Perceptions of Academic Leaders Towards Ways of Promoting ESD In Higher Education In Some Universities in The Middle East

Submitted by

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ABSTRACT

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I. Introduction

Higher education institutions hold a strategic role in addressing contemporary sustainability challenges. As centers of knowledge, leadership development, and societal engagement, universities are increasingly expected to support sustainable development beyond traditional teaching roles (UNESCO, 2014). Education for Sustainable Development (ESD) has emerged as a framework for cultivating knowledge, competencies, values, and institutional capacities aligned with the United Nations Sustainable Development Goals (SDGs) (United Nations, 2015). Academic leaders influence institutional priorities, policy interpretation, curriculum reform, and organizational culture, making their perceptions crucial to ESD implementation (Leal Filho et al., 2018).

Sustainable development discourse rose globally following the 1992 UN Conference on Environment and Development, emphasizing the interdependence of environmental, economic, and social dimensions (United Nations, 1992). Education was identified as essential for societal responses. Subsequent frameworks, including Agenda 21, the UN Decade of ESD, and the Incheon Declaration, reinforced education's role in sustainability knowledge, values, and behaviors (UNESCO, 2016). Education for Sustainable Development (ESD) in Higher Education now encompasses environmental, social, ethical, economic, and global citizenship dimensions. Whole-institution approaches integrating teaching, research, governance, and community engagement are encouraged, though gaps between rhetoric and practice remain (Sterling, 2013; Tilbury, 2011).

Middle Eastern universities operate within expanding systems linked to national development agendas (Zaidan, Momani, & Al-Saidi, 2024), facing organizational and resource constraints. ESD initiatives often exist as isolated efforts rather than integrated strategies (Leal Filho et al., 2019). Leadership perceptions significantly influence how global frameworks are interpreted in culturally diverse institutions. This study examines two universities as illustrative cases.

1.1 Research Problem

Despite emphasis on ESD, understanding of academic leaders' perceptions, SDG awareness, and institutional responsibility remains limited (Wals & Benavot, 2017). Sustainability strategies do not always translate into coherent practices, suggesting misalignment between

discourse, capacity, and implementation. The study investigates leaders' perceptions and their relation to institutional readiness, focusing on organizational dynamics.

The study assesses leaders' understanding of SD, ESD, and SDGs, examines perception variations across roles and contexts, identifies conceptual gaps, and evaluates alignment between attitudes and practices. Research questions target perceptions, awareness, attitude-practice consistency, and institutional readiness, operationalized through testable hypotheses.

The study tries to answer some specific questions such as:

Question 1	What are the perceptions of the academic leaders in a number of ME universities towards SD & ESD?
Question 2	What are the perceptions of the academic leaders in a number of ME universities towards SDGs?
Question 3	What are the differences in such perceptions (of SD, SDGs and ESD) between male and female members of the study?
Question 4	Are there any differences of perception about SD, SDGs & ESD between the sample members due to the type of Position of Academic Leader?
Question 5	Will there be differences between the perceptions of the sample members according to the country or nationality of the university?
Question 6	What are the gaps in the understanding of academic leaders relating to SDGs?
Question 7	How far attitudes and practices of the academic leaders reflect consistency with the broad correct perception of SD and goals of ESD?
Question 8	How far practices and initiatives of each individual university reflect readiness and effectiveness in promoting and supporting ESD to students and to its own society?

In alignment with the research questions and objectives of the study titled "Perceptions of Academic Leaders Towards Ways of Promoting ESD in Higher Education in Some Universities in the Middle East," the following hypotheses are proposed. The hypotheses are structured to address the relationships and differences between perceptions of Education for Sustainable Development (ESD) among academic leaders, considering variables such as gender, position, and nationality.

Null Hypotheses (H_0)

- **H_{01}:** Academic leaders' perceptions towards SD and ESD are not significantly positive. (Dimension I)
- **H_{02}:** Academic leaders' perceptions towards SDGs are not significantly positive. (Dimension II)
- **H_{03}:** There are no significant differences between male and female academic leaders' perceptions of SD and SDGs. (Dimension I + II)

- **H_{04}:** There are no significant differences in perceptions of SD and SDGs based on academic leadership position. (Dimension I + II)
- **H_{05}:** There are no significant differences in perceptions of SD and SDGs based on country/university. (Dimension I + II)
- **H_{06}:** There are no significant gaps in understanding of specific SDGs among academic leaders. (Subscales of Dimension II)
- **H_{07}:** The attitudes and practices of academic leaders do not significantly reflect alignment with correct SD and ESD perceptions. (Dimension III)
- **H_{08}:** The practices and initiatives of the universities do not significantly reflect readiness and effectiveness for promoting ESD. (Dimension IV)

A convergent parallel mixed-methods design integrates quantitative surveys, qualitative interviews, and document analysis (Creswell & Plano Clark, 2018), enabling triangulation and capturing both perceptions and institutional practices.

In contribution to global sustainable development scholarship, the study earns its significance by providing a region-specific analysis of factors shaping Education for Sustainable Development (ESD) implementation in higher education. Examining the perceptions and practices of academic leaders in Middle Eastern universities, it supports evidence-based policy formulation, curriculum innovation, and strategic sustainability planning. The findings also inform regional and international stakeholders seeking to enhance institutional capacity, promote transformative leadership, and strengthen cross-cultural collaboration in ESD initiatives.

II. Theoretical Framework

This dissertation posits that Education for Sustainable Development (ESD) in higher education is primarily a leadership and governance challenge, rather than a narrowly curricular or technical issue. Institutional sustainability commitments often fail to translate into systemic practice, reflecting a gap between formal endorsement and operational reality. Policy or document analysis alone cannot explain this gap; an analytical framework is needed to examine how leaders perceive sustainability, form intentions, and navigate institutional constraints.

The study's theoretical framework serves as an explanatory instrument for interpreting leadership behavior, institutional inertia, and uneven ESD implementation, rather than

a descriptive review of existing theories. Theory is deployed to evaluate empirical findings, not merely as a conceptual backdrop.

The study assumes that academic leaders' engagement with ESD is shaped by cognitive judgments, normative expectations, and perceived capacity within institutional systems, consistent with the Theory of Planned Behavior (Ajzen, 1991). Expressions of support may reflect symbolic compliance or reputational pressures rather than genuine readiness, as suggested by institutional isomorphism theory (DiMaggio & Powell, 1983). The critical question is whether leaders view sustainability as mission-critical, receive normative reinforcement, and perceive sufficient authority and resources to act.

The Theory of Planned Behavior (TPB) frames intention as a product of attitudes, subjective norms, and perceived behavioral control (Ajzen, 1991). Within ESD, TPB explains how positive attitudes toward sustainability may coexist with limited action when perceived control is weak or normative support fragmented, emphasizing institutional conditions over individual motivation deficits. (See Appendix II, Figure 1)

Rhetorical sustainability commitments alongside limited systemic integration can be interpreted as outcomes of misaligned institutional structures rather than personal reluctance, consistent with institutional theory (DiMaggio & Powell, 1983). Leaders may conceptually endorse ESD while perceiving it as peripheral, weakly incentivized, or beyond their formal authority. The Theory of Planned Behavior conceptualizes this dynamic as an intention–implementation gap shaped by perceived behavioral control and structural constraints (Ajzen, 1991).

This framework is particularly relevant in higher education systems characterized by fragmented governance, limited coordination, and constrained resources. By emphasizing normative pressures and perceived behavioral control, it helps explain why sustainability initiatives frequently remain isolated, symbolic, or project-based (Ajzen, 1991; DiMaggio & Powell, 1983).

TPB explains intention formation but not why entrenched norms resist sustainability transformation. Transformative Learning Theory (TLT) complements this perspective, emphasizing change through critical reflection, dialogue, and reassessment of assumptions (Mezirow, 1997). Senior leaders often operate within traditions rewarding stability over

change, leading to conceptual awareness of sustainability without full institutional reform. (See Appendix II. Figure 2).

Combining TPB and TLT, ESD readiness is defined as intentional and transformational. Intentional readiness reflects leaders' inclination and perceived ability to act; transformational readiness reflects willingness to critically reassess institutional practices. Governance, culture, policy coherence, and resources jointly moderate these dimensions. This integration distinguishes superficial endorsement from substantive engagement and identifies where readiness falters; intention, reflection, or structural enablement; without normative judgment of actors.

The framework situates sustainability within historical and normative contexts. Contemporary challenges stem from industrialization's dual legacy of progress and environmental/social disruption. Sustainability is normative, raising questions of responsibility, equity, and long-term impact. Universities function as moral and civic institutions, tasked with shaping societal responses. Global frameworks such as the SDGs reinforce the relevance of leadership and institutional accountability in promoting sustainable development (United Nations, 2015; UNESCO, 2017).

Within this framework, sustainability is conceptualized beyond environmental metrics as a multidimensional construct encompassing environmental, social, economic, governance, and cultural dimensions, consistent with the holistic definition of sustainable development advanced by the World Commission on Environment and Development (1987) and embedded in the Sustainable Development Goals (United Nations, 2015). This operationalization counters the tendency to privilege visible environmental initiatives and instead aligns empirical measurement with the complexity of institutional transformation.

Measurement frameworks such as the SDG Index demonstrate that sustainability performance is quantifiable and policy-relevant, providing comparative metrics for evaluating national and institutional progress (Sachs et al., 2023). In this study, comparative analyses function as interpretive tools rather than normative rankings. Overall, the framework frames ESD as a leadership-centered institutional challenge shaped by intention, transformative learning, and structural constraints. Integrating behavioral and transformative perspectives allows analytically solid, empirically grounded, and policy-relevant interpretations,

strengthening the dissertation's explanatory impact and contribution to scholarly and policy debates on sustainability in higher education.

III. Education for Sustainable Development

Building on the normative and theoretical foundations of Parts I and II, Education for Sustainable Development (ESD) is positioned as the conceptual and operational core through which institutional readiness, leadership, and educational practice are examined. Within this integrated framework, ESD is the applied domain where values, intentions, governance, and learning processes converge (UNESCO, 2017; Sterling, 2010). Sustainability challenges; environmental, social, and economic; are systemic conditions requiring educational responses capable of addressing complexity, uncertainty, and interdependence (Wiek et al., 2011). ESD provides the arena where theoretical constructs and policy commitments acquire institutional and pedagogical meaning.

In essence, Education for Sustainable Development (ESD) is a Transformative Educational Paradigm. ESD represents a paradigmatic reorientation of education's purpose and societal function. Rather than a supplementary curricular concern, it reframes education as a mechanism for shaping ethical reasoning, collective responsibility, and long-term development trajectories (Tilbury, 2011; UNESCO, 2020). Education is understood as a formative process influencing values, behaviors, and decision-making cultures. The urgency stems from global risks such as ecological degradation, social inequality, and governance fragmentation (United Nations, 2015). ESD aligns education with future-oriented thinking, moral responsibility, and action competence, positioning it as both a preventative and enabling force.

ESD encompasses multiple dimensions; cognitive, socio-emotional, ethical, and behavioral domains; including systems thinking, critical reflection, ethical judgment, anticipatory competence, and responsible agency (Wiek et al., 2011; Rieckmann, 2012). Within the dissertation, ESD is both educational content and a process of institutional transformation. Sustainable development is a dynamic process requiring shifts in values, culture, and governance. Education functions as a lever enabling these shifts at individual, institutional, and societal levels.

