative role but as a transformative force that shapes institutional direction and capacity for change. The findings highlight that adaptive and collaborative leadership approaches are particularly effective in embedding sustainability within institutional missions, fostering stakeholder engagement, and aligning university practices with broader global sustainability agendas. In this sense, sustainability is not simply a technical or policy issue, but a leadership-driven process that requires vision, flexibility, and the ability to mobilize collective action.

Importantly, the study underscores that sustainability in higher education is inherently context-dependent. While global frameworks provide general direction, their successful implementation relies on leadership that is responsive to local socio-cultural, economic, and institutional conditions. This finding emphasizes the need to move beyond universal models and toward leadership practices that are sensitive to diverse institutional realities, particularly in resource-constrained and culturally complex environments.

From a practical perspective, higher education leaders are encouraged to adopt adaptive, participatory, and context-sensitive approaches to sustainability. Institutional efforts should prioritize inclusive governance, curriculum integration, and sustained stakeholder engagement to ensure long-term impact. At the same time, adequate investment in resources and capacity-building initiatives is essential to address structural barriers that often limit the effectiveness of sustainability programs. At the policy level, supportive regulatory frameworks and institutional incentives are necessary to create enabling conditions for universities to embed sustainability across teaching, research, and community engagement. Strengthening collaboration among universities, industries, and communities can further enhance the societal relevance and impact of sustainability initiatives.

This study also highlights important directions for future research. More empirical studies, particularly those employing mixed-methods and longitudinal designs, are needed to examine the measurable impact of leadership on sustainability outcomes. In addition,

comparative research across different institutional and regional contexts would provide valuable insights into how leadership practices can be adapted to diverse settings while maintaining effectiveness.

Overall, this study contributes to the growing discourse on sustainability in higher education by emphasizing that meaningful and sustained transformation depends on leadership that is visionary, collaborative, and contextually adaptive. Strengthening such leadership practices is essential for universities to respond effectively to the complex sustainability challenges of the present and future.

## Declarations

### 1.1 Study Limitations

None.

### 1.2 Acknowledgements

None.

### 1.3 Funding source

None.

### 1.4 Competing Interests

The author declares no competing interests.

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