Higher Education Institutions (HEIs) are Strategic Sites of Sustainability Transformation. Universities are strategic actors in advancing ESD through teaching, research, and societal engagement, shaping future leaders, professionals, and policymakers (Cortese, 2003). Effective ESD requires interdisciplinary approaches integrating environmental, economic, social, cultural, and institutional dimensions (Lozano et al., 2015). Fragmented models risk symbolic or isolated initiatives, while integrative models support engagement with sustainability as a systemic, contested, and context-dependent field.

Over past few decades, ESD experienced phases of incremental global evolution and Institutionalization. ESD's global evolution reflects recognition of education as central to sustainable development. International frameworks emphasize holistic learning models balancing disciplinary rigor with integrative, problem-oriented perspectives. The UN Decade of ESD (2005–2014) catalyzed embedding sustainability principles, competencies, and pedagogical innovation (UNESCO, 2014). Subsequent initiatives clarified ESD domains of knowledge, skills, values, perspectives, and pedagogy (UNESCO, 2017). Institutionalization reflects a global consensus that sustainability challenges require deep and sustained educational transformation.

ESD did not emerge on a single "inception date" but it became established as a systematic global paradigm in 2005, with the launch of the United Nations Decade of Education for Sustainable Development led by the UNESCO. Key Milestones includes; 1987, The Our Common Future introduced the modern concept of sustainable development; 1992, The United Nations Conference on Environment and Development (Rio Earth Summit) emphasized education in Agenda 21; 2002, The World Summit on Sustainable Development formally recommended a Decade of ESD; and 2005, Official launch of the UN Decade of ESD, marking the institutionalization of ESD as a coordinated international framework. Therefore, while its intellectual roots trace back to 1987 and 1992, 2005 is widely recognized as the formal beginning of ESD as a structured, global educational paradigm.

Educators are key agents operationalizing ESD. Transformative ESD relies on experiential, participatory, and inquiry-based learning (Tilbury, 2011), including community engagement, systems mapping, collaborative problem-solving, and reflective dialogue. Despite policy endorsement, a misalignment persists between sustainability goals and prevailing pedagogy, with traditional teaching methods limiting ESD's transformative

potential (Sterling, 2010). Pedagogical reform is foundational, not supplementary, for meaningful ESD implementation.

ESD implementation faces structural and cultural barriers. Disciplinary compartmentalization limits holistic integration, while ESD is sometimes seen as externally driven, generating resistance despite ethical grounding (Lozano et al., 2015). Additional challenges include rigid curricula, urban-centric frameworks, and reliance on individual commitment. Without coherent governance, evaluation, and sustained resourcing, initiatives risk remaining episodic and weakly embedded.

ESD aligns with the 2030 Agenda, particularly SDG 4 and Target 4.7, serving as a cross-cutting enabler across all SDGs by fostering ethical reasoning, collaboration, critical thinking, and sustainability-oriented behavior (United Nations, 2015). Global frameworks link sustainability goals to cognitive, socio-emotional, and behavioral outcomes, emphasizing context-sensitive implementation, transformative pedagogy, institutional autonomy, and lifelong learning (UNESCO, 2020).

Integrating ESD into teacher education requires curriculum redesign, sustained professional development, and institutional alignment (UNESCO, 2017). Whole-institution approaches reinforce coherence between educational environments and sustainability values. Evaluation mechanisms ensure effectiveness and accountability, capturing cognitive, socio-emotional, and behavioral outcomes while supporting continuous improvement, evidence-based decisions, and long-term investment in sustainability education.

In the dissertation, ESD functions as the conceptual bridge linking normative commitments and theoretical explanations to empirical investigation. It provides the lens for examining leadership perceptions, institutional readiness, and educational practices, revealing how global sustainability frameworks are interpreted, operationalized, and constrained in higher education contexts.

IV. Literature Review

This section consolidates international, regional, and institutional scholarship on ESD to situate the study within the theoretical, policy, and empirical landscape of sustainability in higher education. Literature is examined to elucidate how ESD is conceptualized, operationalized, and constrained across diverse socio-cultural, political, and governance contexts. The synthesis

functions as an interpretive lens through which institutional readiness and leadership-mediated implementation are understood (UNESCO, 2017; Sterling, 2011).

The literature is organized thematically to reinforce the analytical premise that academic leaders' perceptions mediate between global sustainability discourse and institutional practice. By integrating global, regional, and comparative institutional perspectives, this synthesis bridges normative sustainability frameworks with empirical examination of implementation and organizational behavior (Leal Filho et al., 2018).

From Global Perspective, ESD is a global priority, yet its enactment varies by cultural norms, governance structures, historical trajectories, and localized challenges (UNESCO, 2014). International scholarship emphasizes contextual responsiveness over universalized models.

From regional perspective; on one side, in Latin America, ESD is anchored in indigenous epistemologies, community engagement, and social justice, strengthening collective agency (Tilbury, 2011). In Asia-Pacific, strong government endorsement enables rapid policy diffusion but centralization constrains institutional autonomy and pedagogical innovation (Lozano et al., 2015); On the other side, Sub-Saharan Africa increasingly frames ESD through transformative and decolonial perspectives addressing inequality and social justice via participatory learning (Lotz-Sisitka et al., 2015); While Europe, particularly Western and Northern regions, demonstrates advanced institutionalization emphasizing systems thinking and futures literacy, though disciplinary silos persist (Sterling, 2011).

IV.1 ESD in Higher Education in the Middle East

Education for Sustainable Development (ESD) in Middle Eastern higher education has evolved significantly over the past two decades, largely influenced by global sustainability agendas and mounting regional environmental pressures. The United Nations Decade of Education for Sustainable Development (2005–2014) and the Global Action Programme (GAP) catalyzed policy attention and institutional discourse across the region (UNESCO, 2014c). In response, countries such as the United Arab Emirates, Jordan, and Qatar incorporated sustainability principles into national education strategies, though institutionalization remains uneven. In Jordan, for example, sustainability has been embedded in policy and curricula, yet implementation continues to be fragmented (Qablan et al., 2009). Thus, while ESD has gained rhetorical prominence, structural coherence across institutions remains limited.

Building on this policy momentum, institutional commitment in many Middle Eastern higher education institutions (HEIs), particularly within the Gulf Cooperation Council (GCC), is closely linked to national transformation agendas such as Saudi Vision 2030, which advocate curriculum reform, research innovation, and global alignment (Mohiuddin et al., 2023). Nevertheless, policy articulation frequently lacks operational clarity. Although sustainability frameworks have been formally adopted in several Saudi universities, their integration into teaching, campus management, and budgeting systems remains partial (Alshuwaikhat et al., 2016). The predominance of centralized, top-down governance structures further widens the policy–practice divide, positioning university leaders primarily as executors of national mandates rather than proactive institutional change agents. Evidence from Oman similarly emphasizes the need for leadership capacity building and shared institutional ownership to advance meaningful ESD implementation (Hussain & Al Barwani, 2015).

Curricular transformation represents another persistent challenge. While sustainability language appears in mission statements and strategic plans, it is seldom embedded systematically within course content or pedagogical practice (Tilbury & Wortman, 2004; Hassan et al., 2021). Limited interdisciplinary integration and insufficient emphasis on critical pedagogy constrain students' engagement with complex sustainability problems. Moreover, ESD frequently competes with dominant regional priorities such as employability metrics and STEM-driven performance indicators, reducing space for holistic, values-oriented sustainability education unless explicitly supported by institutional leadership (Wiek et al., 2011).

Faculty development further shapes ESD outcomes in the Middle East. Many academics report insufficient exposure to sustainability frameworks during professional preparation, resulting in fragmented and inconsistent delivery across departments (Al-Balushi & Al-Aamri, 2014). Although some universities have introduced sustainability centers and green campus initiatives, these efforts often remain extracurricular and disconnected from core curricula (UNESCO Institute for Lifelong Learning & Regional Centre, 2024). Consequently, systemic capacity building remains an urgent priority.

Importantly, emerging scholarship highlights the compatibility between Islamic ethical principles and sustainability education. Concepts such as stewardship (khalifa), moderation (wasatiyyah), balance (mizan), and justice (adl) align closely with ESD values (Andi Hajar, 2024; Kamali, 2016; Bsoul et al., 2022). Yet despite this philosophical resonance, their

structured integration into academic programming remains limited, underscoring the need for culturally grounded and institutionally embedded ESD frameworks across Middle Eastern universities.

IV.2 ESD in Higher Education: A Focus on Jordan and Israel

Education for Sustainable Development (ESD) in Middle Eastern higher education demonstrates varied trajectories, particularly when comparing Jordan and Israel. Jordan has been an early regional adopter of ESD, aligning national education strategies with global sustainability frameworks through partnerships with international organizations (UNESCO, 2014c). Public universities have incorporated sustainability into curricula and institutional planning, supported by international capacity-building initiatives such as TEMPUS and Erasmus+ (Hassan et al., 2021). Nevertheless, implementation often remains uneven and, in some cases, symbolic rather than transformative (Qablan et al., 2009).

Despite policy commitment, structural and regulatory limitations continue to constrain ESD integration in Jordanian universities. Research highlights weak institutional mechanisms, insufficient monitoring frameworks, and resource constraints that hinder systematic implementation (Al-Zawahreh et al., 2019). Faculty autonomy and limited interdisciplinary collaboration further complicate institutional coherence. However, growing participation in benchmarking initiatives such as SULITEST and GreenMetric, alongside active student engagement and emerging research centers, indicates gradual bottom-up momentum toward deeper institutionalization.

In contrast, Israel has pursued a research-led and locally contextualized ESD strategy. Universities such as the Hebrew University of Jerusalem and Tel Aviv University have embedded sustainability into campus operations, research agendas, and selected academic programs (Tal & Alkaher, 2019). This approach reflects stronger institutional alignment between environmental governance and higher education policy.

Moreover, Israeli ESD uniquely integrates environmental education with peace-building and coexistence initiatives, linking sustainability to social equity and intercultural dialogue. Government partnerships, including support from the Ministry of Environmental Protection and incentives from the Council for Higher Education, have encouraged interdisciplinary curriculum development and sustainability reporting (Negev et al., 2008)

Yet, despite comparatively advanced research integration, ESD in Israel remains partially compartmentalized within environmental and education faculties, limiting broader curricular diffusion (Arnon et al., 2014). Overall, both Jordan and Israel illustrate that while ESD discourse is well established in the Middle East, sustained institutional transformation requires stronger regulatory coherence, interdisciplinary integration, and systemic capacity building.

IV.3 Academic Leadership Perceptions

Senior leaders frequently articulate rhetorical commitments to sustainability aligned with global agendas, while mid-level leaders tend to emphasize operational realities, including limited authority, insufficient resources, bureaucratic rigidity, and faculty resistance (Sterling, 2011; Lozano et al., 2015). Leadership perceptions are further shaped by professional backgrounds, exposure to international sustainability networks, and prevailing institutional cultures, all of which influence how ESD is interpreted and enacted within academic settings (Leal Filho et al., 2018).

Structural and perceptual barriers significantly influence the depth of ESD implementation. Structural constraints include funding limitations, rigid accreditation frameworks, and the absence of clearly defined sustainability indicators within quality assurance systems (Alshuwaikhat et al., 2016; Lozano et al., 2015). Perceptual barriers emerge when sustainability is framed as peripheral or incompatible with dominant notions of academic excellence and disciplinary rigor (Tilbury & Wortman, 2004; Sterling, 2011). Conversely, several facilitators enhance institutional engagement with ESD. Professional development initiatives, international collaboration, peer learning networks, and distributed leadership models empower mid-level actors and broaden institutional ownership of sustainability agendas (Leal Filho et al., 2018). Such distributed approaches enable ESD to move beyond symbolic endorsement toward shared institutional responsibility.

Despite these enabling factors, ESD practices across HEIs remain uneven and frequently compartmentalized (Lozano et al., 2015; Leal Filho et al., 2018). Engagement is typically stronger within environmental and technical disciplines, whereas social sciences, humanities, and professional programs often exhibit limited integration (Wiek et al., 2011; Tilbury & Wortman, 2004). Student-led initiatives occasionally compensate for institutional gaps, demonstrating grassroots commitment to sustainability values (Leal Filho et al., 2019). However, branding-driven adoption of ESD risks performative engagement, where

sustainability is used primarily for reputational enhancement rather than systemic transformation, reflecting dynamics of symbolic compliance (DiMaggio & Powell, 1983). Moreover, assessment and benchmarking tools remain underutilized, constraining data-informed leadership decisions and institutional learning processes (Findler et al., 2019).

Collectively, the literature demonstrates a persistent tension between rhetorical endorsement and substantive institutional integration (Sterling, 2011; Lozano et al., 2015). Leadership perceptions, governance arrangements, faculty capacity, and cultural framing interact dynamically to shape ESD outcomes (Leal Filho et al., 2018). In the Middle Eastern context, systemic integration is particularly constrained by fragmented policy environments, uneven leadership agency, and competing institutional priorities (Qablan et al., 2009; Alshuwaikhat et al., 2016). These interacting factors underscore the centrality of leadership perception and governance coherence in determining whether ESD evolves from symbolic discourse into embedded institutional practice.

In conclusion, Advancing ESD requires more than policy alignment or symbolic initiatives. Sustainable integration depends on leadership commitment, culturally resonant framing, professional capacity-building, and coherent governance. These insights inform the study's empirical focus on leadership perceptions and ESD implementation.

V. Methodology

This section presents the methodological framework guiding the empirical investigation of academic leaders' perceptions, attitudes, and institutional practices regarding ESD in selected Middle Eastern universities. It operationalizes the theoretical grounding, literature synthesis, and problem framing from previous sections, providing the basis for the quantitative and qualitative findings in the following sections.

A convergent mixed-methods approach combined surveys, semi-structured interviews, and content analysis to enable triangulation across perceptual, attitudinal, behavioral, and institutional dimensions (Creswell & Plano Clark, 2018; Tashakkori & Teddlie, 2010). The design aligns with a pragmatic philosophy, leveraging quantitative breadth and qualitative depth to address complex sustainability phenomena.

The framework is anchored in the Theory of Planned Behavior (TPB), explaining how beliefs, norms, and perceived control shape intentional action (Ajzen, 1991), and Transformative

Learning Theory (TLT), addressing shifts in meaning through reflection and experiential learning (Mezirow, 1997, 2000).

A convergent parallel mixed-methods design allowed concurrent data collection, independent analysis, and integrated interpretation, enhancing rigor through cross-validation (Creswell, J. W, 2009).

- Surveys measured awareness, attitudes, behavioral intentions, and perceived institutional practices.
- Semi-structured interviews captured leadership rationales, contextual narratives, and experiential insights.
- Content analysis examined institutional texts and digital communications, linking reported perceptions to documented actions.

Key methodological considerations included systematic triangulation (Denzin, 2012), alignment with TPB/TLT constructs, and holistic capture of institutional readiness and leadership agency.

V.1 Survey

The survey assessed academic leaders' perceptions and self-reported ESD practices, operationalizing TPB and ESD constructs: awareness of SDGs, attitudes toward institutional responsibility, behavioral intentions, and observed institutional practices (Ajzen, 1991; Lozano et al., 2015). Items derived from literature synthesis, UNESCO ESD frameworks (UNESCO, 2017a), and TPB/TLT constructs. Validation included expert review, pilot testing, and iterative refinement. The instrument was administered in Arabic, Hebrew, and English to ensure inclusivity.

The survey targeted leaders at the University of Jordan (JU) and Hebrew University of Jerusalem (HUJI). Descriptive statistics profiled perceptions and practices; inferential analyses explored associations among awareness, attitudes, intentions, and practices. Quantitative findings were triangulated with interview and content analysis results (Creswell & Plano Clark, 2018).

V.2 Semi-Structured Interviews

The interviews focused on the purpose of exploring dimensions not accessible via surveys: leadership motivations, institutional cultures, enablers and barriers, and readiness for

curriculum, research, and community engagement. Methodologically, purposive sampling targeted senior leaders. Protocols probed TPB constructs and TLT-informed transformative experiences. Interviews were audio-recorded, transcribed verbatim, and analyzed via deductive thematic coding. Coding used literature-derived themes and theoretical constructs, allowing emergent sub-themes. These yielded nuanced insights complementing survey findings.

V.3 Content Analysis

Content analysis objective aimed at examining institutional ESD representations on websites, social media, strategic plans, and reports (2020–2025), using a deductive thematic framework informed by UNESCO and TPB/TLT (UNESCO, 2017b; Mezirow, 2000). Objectives included identifying narratives, assessing readiness, comparing messaging to perceptions, and contextualizing achievements. Methodologically, **d**eductive thematic analysis applied predefined ESD themes (Tilbury, 2011; Wals, 2014), manually mapped for interpretive depth. Limitations included reliance on public materials, potential idealization, and multilingual nuances.

Through Sample Thematic Analysis, comparisons revealed JU emphasized local sustainability relevance; HUJI focused on international environmental policy, reflecting prior research patterns (Lozano et al., 2015). Conducting themes refinement, ten emerging themes structured analysis from vision to implementation and outcomes, enabling systematic JU–HUJI comparison.

All three instruments; Survey, Interviews, and content analysis, were aligned with ESD dimensions and TPB/TLT constructs. Triangulation strengthened validity and supported integrated interpretation of institutional readiness.

V.4 Ethical considerations

Ethical conduct followed deontological standards, ensuring consent, confidentiality, voluntary participation, and cultural inclusivity (Brodhead et al., 2018; Mehta, 2025).

V.5 Writing Style

Reporting integrated statistical results with qualitative interpretation, maintaining APA compliance and transparency.

In conclusion, the framework operationalizes theoretical and conceptual foundations via an integrated mixed-methods design. Triangulating perceptual, narrative, and institutional data provides a robust empirical basis for interpreting academic leadership engagement with ESD.

VI. Findings

VI.1 Findings of the Survey

This section consolidates the complete quantitative evidence generated through the survey instrument and constitutes the quantitative pillar of the study's mixed-methods design. It provides the empirical grounding necessary for triangulation, explanation, and interpretation across data strands. The survey findings examine academic leaders' perceptions, awareness, attitudes, and reported institutional practices related to Sustainable Development (SD), Education for Sustainable Development (ESD), and the Sustainable Development Goals (SDGs), while maintaining alignment with the theoretical framework and preparing the analytical foundation for the qualitative findings that follow. The analytical strategy is structured in two complementary stages: descriptive statistics are first employed to map distributions and central tendencies, followed by inferential procedures to test differences and associations among variables. This sequencing ensures coherence within the triangulated design and reflects established mixed-methods integration principles (Creswell & Plano Clark, 2018; UNESCO, 2017).

Within this methodological structure, a stratified purposive sampling strategy was implemented to ensure analytical relevance and policy salience. The final sample (N = 257) was drawn from two flagship universities and deliberately structured to reflect leadership tiers, gender distribution, and institutional diversity. Participants were selected based on their direct involvement in governance, curriculum oversight, and ESD-related decision-making processes. Stratification enabled controlled comparisons across executive roles and demographic categories while preserving focus on institutional readiness and leadership agency, factors consistently identified as critical for ESD implementation in higher education (Leal Filho et al., 2019).

The demographic profile of respondents further reinforces the analytical robustness of the dataset. Gender distribution indicates 66% male participants (n = 169) and 34% female participants (n = 88), with comparable proportions across both institutions. Faculty representation was extensive, covering 92% of faculties at the Jordanian University and 65% at the Hebrew University. Participation was concentrated in high-impact scientific, medical,

engineering, humanities, and social science faculties, units frequently central to sustainability governance and institutional transformation (Tilbury, 2011).

Leadership positions ranged from university president to department chair and administrative directors, with nearly half of respondents occupying vice-dean or department chair roles, thereby strengthening the operational relevance of the sample. Experience levels were substantial: 73% reported more than ten years of service, and nearly half exceeded fifteen years. Such seniority enhances the reliability of perceptions concerning institutional change capacity and policy enactment (Ajzen, 1991; Lozano et al., 2015). Collectively, these structural characteristics strengthen the explanatory power of the quantitative findings and provide a solid empirical foundation for subsequent descriptive and inferential analyses focused on institutional readiness for ESD.

VI.1.1 Quantitative Analysis Findings

This section synthesizes the descriptive quantitative findings derived from a structured survey administered to academic leaders at the University of Jordan (JU) and the Hebrew University of Jerusalem (HUJI). The analysis profiles leadership awareness of the Sustainable Development Goals (SDGs), perceptions of Sustainable Development (SD) and Education for Sustainable Development (ESD), attitudinal readiness, and institutional practices related to SD and ESD enforcement. Using means, percentages, and distributional comparisons across gender, position, and experience, the findings provide a non-inferential yet empirically grounded diagnostic baseline that contextualizes and informs subsequent inferential testing. Consistent with the study's mixed-methods design, these results address the eight analytical questions guiding the survey component and align conceptually with earlier theoretical and methodological sections while preparing the ground for multivariate and significance-based analyses (UNESCO, 2017; Ajzen, 1991).

With regard to perceived versus actual awareness, a central diagnostic issue concerns the relationship between academic leaders' self-reported general perception of SD and ESD and their measured awareness of the SDGs. Across both universities, proposed general perception scores closely matched real SDG awareness scores, indicating limited self-inflation and lending credibility to subsequent self-reported measures. HUJI respondents reported marginally higher perceived competence than JU respondents (83% vs. 79%), though this advantage narrowed when contrasted with actual awareness levels, where exaggeration remained modest (≈4–5%). This convergence suggests reflective self-assessment capacity

among senior academic leaders, a prerequisite for meaningful institutional change processes (Sterling, 2011).

Turning to gender-based patterns, disaggregated analysis revealed a consistent yet modest trend: female academic leaders in both institutions reported slightly higher general perception of SD and ESD than their male counterparts. The difference was more pronounced at HUJI (≈3.2%) than at JU (≈2.6%), while female leaders at HUJI marginally outperformed female peers at JU. Although not inferentially tested at this stage, this pattern aligns with literature suggesting stronger sustainability orientation among female academic leaders, particularly in governance and curriculum advocacy roles (Leal Filho et al., 2019).

Examining variation by academic and executive position, perception levels differed substantially across hierarchical tiers. In both universities, top executive roles; President, Vice-President, and Dean; demonstrated the highest perception of SD and ESD, confirming the strategic influence of senior leadership in sustainability agendas. HUJI exhibited a wider perception gap across positions (range ≈10.7) than JU (≈7.7), indicating less uniform diffusion of sustainability awareness across its administrative structure. The Vice-President role at JU recorded the highest perception score across both institutions, whereas the Vice-Dean role at HUJI recorded the lowest. These results signal structural discontinuities between strategic and operational leadership tiers, reinforcing arguments that sustainability integration often weakens below senior executive levels (Lozano et al., 2015).

Similarly, awareness of the SDGs varied markedly by position and institution. HUJI leaders in “Other” and Presidential roles demonstrated the highest awareness, while Vice-Deans and administrative directors scored lowest. At JU, Vice-Presidents led awareness scores, followed by administrative directors, whereas Deans and Vice-Deans ranked lowest. Aggregated analysis confirmed that Presidents and Vice-Presidents consistently exhibited the strongest SDG awareness, while Deans and Vice-Deans formed the lower tier. These patterns underscore a partial decoupling between managerial authority and SDG literacy at mid-level leadership positions, posing risks for implementation coherence (UNESCO, 2020).

Considering experience, years of service did not correlate linearly with perception of SD and ESD. At HUJI, leaders with 15+ years of experience scored highest, while those with 1–4 years scored lowest, producing a sizable perception gap (≈9.6%). In contrast, JU exhibited minimal variation across experience categories (≈1.3%). When aggregated, experience-based differences across both institutions remained modest (≈2.6%), suggesting

that exposure to sustainability discourse depends more on institutional culture and leadership roles than tenure alone (Tilbury, 2011).

Analysis of awareness across individual SDGs revealed a polarized pattern common to both institutions. Environmental goals (SDGs 6, 14, and 15) consistently achieved the highest awareness scores, followed by SDG 17 (Partnerships). Conversely, SDG 5 (Gender Equality) and SDG 9 (Industry, Innovation, and Infrastructure) recorded the lowest awareness levels. The gap between highest and lowest scoring goals approached 90% in both universities, indicating a pronounced environmental bias and relative neglect of social equity and innovation-oriented dimensions of sustainability. This imbalance reflects broader critiques of SD implementation in higher education, where environmental concerns often eclipse socio-economic transformation (Sachs et al., 2019).

Attitudinal analysis further indicates that overall attitudes toward SD and ESD were positive and relatively high across both institutions, averaging approximately 78%, with JU holding a marginal advantage. Position-based differences persisted, as Vice-Presidents expressed the strongest positive attitudes while Vice-Deans consistently ranked lowest. The attitude gap between highest and lowest positions ranged from 8.5% to 14.6%, depending on institution. Although normative support for sustainability appears widespread, diminished attitudinal intensity at lower executive levels may constrain translation of policy into practice (Ajzen, 1991).

Regarding institutional practices, enforcement of SD and ESD was rated as “fairly good,” averaging approximately 72%. Both universities demonstrated comparable performance, with JU slightly ahead. Strong areas included recognition of SD’s global importance, social responsibility commitments, and environmental education integration. Weak areas involved recycling policies, depth of ESD integration, and clarity of implementation frameworks. This distribution highlights a persistent implementation gap between formal endorsement and operationalization, particularly in curriculum-wide and systemic ESD strategies (UNESCO, 2017).

Finally, a critical evaluative insight concerns the imbalance between dedication to SD and dedication to ESD. Both universities demonstrated stronger commitment to SD (≈74%) than to ESD (≈70%), with the relative gap exceeding 4.0% and reaching nearly 4.9% at HUJI. Factorized analysis indicated strengths in social responsibility and prioritization of SD, alongside weaknesses in research intensity, recycling, and structured ESD

implementation. Comparative results showed HUJI outperforming JU in equity and support for disadvantaged groups, while JU led in prioritization of SD and partnership practices. Collectively, these descriptive findings portray academic leadership that is broadly supportive of sustainability and moderately aware of the SDGs, yet unevenly prepared to institutionalize ESD. Awareness and attitudes remain concentrated at senior executive levels, environmental dimensions dominate sustainability cognition, and ESD continues to lag behind SD in structural integration, thereby reinforcing the need for differentiated leadership development and clearer governance frameworks in subsequent inferential analyses.

VI.1.2 Inferential and Descriptive Analyses: Conceptual Distinction and Complementarity

Inferential and descriptive statistical analyses serve distinct yet complementary purposes in quantitative research. Descriptive analysis focuses on summarizing observed data through measures such as means, standard deviations, and distributions, providing an empirical snapshot of respondents' perceptions within the studied sample. In contrast, inferential analysis extends beyond description to test hypotheses, assess statistical significance, and infer whether observed patterns are likely to generalize to a wider population (Field, 2018; Pallant, 2020). While descriptive statistics illuminate what academic leaders perceive regarding SD, ESD, and SDGs, inferential techniques clarify whether these perceptions are meaningfully different from neutrality, whether group differences exist, and whether relationships between perceptions, attitudes, and institutional practices are statistically solid. The integration of both approaches is therefore essential for producing deeper, more certain, and policy-relevant conclusions, particularly in institutional readiness studies related to Education for Sustainable Development (Creswell & Plano Clark, 2018; Field, 2018).

VI.1.3 Inferential Analysis Findings

Building on the descriptive patterns reported earlier, inferential statistical tests were applied to rigorously examine eight null hypotheses derived from the study objectives. Using IBM SPSS, one-sample t-tests, independent-samples t-tests, one-way ANOVA, and Pearson correlation were employed according to data structure and measurement scales. Assumptions of normality, homogeneity of variance, and independence were verified where applicable. This inferential phase strengthens the empirical foundation of the study by validating, qualifying, or challenging descriptive trends through statistical evidence (Creswell & Creswell, 2018). The inferential results revealed a differentiated pattern of retained and rejected hypotheses. Strongly positive perceptions toward SD, ESD, and SDGs were statistically confirmed, while

institutional readiness for ESD implementation emerged as a significant weakness. Demographic variables showed selective influence, with gender and academic position largely non-differentiating, but institutional and university-level context producing notable differences (See Appendix I, Table 1: Comparative Summary of Hypotheses Decisions).

In interpretive terms, the inferential analysis corroborated the descriptive finding that academic leaders hold strongly positive perceptions toward SD, ESD, and SDGs. Hypotheses H_{01} and H_{02} were decisively rejected, confirming that sustainability values are cognitively embedded at leadership levels, consistent with prior ESD research in higher education (Leal Filho et al., 2019; Wals & Benavot, 2017). However, the absence of statistically significant differences by gender (H_{03}) and academic position (H_{04}) suggests a relatively homogeneous normative stance across leadership hierarchies, aligning with the descriptive clustering observed earlier.

When examined at the institutional level, inferential testing exposed more nuanced dynamics. While nationality-based differences (H_{05}) were descriptively visible, they did not reach statistical significance, underscoring the importance of cautious interpretation of mean differences without inferential validation. Conversely, H_{06} revealed a statistically significant gap in SDG understanding between universities, indicating that institutional context; not individual demographics; plays a decisive role in shaping SDG literacy.

Furthermore, the correlation analysis (H_{07}) provided a critical integrative insight: attitudes and reported practices were moderately and significantly aligned. This finding reinforces descriptive indications of value–practice coherence, yet the strength of the correlation also implies that positive perceptions alone are insufficient to guarantee full institutionalization of ESD (Ajzen, 1991; Lozano et al., 2015).

Most critically, H_{08} was retained, demonstrating that despite high awareness and favorable attitudes, university practices and readiness for ESD remain significantly below the expected benchmark. This inferential result powerfully qualifies the descriptive findings by revealing a structural implementation gap, a pattern frequently reported in ESD policy–practice literature (Tilbury, 2011; UNESCO, 2020). The convergence and divergence between descriptive and inferential analysis are summarized in Appendix I, Table 2.

Taken together, the combined descriptive–inferential evidence yields a sharpened understanding of ESD readiness. While cognitive and attitudinal foundations among academic leaders are robust, institutional practices lag behind, revealing a persistent awareness–

implementation gap. From a policy perspective, this suggests that future ESD strategies should shift emphasis from awareness-raising toward governance reform, accountability mechanisms, and operational integration within universities (UNESCO, 2017; OECD, 2020). This integrated quantitative abstract thus provides the empirical bridge to the qualitative findings that follow, enabling triangulated interpretation across survey data, interviews, and documentary evidence.

VI.2. Qualitative Method Findings

VI.2.1 Findings of the Semi-Structured Interviews

Within the unified dissertation long abstract, the semi-structured interviews constitute a central interpretive component of the mixed-methods and triangulated research design. Building directly on the problem framing, theoretical foundations, contextual grounding, literature synthesis, and methodological architecture articulated in the first five sections, and complementing the quantitative survey findings presented in section VI.1, the qualitative interviews deepen understanding by foregrounding meaning, interpretation, and lived institutional experience. Whereas survey data revealed patterned tendencies and statistically generalizable perceptions regarding Education for Sustainable Development (ESD), the interview data embody voices and narratives that illuminate academic leaders' lived experiences. They elucidate how academic leaders actively interpret, negotiate, and operationalize sustainability within complex higher education governance environments (Creswell & Plano Clark, 2018; Denzin, 2012).

From an epistemological standpoint, the value of semi-structured interviews lies in their capacity to elicit reflexivity, contextual nuance, and emergent insights that structured instruments cannot capture. Through dialogic engagement with academic leaders, the study probes beyond declarative support for sustainability principles to uncover underlying rationales, tensions, and institutional constraints shaping leadership engagement with Sustainable Development (SD) and ESD (Braun & Clarke, 2021). Within the integrated dissertation logic, these interviews serve as a critical bridge between quantitative patterns (section VI.1) and institutional representations captured through document and content analysis (section VI.3), thereby strengthening analytical coherence, explanatory depth, and overall validity (UNESCO, 2017; Yin, 2018).

In terms of participant composition, the qualitative sample comprised seventeen academic leaders drawn from two major higher education institutions, representing six executive and academic ranks ranging from university president to assistant professor. This

stratified representation ensured vertical coverage across institutional hierarchies and enabled exploration of leadership perspectives at both strategic and operational levels. Gender representation included four female and thirteen male participants, reflecting prevailing regional leadership demographics. Professional experience ranged from 5–9 years to over 15 years, with the majority exceeding fifteen years of service, thereby enhancing the credibility of reflections on institutional culture, governance dynamics, and long-term change processes. Interviews were conducted through a combination of face-to-face and virtual modalities, ensuring accessibility while preserving depth and methodological rigor.

Analytically, the interview transcripts were examined using Reflexive Thematic Analysis, through which data were systematically coded, reviewed, and iteratively refined. This process generated five overarching themes that collectively capture academic leaders' perceptions, awareness, attitudes, practices, and forward-looking aspirations concerning SD and ESD. The themes align conceptually with the analytical dimensions established earlier in the dissertation; awareness, perception, attitude, and practice; while allowing for the inductive emergence of context-specific insights (Braun & Clarke, 2021). The five themes comprise: academic leaders' general perception of SD and ESD; academic leaders' awareness of the Sustainable Development Goals (SDGs); attitudes of academic leaders toward SD and ESD; university practices associated with promoting and fostering SD and ESD; and academic leaders' proposals for achieving higher-impact ESD. Collectively, these themes form the analytical backbone of the qualitative findings and are examined through thematic depth, comparative institutional lenses, and alignment with global ESD frameworks. (See Appendix II, Figure 4).

- ***Theme I: Academic Leaders' General Perception of SD and ESD***

The first qualitative theme emerging from the semi-structured interviews concerns academic leaders' general perceptions of Sustainable Development (SD) and Education for Sustainable Development (ESD). Thematically, this dimension occupies a central position within the qualitative dataset, accounting for over one-quarter of all coded segments and thereby underscoring its foundational role in shaping leadership cognition and institutional readiness for sustainability transformation (World Commission on Environment and Development [WCED], 1987; UNESCO, 2020). Across interviews, academic leaders predominantly conceptualize SD and ESD as multidimensional constructs integrating environmental integrity,

social equity, and economic viability, reflecting an understanding broadly consistent with established international definitions.

In elaborating their understanding of Sustainable Development, leaders consistently frame the concept as extending beyond environmental protection to encompass intergenerational equity, social stability, and responsible economic growth. Sustainable development is described not merely as ecological preservation but as a balanced framework reconciling environmental limits with socio-economic advancement. Human activity; particularly industrial production, fossil fuel consumption, and unsustainable lifestyles; is widely identified as the principal driver of environmental degradation. Participants frequently emphasize shared global responsibility for environmental stewardship while simultaneously acknowledging structural asymmetries between developed and developing contexts. This dual recognition reflects an emerging awareness of sustainability justice and differentiated national capacities, consistent with global development discourse (Sachs, 2015).

When discussing global warming and environmental harm, a strong consensus attributes climate change primarily to anthropogenic causes. Leaders cite greenhouse gas emissions from transportation systems, industrialization processes, and deforestation as central contributors. Environmental degradation is not framed in isolation but rather linked to displacement, food insecurity, public health risks, and social instability. Such associations suggest an emerging systems-thinking orientation in which environmental, social, and economic domains are perceived as interdependent, aligning with sustainability science perspectives that emphasize complexity and interconnectedness (Sterling, 2011).

The relationship between industrial development and environmental protection generates more differentiated responses. Some academic leaders view industrial development as potentially adaptable through technological innovation, regulatory reform, and green growth strategies. Others, however, identify entrenched economic incentives and growth imperatives as persistent structural barriers to ecological sustainability. Despite variations in emphasis, there is broad agreement that environmental protection should not be subordinated to industrial expansion. Many participants advocate for integrated development models that operate within ecological limits, thereby reconciling economic advancement with environmental stewardship.

With respect to the significance of Education for Sustainable Development, most academic leaders strongly endorse ESD as a critical mechanism for shaping student values, behaviors, and civic responsibility. ESD is frequently characterized as a transformative

educational approach capable of cultivating ethical awareness and long-term societal change. Nonetheless, a minority of participants express skepticism regarding the capacity of formal education alone to produce deep structural transformation, pointing to institutional constraints, political realities, and cultural resistance. These reflections reveal an underlying tension between aspirational educational ideals and pragmatic governance limitations, a tension well documented in ESD scholarship (Tilbury, 2011).

A comparative qualitative lens further reveals institutional variation. Leaders from one institution demonstrate stronger alignment with international ESD frameworks and global sustainability discourse, while the other institution exhibits greater internal variation and conceptual gaps in articulating SD and ESD principles. Although leaders across both institutions acknowledge human responsibility for environmental degradation, their confidence in the transformative capacity of universities differs. These divergences appear to reflect broader differences in institutional culture, governance structures, and strategic orientation toward sustainability. Collectively, this theme illustrates that while cognitive endorsement of SD and ESD is broadly established among academic leaders, its depth, coherence, and institutional embedding vary across contexts, thereby shaping subsequent patterns of implementation and engagement.

- ***Theme II: Academic Leaders' Awareness of the SDGs***

The second qualitative theme concerns academic leaders' awareness of the Sustainable Development Goals (SDGs), revealing a pattern that is uneven and frequently implicit rather than explicitly articulated. Although many participants express sustainability principles that closely align with specific SDGs; such as commitments to renewable energy, social equity, poverty reduction, and institutional responsibility; direct and systematic reference to the SDG framework itself remains inconsistent. In numerous instances, leaders articulate priorities congruent with the 2030 Agenda without explicitly situating their reflections within its formal architecture. At the same time, financial costs, entrenched institutional interests, and broader political-economic constraints are repeatedly identified as significant barriers to effective SDG implementation, reflecting recognition of structural limitations embedded within governance systems (United Nations, 2015). (See Appendix II, Figure 5).

Importantly, one academic leader explicitly questioned the underlying assumption that increased awareness or knowledge of sustainability frameworks necessarily translates into behavioral change. This participant emphasized the persistence of behavioral inertia and argued that knowledge acquisition alone is insufficient to generate meaningful transformation without

accompanying structural, cultural, and institutional interventions. Such reflections directly engage the longstanding knowledge–action gap identified in sustainability scholarship, which demonstrates that cognitive awareness does not automatically produce pro-environmental or socially responsible behavior (Kollmuss & Agyeman, 2002). This critical stance introduces a reflexive dimension to the interviews, suggesting that some leaders recognize the limits of informational strategies and the necessity of systemic reform. (See Appendix II, Figure 3).

From an analytical perspective, academic leaders' perceptions of the SDGs coalesce around the framing of sustainability as both a moral imperative and a systemic governance challenge. Leaders frequently describe sustainability as an ethical obligation toward future generations while simultaneously acknowledging the complex balancing act required to reconcile environmental protection with human quality of life and economic stability. Several interrelated sub-themes emerge within this broader framing. One concerns the tension between individual environmental responsibility and systemic accountability, with participants debating the relative weight of personal behavioral change versus institutional and governmental regulation. Another addresses the pressures of economic development, where growth imperatives are perceived as competing with ecological limits. Renewable energy is frequently invoked as both a promise and a constraint; symbolizing technological optimism; while also revealing infrastructural and financial barriers to rapid transition. Additionally, education is repeatedly identified as a central mechanism for fostering social equity and advancing sustainability objectives, though often without clear articulation of how educational strategies are systematically aligned with specific SDG targets.

Collectively, these findings indicate that while systemic thinking and normative endorsement of sustainability principles are evident among academic leaders, explicit familiarity with the SDG framework varies in depth and consistency. Moreover, limited accountability mechanisms, resource constraints, and insufficient strategic clarity appear to inhibit the translation of general awareness into structured institutional action. This theme therefore reinforces the broader pattern identified across the qualitative data: cognitive alignment with sustainability ideals exists, yet institutional embedding of the SDG framework remains uneven and partially articulated.

- ***Theme III: Attitudes of Academic Leaders toward SD and ESD***

Overall attitudes toward SD and ESD are supportive, with leaders acknowledging universities' societal responsibility while recognizing structural limitations. Most affirm institutional

accountability, though some defer primary responsibility to governments. Support for environmental regulation is widespread, tempered by concerns over enforcement and feasibility. Comparative analysis indicates variation in proactivity and strategic orientation across institutions, alongside lingering misconceptions regarding the sufficiency of individual action.

- ***Theme IV: Universities' Practices Associated with ESD***

The fourth qualitative theme examines universities' practices associated with fostering Sustainable Development (SD) and Education for Sustainable Development (ESD), emphasizing how institutional commitments are translated into operational mechanisms. Interviews indicate that SD and ESD are implemented through interconnected domains, including policy frameworks, curriculum integration, research agendas, community partnerships, and environmental management initiatives. These efforts reflect attempts to embed sustainability within core institutional functions rather than limiting it to symbolic endorsement.

Sustainability cultivation is supported by dedicated sustainability centers, targeted budget allocations, and sustainability-oriented curricula. Institutional emphasis varies: one university prioritizes interdisciplinary research and sustainability-driven collaboration, while the other focuses more strongly on strategic planning and systematic curricular integration. Despite these differences, both institutions position sustainability as a strategic priority within formal governance structures.

Leadership commitment is clearly articulated; however, implementation remains uneven across faculties. Variations in awareness and engagement among academic units constrain comprehensive mobilization, and faculty-level integration does not consistently mirror executive-level commitment. ESD is enacted through teaching innovation, research excellence, and community engagement. Sustainability-related courses, interdisciplinary modules, and problem-based learning approaches are complemented by research addressing environmental technologies and social inclusion, while community initiatives extend sustainability engagement beyond campus.

Both universities declare adherence to SDG principles, particularly regarding gender equality, inclusion, poverty reduction, and renewable energy. Policies supporting disadvantaged students; such as affirmative admissions, academic assistance, financial aid, and inclusive infrastructure; demonstrate commitment to social justice dimensions of sustainability.

Community collaboration with municipalities and civil society further enhances employability, civic responsibility, and social cohesion.

Nevertheless, implementation disparities persist. Faculties such as Agriculture and Social Sciences often lead sustainability integration, whereas others remain less engaged. Financial constraints, outdated infrastructure, and uneven student participation limit progress. Overall, strong strategic intent and equity-oriented policies coexist with uneven research–teaching integration and enduring institutional barriers that constrain comprehensive ESD institutionalization.

- ***Theme V: Academic Leaders' Proposals for Higher Impact ESD***

Academic leaders' proposals for achieving higher-impact Education for Sustainable Development (ESD) emphasize holistic planning, strengthened accountability mechanisms, and more effective administration of Sustainable Development (SD) and ESD, with holistic institutional strategies emerging as the most prominent priority. Recommendations focus on embedding sustainability systematically rather than maintaining fragmented or symbolic initiatives.

In terms of accountability, leaders propose mandatory sustainability standards, compulsory integration of sustainability within curricula, and structured experiential engagement mechanisms. These measures are intended to ensure consistent implementation across faculties and to move beyond voluntary commitment. Experiential components are viewed as critical for translating sustainability principles into applied competencies and student engagement.

A holistic strategy for ESD integration is widely advocated. Proposals include comprehensive curriculum reform, adoption of renewable energy practices, expanded community engagement, and integration of social justice dimensions within academic programs. Sustainability is positioned as a core institutional mission requiring alignment across teaching, research, and governance structures.

Administrative effectiveness is also emphasized. Leaders stress legislative enforcement, expansion of sustainability-related research, targeted funding allocations, decentralization of implementation processes, and reinforcement of experiential learning models. The emphasis consistently prioritizes implementation and measurable outcomes over declarative endorsement. Analytical synthesis of these proposals indicates strengths

in accountability design and experiential learning orientation, while revealing gaps related to deeper cultural transformation and a tendency to attribute constraints primarily to financial limitations.

To enhance the broader impact of the study, leaders recommend wide dissemination of findings, contextualization within regional realities, expanded institutional sampling, and closer linkage between sustainability initiatives and societal challenges. Integrated within the unified dissertation long abstract, these qualitative insights complement quantitative and documentary findings, reinforcing the explanatory coherence of the triangulated design and advancing understanding of institutional readiness and leadership agency in promoting ESD.

VI.2.2 Findings of Content Analysis

This section of the integrated dissertation provides a critical institutional analysis of how Sustainability and Education for Sustainable Development (ESD) are governed, operationalized, monitored, and structurally constrained within two higher education institutions: the University of Jordan (JU) and the Hebrew University of Jerusalem (HUJI). Building cumulatively on the problem framing, theoretical foundations, contextual analysis, literature synthesis, and mixed-method empirical findings established in preceding Parts I–VI.2, the analysis interrogates the extent to which sustainability has transitioned from declarative commitment to an embedded, accountable, and potentially transformative institutional practice (UNESCO, 2020; United Nations, 2015).

Methodologically, the analysis is grounded in a deductive thematic content analysis structured around predefined analytical domains derived from UNESCO's ESD framework and the Sustainable Development Goals (SDGs). Institutional strategies, sustainability policies, official reports, operational documents, and international benchmarking instruments constitute the primary data corpus. This deductive design enables systematic cross-institutional comparison while remaining sensitive to contextual, cultural, and governance-specific variation (Flick, 2018; Bowen, 2009).

Rather than treating institutional rankings or policy declarations as proxies for effectiveness, the analysis critically examines governance coherence, strategic alignment, implementation depth, and institutional learning capacity. In doing so, it exposes enabling structures as well as persistent structural disconnects that mediate sustainability integration,

revealing enduring tensions between formal intent and lived institutional practice (Lozano et al., 2015; Sterling, 2011).

- ***Institutional Governance of Sustainability***

Institutional governance and strategic positioning critically shape whether sustainability and Education for Sustainable Development (ESD) function as core institutional priorities or remain symbolic initiatives. Governance architectures, leadership mandates, and strategic instruments at the University of Jordan (JU) and the Hebrew University of Jerusalem (HUJI) illustrate distinct models with implications for accountability, participation, and decision-making authority (Tilbury, 2011).

At JU, sustainability governance is formalized primarily through policy instruments, most notably the Sustainability Policy (2022–2027), which outlines objectives across education, research, campus operations, and community engagement, supported by designated administrative responsibilities and performance indicators. While this formalization signals institutional recognition of sustainability, decision-making authority is heavily centralized at senior management levels, with limited faculty participation or bottom-up governance mechanisms. Consequently, sustainability is largely positioned as a managerial agenda rather than a collectively owned academic transformation, highlighting a structural gap between policy ambition and institutional culture (Leal Filho et al., 2019).

In contrast, HUJI exhibits a more embedded and distributed governance model. Sustainability initiatives are coordinated through entities such as the Center for Sustainability, which integrates education, research, and campus operations across academic units and interdisciplinary networks. This distributed structure facilitates academic autonomy, interdisciplinary collaboration, and research-led sustainability innovation. Nevertheless, the absence of a single unified and publicly articulated sustainability strategy introduces risks of fragmentation, uneven implementation, and variable accountability across institutional units (Lozano et al., 2015).

Comparatively, JU's centralized governance offers clarity, formal accountability, and visible institutional commitment but risks isolating sustainability from everyday academic practice. HUJI's embedded model promotes academic ownership, cultural integration, and innovation but depends heavily on informal norms and lacks enforceable institutional mandates. Both approaches demonstrate complementary strengths and vulnerabilities, with

governance architecture decisively shaping the trajectory, depth, and institutionalization of sustainability and ESD within higher education contexts.

- ***Curriculum Integration of ESD***

Curriculum integration constitutes a central indicator of the institutionalization of Education for Sustainable Development (ESD), as it reflects the extent to which sustainability principles are embedded within curricular structures, pedagogical practices, and intended learning outcomes (UNESCO, 2017). An examination of the two institutions reveals differentiated approaches to translating sustainability commitments into educational practice.

At the University of Jordan (JU), sustainability integration across curricula remains uneven and largely discipline-specific. Faculties such as environmental sciences, engineering, and selected interdisciplinary programs demonstrate explicit alignment with sustainability themes; however, institution-wide curricular mainstreaming is limited. Sustainability is commonly introduced through content augmentation within existing courses rather than through a comprehensive transformation of pedagogical frameworks. Although pedagogical innovation is supported through blended learning models and digital platforms, these developments are not consistently aligned with core ESD competencies, including systems thinking, critical reflection, and values-based learning. This pattern indicates a conceptual disconnect between technological modernization initiatives and the transformative objectives associated with ESD (Sterling, 2011).

In contrast, the Hebrew University of Jerusalem (HUJI) exhibits deeper curricular integration. Interdisciplinary degree programs, sustainability-focused minors, and research-led teaching initiatives reflect a more holistic educational approach. Academic offerings addressing food systems, renewable energy, environmental policy, and biodesign demonstrate alignment with transformative ESD principles. Pedagogical practices emphasize inquiry-based learning, experiential engagement, and cross-disciplinary collaboration. Within this framework, sustainability operates not merely as discrete subject content but as an epistemological lens shaping academic inquiry, curricular coherence, and graduate attributes (Wiek et al., 2011).

Overall, the comparative analysis reveals a qualitative distinction between additive and transformative curriculum models. While JU illustrates incremental inclusion of sustainability topics within existing disciplinary structures, HUJI more fully integrates sustainability within curricular philosophy and design. This contrast underscores the central role of pedagogical

orientation in determining whether sustainability education advances beyond thematic inclusion toward transformative institutional practice.

- ***Institutional Sustainability Research Models***

Research capacity and innovation ecosystems play a critical role in shaping institutional sustainability leadership, as the orientation, scope, and institutional integration of sustainability-related research significantly influence broader governance and strategic trajectories. At the University of Jordan, sustainability research is concentrated within specialized centers such as the Water, Energy, and Environment Center (WEEC), where research agendas prioritize regionally salient challenges, including water scarcity, renewable energy, and environmental monitoring. Although international collaboration enhances research capacity and technical expertise, interdisciplinary integration across faculties remains limited. Consequently, sustainability is framed primarily as a thematic research area situated within particular units rather than as an institution-wide research paradigm embedded across disciplinary boundaries.

In contrast, the Hebrew University of Jerusalem demonstrates strong interdisciplinary research integration supported by global collaboration networks and SDG-oriented research agendas. Initiatives such as Smart Urban Trees and OptiWheat exemplify applied sustainability research that addresses climate resilience and sustainable systems through cross-sectoral engagement. Within this institutional context, sustainability research is embedded in the broader research culture, reinforcing international visibility and academic leadership. Taken together, these contrasting research identities; JU's emphasis on contextual relevance and applied problem-solving, and HUJI's structural integration and global positioning; significantly shape their respective institutional sustainability outcomes.

- ***Campus Operations***

Operational practices and monitoring systems provide tangible evidence of sustainability implementation, as environmental management mechanisms and accountability structures translate institutional commitments into measurable outcomes. At the University of Jordan, explicit Key Performance Indicators are embedded within the sustainability policy framework, enabling structured evaluation and external benchmarking through instruments such as the QS Sustainability Rankings (QS, 2023). While these mechanisms enhance transparency and formal oversight, they remain largely compliance-oriented in their administrative orientation.

By contrast, the Hebrew University of Jerusalem relies on integrated monitoring systems linked to SDG reporting and international benchmarking frameworks. In this context, accountability is embedded within institutional practice rather than articulated through publicly disclosed KPIs, thereby emphasizing outcome-based evaluation over formalized metric disclosure. Overall, both institutions demonstrate accountability through distinct administrative cultures, converging on performance-based assessment while diverging in their approaches to formal reporting and public articulation of monitoring instruments.

- ***Financial Commitment***

Financial investment and resource allocation critically condition the scope and sustainability of ESD implementation.

HUJI demonstrates direct investment through dedicated sustainability centers and infrastructure initiatives. JU's financial commitment is reflected in strategic planning and externally funded projects, indicating reliance on hybrid funding models. Despite differing funding structures, both institutions allocate resources toward sustaining ESD initiatives, with varying degrees of transparency and institutionalization.

- ***Synthesis***

The analysis reveals two distinct sustainability pathways that reflect differing institutional configurations and governance cultures. The University of Jordan represents a policy-driven, administratively coordinated model characterized by formal commitment accompanied by uneven academic ownership, whereas the Hebrew University of Jerusalem embodies a research-led, culturally embedded model grounded in interdisciplinary practice and academic autonomy. Despite these contrasting orientations, both institutions confront shared challenges related to faculty engagement, curricular coherence, and the long-term sustainability of financial and organizational resources. (See Appendix II, Figure 6).

Taken together, this part of the integrated dissertation demonstrates that institutional sustainability integration is shaped less by the mere presence of policy frameworks than by governance culture, academic norms, and structural capacity. Through a deductive analytical framework, the analysis exposes persistent tensions between strategic intent and institutional practice, thereby establishing a critical foundation for the subsequent integrative discussion and the evidence-based recommendations advanced in the following section.

VII. Discussion

This section synthesizes findings on Education for Sustainable Development (ESD) in Middle Eastern higher education by integrating survey data, semi-structured interviews, and institutional content analysis through methodological triangulation. The analysis reveals measurable progress alongside persistent systemic challenges, highlighting tensions between institutional aspirations and structural or cultural constraints. By consolidating empirical evidence, the discussion provides a unified understanding of ESD implementation and advances actionable recommendations grounded in academic leaders' perspectives, underscoring the need for higher education institutions to move beyond rhetorical commitment toward transformative practices that promote sustainability, resilience, and forward-looking leadership aligned with regional and global development goals.

Within this integrative framework, a comparative evaluation of the three research instruments identifies areas of convergence and divergence concerning stakeholder awareness, institutional practices, and systemic impediments. Survey findings indicate high awareness of the Sustainable Development Goals (SDGs), particularly in Dimensions I and II, a pattern corroborated by interviews confirming consistent awareness among senior leaders, albeit with variation in interpretive depth. Content analysis likewise reveals frequent citation of ESD and SDGs in strategic documents, though such references are accompanied by limited operational elaboration. However, assessment of institutional practices demonstrates that perceived implementation remains weakest, as reflected in low survey scores in Dimension IV. Interviews attribute this outcome to structural, financial, and cultural barriers, while content analysis shows that references to ESD practices are largely rhetorical rather than operational. Survey data further indicate a significant positive correlation ($r = 0.514$) in attitude–behavior alignment, suggesting that leaders associate sustainability with ethical responsibility, although interviews acknowledge systemic constraints. Positional and demographic differences also shape perception, with higher academic ranks demonstrating stronger engagement and elite universities exhibiting more embedded ESD frameworks. Collectively, these findings demonstrate that while awareness and normative commitment to ESD are broadly established, implementation remains inconsistent, thereby exposing persistent gaps between strategic intent and institutional practice.

VII.1. Integration of Findings

Triangulation is employed as a methodological strategy to enhance the credibility, validity, and richness of research findings (Creswell & Plano Clark, 2018; Flick, 2018). By integrating multiple instruments and data sources, the study minimizes potential researcher bias and facilitates a comprehensive understanding of academic leaders' perceptions and institutional engagement with ESD. Methodological triangulation is operationalized through surveys, interviews, and content analysis, ensuring convergence of evidence across distinct forms of inquiry (Patton, 2015) and supporting a reliable evaluation of both awareness and implementation of ESD policies within higher education institutions in the Middle East.

The integration of these strands yields a multidimensional assessment of institutional readiness for ESD. Survey data confirm high foundational awareness of the SDGs among academic leaders, accompanied by generally positive attitudes toward sustainability; however, this awareness does not consistently translate into effective institutional practice. Interviews illuminate frustrations related to leadership discontinuity, institutional inertia, weak policy integration, lack of incentives, insufficient strategic alignment, and broader cultural constraints. Content analysis corroborates these findings by demonstrating a disjunction between rhetorical commitment and the substantive embedding of ESD within operational frameworks and departmental planning, even where strategy documents make explicit reference to sustainability.

Through data triangulation, quantitative survey findings are combined with qualitative insights from interviews and documentary analysis; through methodological triangulation, diverse methods capture complementary dimensions of perception and practice; and through source triangulation, perspectives from academic leaders, institutional websites, official reports, and social media channels ensure analytical breadth and depth. Collectively, the triangulated analysis elucidates the interplay between awareness, values, and practices, indicating that institutional readiness remains moderate and that practical implementation lags behind normative commitment. Comparative patterns further reveal minor gender differences, with females exhibiting slightly higher awareness, and position-based variations in which deans and senior leaders demonstrate greater commitment than middle-level managers. National context also shapes outcomes, as HUJI exhibits more embedded policies and evidence-based engagement compared to JU, underscoring the influence of institutional culture and historical commitment to sustainability.

Overall, the triangulation process demonstrates convergence regarding the recognized importance of ESD, complementarity in the distinct insights generated by each method, and persistent dissonance between articulated commitments and documented practices. Whereas surveys quantify general perceptions, interviews provide reflective and experiential depth, and content analysis reveals the extent of formal policy articulation, their integration exposes latent gaps and informs targeted, evidence-based strategies aimed at strengthening ESD integration and bridging the divide between policy discourse and operational reality.

VII.2 Institutional Misalignment

Triangulation further illuminates inconsistencies across research instruments, thereby providing critical insight into institutional challenges associated with ESD implementation. A central dissonance emerges between documented institutional initiatives and leaders' personal awareness of those efforts. While content analysis indicates the presence of extensive sustainability programs and formal commitments, interview data reveal that many academic leaders are only partially aware or, in some cases, entirely unaware of these initiatives. This discrepancy suggests deficiencies in internal communication and reflects a departmentalized institutional culture that limits cross-unit engagement and shared ownership (Creswell & Creswell, 2018; Flick, 2018). Addressing this visibility gap requires more strategic dissemination of sustainability achievements and initiatives in order to cultivate collective awareness and reinforce institutional engagement with ESD.

In addition, comparative analysis between HUJI and JU reveals disparities in the depth and articulation of sustainability discourse. Although survey responses suggested only marginal differences in awareness levels, interviews demonstrate that HUJI participants exhibit deeper engagement, supported by evidence-based reasoning, references to academic conferences, and alignment with sustainable lifestyles and the SDGs. In contrast, JU participants tended to provide less detailed responses, demonstrated weaker reliance on documented evidence, and reflected a comparatively superficial engagement with sustainability concepts. These findings underscore the methodological limitations of relying exclusively on survey data and affirm the value of qualitative inquiry in capturing authenticity, interpretive depth, and the lived embodiment of sustainability values (Patton, 2015; Mertens, 2010).

Taken together, this dissonance indicates that effective ESD implementation depends not solely on formal institutional commitments but also on the authentic internalization of sustainability principles by academic leaders. Depth of engagement, personal commitment, and contextualized understanding therefore constitute essential conditions for translating awareness into sustained and coherent institutional practice.

VII.3 Implications for Policy and Institutional Practice

The triangulated findings carry significant implications for higher education policy and institutional governance. Institutions must prioritize leadership development programs that foster authentic engagement with ESD principles, structured awareness campaigns, and mechanisms for translating policy rhetoric into operational practice. Enhanced communication, transparent reporting, and participatory approaches can bridge the visibility gap, ensuring that sustainability initiatives are understood, valued, and acted upon across institutional hierarchies.

Disparities between institutions underscore the need for context-sensitive policies, recognizing the influence of historical, cultural, and structural factors on ESD readiness. By combining policy reform with leadership capacity-building, higher education institutions can move from rhetorical endorsement to substantive, operationalized sustainability practices. Strategic attention to intra-institutional coherence, cross-departmental collaboration, and evidence-informed decision-making enhances the likelihood of sustainable transformation and long-term integration of ESD objectives.

VII.4 Conclusion

In summary, the study demonstrates that while academic leaders in Middle Eastern universities generally possess awareness and positive attitudes toward ESD, practical implementation remains fragmented and inconsistent. Triangulation highlights the multidimensional nature of institutional readiness, encompassing awareness, values, structural frameworks, and operational mechanisms. Convergence across instruments affirms the significance of ESD; complementarity reveals nuanced insights into leadership engagement; and dissonance identifies critical gaps requiring targeted interventions.

Ultimately, the findings underscore the importance of linking policy, practice, and personal commitment to advance ESD effectively. Universities must strengthen internal communication, foster leadership authenticity, and develop integrated operational frameworks that translate strategic aspirations into actionable outcomes. The comparative insights between

HUJI and JU further illustrate how contextual factors shape the depth and authenticity of sustainability engagement, emphasizing the need for institution-specific approaches within a broader policy framework.

By adopting a hybrid evaluative and policy-oriented perspective, this research highlights the interplay between leadership cognition, institutional structures, and operational practice, offering evidence-informed recommendations for advancing Education for Sustainable Development across higher education institutions in the Middle East.

VIII Recommendations

1. **Comprehensive Sustainability Education and Training Programs.** The study emphasizes the importance of developing specialized training and workshops for academic leaders. These programs should provide both theoretical knowledge and practical skills, encompassing environmental, social, and economic sustainability dimensions (Sachs, 2015). Leadership modules must prioritize systems thinking, integrative decision-making, and long-term planning approaches that align with global sustainability challenges (Sterling, 2001). Training programs also need to incorporate mentorship and peer-learning mechanisms, enabling leaders to share successful practices, navigate institutional challenges, and foster collaborative problem-solving across departments and universities.
2. **Promoting Leadership in Sustainability.** Mentorship programs facilitate the guidance of emerging academic leaders by seasoned sustainability experts, enhancing strategic integration of sustainability initiatives within universities (Vella, 2002). Peer networks enable knowledge exchange, joint innovation, and collective learning, reinforcing institutional commitment to sustainability (Sachs, 2015). Embedding sustainability into leadership development programs ensures that environmental stewardship, sustainable governance, and alignment with SDGs are central to institutional decision-making processes (Bok, 2003; Dyllick & Muff, 2015). Participation in national and international sustainability forums, networks, and partnerships; such as the UN Sustainable Development Solutions Network and the Global Universities Partnership on Environment for Sustainability (GUPES); further strengthens leaders' capacities to engage with global trends and best practices (Leal Filho et al., 2015).
3. **Building a Culture of Sustainability.** Academic leaders must act as role models, exemplifying sustainable behaviors through energy conservation, waste reduction, and adoption of green technologies. The establishment of sustainability committees and

student-led initiatives fosters participatory engagement, allowing stakeholders to contribute meaningfully to policy and operational decisions (Sterling, 2001). Collaboration with industry, government, and non-governmental organizations expands resources, expertise, and impact, enabling universities to address sustainability challenges effectively (Dyllick & Muff, 2015; Sachs, 2015). Continuous reflection, feedback mechanisms, and professional development ensure leaders remain adaptive, informed, and proactive in sustainability governance.

4. **Green Campus Infrastructure and Culture.** Operationalizing a green campus vision requires a comprehensive sustainability master plan that aligns infrastructure, operations, and educational objectives. Key strategies include:

    1. **Energy Efficiency and Renewable Technologies**: Adoption of energy-efficient buildings, smart climate control, and on-site renewable energy reduces operational costs and carbon emissions (Barnett-Itzhaki et al., 2025).
    2. **Water Management Systems**: Implementation of rainwater harvesting, low-flow fixtures, and smart irrigation enhances resource efficiency.
    3. **Waste Reduction Programs**: Zero-waste strategies encompassing recycling, composting, and elimination of single-use plastics ensure responsible campus operations (Rodríguez Guerreiro et al., 2024).
    4. **Green Building and Landscape Design**: LEED-compliant infrastructure and native vegetation support biodiversity and provide experiential learning opportunities (Yoon et al., 2016).
    5. **Smart Campus Technologies**: Real-time monitoring of energy, water, and waste promotes transparency, operational efficiency, and informed decision-making (Gilman et al., 2020).
    6. **Curriculum Integration**: Embedding sustainability across disciplines fosters interdisciplinary competencies and lifelong learning (Sterling, 2001; UNESCO, 2017b).
    7. **Dedicated Sustainability Offices**: Centralized offices coordinate programs, monitor performance, and ensure institutional continuity (Velazquez et al., 2006).
    8. **Faculty and Staff Training**: Equipping educators and administrators with sustainability knowledge enhances teaching quality and operational impact (Ferreira et al., 2015).

9. **Participatory Culture**: Inclusive forums, eco-challenges, and recognition programs encourage stakeholder engagement (Green Campus Initiative, UCT, 2025).
10. **Integration of Operations and Learning**: Linking operational practices with academic learning strengthens experiential education and institutional authenticity (Menon & Suresh, 2020; Wals & Corcoran, 2012).

5. **Experiential Learning and Psychological Engagement.** Practical and intercultural experiences, such as field studies, student exchanges, and cross-border collaboration, are essential to deepen understanding of global sustainability challenges. Psychological anchoring of sustainability behaviors; through intrinsic motivation, emotional accountability, and clearly defined behavioral norms; enhances engagement and ethical responsibility. Social media, innovation rewards, and recognition of impactful initiatives further promote a culture of sustainability, fostering creativity and leadership among academic communities.
6. **Monitoring, Evaluation, and Continuous Improvement of ESD Programs.** Robust monitoring, evaluation, and continuous improvement (MECI) systems ensure ESD initiatives remain dynamic and effective. Recommendations include:

    1. **Structured Evaluation Framework**: Alignment with institutional sustainability goals and international benchmarks, including SDGs (Tilbury, 2007; UNESCO, 2017b).
    2. **360-Degree Performance Appraisal**: Holistic feedback from peers, subordinates, and supervisors encourages reflection and professional growth (London & Smither, 1995).
    3. **Management by Objectives (MBO)**: Translating strategic goals into measurable objectives fosters accountability and alignment (Drucker, 1974; Odiorne, 1965).
    4. **Feedback Loops**: Annual audits, stakeholder surveys, and post-project reviews support adaptive planning (Shriberg, 2002).
    5. **Real-Time ESD Dashboards**: Digital tools visualize metrics such as energy consumption, curriculum integration, and community engagement (Gilman et al., 2020).
    6. **Culture of Continuous Improvement**: Training, learning communities, and recognition programs reinforce commitment to sustainability goals (Ferreira et al., 2015; Wals & Corcoran, 2012).

7. **Lessons from Regional and Global ESD Exemplars.** Regional leaders, including National University of Singapore (NUS), Nanyang Technological University (NTU), and University of Malaya (UM), demonstrate the importance of institutional leadership, interdisciplinary learning, and campus-based experimentation. Global innovators, such as Guatemala's Hero School, Japan's Kanazawa University, and Turkey's Team Delavo, illustrate the power of experiential, community-centered, and youth-led sustainability initiatives. Key lessons include: integration of curriculum, community engagement, vertical alignment of ESD across educational levels, transdisciplinary teaching, and sustainability-oriented infrastructure.
8. **Addressing Systemic Constraints Undermining ESD Effectiveness.** To secure effective ESD, institutions must confront systemic barriers or "ESD-killers," including fragmented curricula, greenwashing, stakeholder exclusion, neglect of local knowledge, overemphasis on theory, short-term projects, authoritarian teaching, inadequate teacher training, lack of emotional engagement, and institutional hypocrisy. Remedies include integration across disciplines, authenticity, participatory pedagogy, honoring local knowledge, experiential learning, project institutionalization, empowering pedagogy, teacher capacity-building, emotional engagement, and integrity through action (UNESCO, 2014c, 2017b; Wals & Corcoran, 2012).

The infographic, illustrated in Appendix II, Figure 7, visually depict the main elements of ESD implementation gap and main recommendations for bridging this gap.

IX Future Research Directions

Future studies should expand geographic scope, include longitudinal designs, explore gender dynamics in leadership, integrate student and faculty perspectives, assess behavioral impacts of ESD, examine digital tools, and analyze alignment with national sustainability policies. Such research will deepen theoretical understanding and inform strategic ESD practices across HEIs in the MENA region.

X. Integration of Implications

The study emphasizes the need for cultural integration of sustainability within leadership and institutional practices, highlighting professional development, reflective practices, and active internal communication as pivotal mechanisms to enhance ESD readiness.

XI. Final Reflection

This dissertation underscores that ESD transcends policy or infrastructure and is fundamentally people-centered. Academic leaders, educators, and students are pivotal in modelling, innovating, and inspiring institutions to embody sustainability in mission and practice. Leadership anchored in sustainability principles, combined with integrative pedagogy engaging mind, heart, and hand, fosters transformative learning and institutional evolution. Universities are called to move beyond fragmented responses toward unified, strategic, and ethically grounded visions of sustainability. By embedding ESD into organizational structures and daily practice, academic leaders can inspire lasting change, foster continuous improvement, and shape higher education as a transformative force for societal sustainability.

XII. BIBLIOGRAPHY

1. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179–211. https://doi.org/10.1016/0749-5978(91)90020-T

2. Al-Zawahreh, A., Khasawneh, S., & Al-Jaradat, M. (2019). Green management practices in higher education: the status of sustainable leadership. *Tertiary Education and Management, 25*(1), 1–11. https://doi.org/10.1007/s11233-018-09014-9

3. Al-Balushi, S. M., & Al-Aamri, S. S. (2014). The effect of environmental science projects on students' environmental knowledge and attitudes. *International Research in Geographical and Environmental Education, 23*(3), 213–227.

4. Alshuwaikhat, H. M., Adenle, Y. A., & Saghir, B. (2016). Sustainability assessment of higher education institutions in Saudi Arabia. *Sustainability, 8*(8), 750. https://doi.org/10.3390/su8080750

5. Hajar, A. (2024). Islamic values and sustainability education reform in higher education. *Journal of Islamic Education Studies, 12*(1), 45–62.

6. Arnon, S., Orion, N., & Carmi, N. (2014). Environmental literacy components and their promotion in higher education. *Environmental Education Research, 21*(7), 1029–1055. https://doi.org/10.1080/13504622.2014.966656

7. Bok, D. (2003). *Universities in the marketplace: The commercialization of higher education.* Princeton University Press.

8. Bowen, G. A. (2009). Document analysis as a qualitative research method. *Qualitative Research Journal, 9*(2), 27–40. https://doi.org/10.3316/QRJ0902027

9. Braun, V., & Clarke, V. (2021). *Thematic analysis: A practical guide* (1st ed.). Sage Publications. https://uk.sagepub.com/en-gb/eur/thematic-analysis/book248481

10. Brodhead, M. T., Cox, D. J., & Quigley, S. P. (2018). How to identify ethical practices in organizations prior to employment. *Behavior Analysis in Practice, 11*(2), 165–173. https://doi.org/10.1007/s40617-018-0235-y

11. Bsoul, L., Omer, A., Kucukalic, L., & Archbold, R. H. (2022). Islam's perspective on environmental sustainability: A conceptual analysis. *Social Sciences, 11*(6), 228, 1–14. https://doi.org/10.3390/socsci11060228

12. Cortese, A. D. (2003). The critical role of higher education in creating a sustainable future. *Planning for Higher Education, 31*(3), 15–22. https://eric.ed.gov/?id=EJ669840

13. Creswell, J. W. (2009). Research design: Qualitative, quantitative, and mixed methods approaches (3rd ed.). SAGE Publications. https://www.ucg.ac.me/skladiste/blog_609332/objava_105202/fajlovi/Creswell.pdf.

14. Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications. https://spada.uns.ac.id/pluginfile.php/510378/mod_resource/content/1/creswell.pdf (spada.uns.ac.id)

15. Creswell, J. W., & Plano Clark, V. L. (2018). *Designing and conducting mixed methods research* (3rd ed.). SAGE Publications. https://bayanbox.ir/view/2360519664443692 58/9781483344379-Designing-and-Conducting-Mixed-Methods-Research-3e.pdf

16. Denzin, N. K. (2012). Triangulation 2.0. *Journal of Mixed Methods Research, 6*(2), 80–88. https://doi.org/10.1177/1558689812437186

17. DiMaggio, P. J., & Powell, W. W. (1983). The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review, 48*(2), 147–160. https://doi.org/10.2307/2095101

18. Dyllick, T., & Muff, K. (2015). Clarifying the meaning of sustainable business: Introducing a typology from business-as-usual to true business sustainability. *Organization & Environment, 29*(2), 156–174. https://doi.org/10.1177/1086026615575176

19. Field, A. P. (2018). *Discovering statistics using IBM SPSS Statistics* (5th ed.). SAGE Publications Ltd.

https://books.google.com/books/about/Discovering_Statistics_Using_IBM_SPSS_St.html?id=JIrutAEACAAJ (Google Books)

20. Findler, F., Schönherr, N., Lozano, R., Reider, D., & Martinuzzi, A. (2019). The impacts of higher education institutions on sustainable development: A review and conceptualization. *International Journal of Sustainability in Higher Education, 20*(1), 23–38. https://doi.org/10.1108/IJSHE-07-2017-0114

21. Flick, U. (2018). *An introduction to qualitative research* (6th ed.). SAGE Publications. https://study.sagepub.com/flick6e

22. Hassan, M. K., Abdelkader, M., & Abdelkader, H. (2021). Literature review of the challenges of sustainable higher education institutions in the Middle East: Categorisation of challenges and proposed remedies. ResearchGate. https://www.researchgate.net/publication/356541433

23. Hussain, S., & Al-Barwani, T. (2015). Leadership for sustainability perceptions in higher education institutions in Oman. *Management in Education, 29*(4), 151–157. https://doi.org/10.1177/0892020615593788

24. Kamali, M. H. (2016). Islam and sustainable development. *Islam and Civilisational Renewal, 7*(1), 8–26. https://doi.org/10.52282/icr.v7i1.281 .

25. Kollmuss, A., & Agyeman, J. (2002). Mind the gap: Why do people act environmentally? *Environmental Education Research, 8*(3), 239–260. https://doi.org/10.1080/13504620220145401

26. Leal Filho, W., Brandli, L., Kuznetsova, O., & do Paço, A. M. F. (Eds.). (2015a). *Integrative approaches to sustainable development at university level: Making the links*. Springer Cham. https://doi.org/10.1007/978-3-319-10690-8

27. Leal Filho, W., Vargas, V. R., Salvia, A. L., Brandli, L. L., Pallant, E., Klavins, M., et al. (2019). The role of higher education institutions in sustainability initiatives at the local level. *Journal of Cleaner Production, 233*, 1004–1015. https://doi.org/10.1016/j.jclepro.2019.06.059

28. Leal Filho, W., Pallant, E., Enete, A., Richter, B., & Brandli, L. L. (2018). Planning and implementing sustainability in higher education institutions: An overview of the difficulties and potentials. *International Journal of Sustainable Development & World Ecology, 25*(8), 713–721.

https://doi.org/10.1080/13504509.2018.1461707

29. Lotz-Sisitka, H., Wals, A. E. J., Kronlid, D., & McGarry, D. (2015). Transformative, transgressive social learning: Rethinking higher education pedagogy in times of systemic global dysfunction. *Current Opinion in Environmental Sustainability, 16*, 73–80. https://doi.org/10.1016/j.cosust.2015.07.018

30. Lozano, R., Ceulemans, K., & Scarff Seatter, C. (2015). Teaching organizational change management for sustainability: Designing and delivering a course at the University of Leeds to inspire future sustainability change agents. *Journal of Cleaner Production, 106*, 205–215. https://doi.org/10.1016/j.jclepro.2014.03.031

31. Mertens, D. M. (2010). Research and evaluation in education and psychology: Integrating diversity with quantitative, qualitative, and mixed methods (3rd ed.). SAGE Publications. https://books.google.com/books/about/Research_and_Evaluation_in_Education_and.html?id=m0N3tcIVds8C

32. Mezirow, J. (1997). Transformative learning: Theory to practice. *New Directions for Adult and Continuing Education, 74*, 5–12. https://doi.org/10.1002/ace.7401

33. Mezirow, J. (Ed.). (2000). Learning as transformation: Critical perspectives on a theory in progress. Jossey Bass. Retrieved from https://archive.org/details/learningastransf0000mezi

34. Mohiuddin, K., Nasr, O. A., & Miladi, M. N. (2023). Potentialities and priorities for higher educational development in Saudi Arabia for the next decade: Critical reflections on the Vision 2030 framework. *Heliyon, 9*(5), e16368. https://doi.org/10.1016/j.heliyon.2023.e16368

35. Negev, M., Sagy, G., Garb, Y., Salzberg, A., & Tal, A. (2008). Evaluating the environmental literacy of Israeli elementary and high school students. *The Journal of Environmental Education, 39*(2), 3–20. https://doi.org/10.3200/JOEE.39.2.3-20

36. Organisation for Economic Co-operation and Development [OECD]. (2020). *A territorial approach to the Sustainable Development Goals: Synthesis report* (OECD Urban Policy Reviews). OECD Publishing.

https://doi.org/10.1787/e86fa715-en

37. Pallant, J. (2020). *SPSS survival manual* (7th ed.). McGraw-Hill.

38. Patton, M. Q. (2015). *Qualitative research & evaluation methods* (4th ed.). SAGE Publications. Available via Internet Archive: https://archive.org/details/michael-quinn-patton-qualitative-research-evaluation-methods-integrating-theory-.

39. Qablan, A. M., Al-Ruz, J. A., Khasawneh, S., & Al-Omari, A. A. (2009). Education for sustainable development: Liberation or indoctrination? An assessment of faculty members' attitudes and classroom practices at the University of Jordan. *International Journal of Environmental & Science Education, 4*(3), 295–311. https://files.eric.ed.gov/fulltext/EJ884405.pdf

40. QS Quacquarelli Symonds. (2023). QS world university rankings: Sustainability. https://www.topuniversities.com/

41. Rieckmann, M. (2012). Future-oriented higher education: Which key competencies should be fostered through university teaching and learning? *Futures, 44*(2), 127–135. https://doi.org/10.1016/j.futures.2011.09.005

42. Sachs, J. D. (2015). *The age of sustainable development.* Columbia University Press.

43. Sachs, J. D., Lafortune, G., Fuller, G., & Drumm, E. (2023). Sustainable development report 2023: Implementing the SDG stimulus. Sustainable Development Solutions Network. https://sdgtransformationcenter.org/reports/sustainable-development-report-2023

44. Sachs, J., Schmidt Traub, G., Kroll, C., Lafortune, G., Fuller, G., & Woelm, F. (2019). *Sustainable Development Report 2019: Transformations to achieve the Sustainable Development Goals*. Bertelsmann Stiftung & Sustainable Development Solutions Network. https://sdgtransformationcenter.org/reports/sustainable-development-report-2019

45. Sterling, S. (2001). *Sustainable education: Re-visioning learning and change* (Schumacher Briefing No. 6). Green Books for the Schumacher Society. https://archive.org/details/sustainableeduca0000ster.

46. Sterling, S. (2011). Transformative learning and sustainability: Sketching the conceptual ground. *Learning and Teaching in Higher Education, 5*, 17–33. Retrieved from https://www.researchgate.net/publication/266184629_Transformative_Learning_and_Sustainability_Sketching_the_Conceptual_Ground/download

47. Sterling, S. (2013). The Future Fit Framework: An Introductory Guide to Teaching and Learning for Sustainability in HE (Guide). *Journal of Education for Sustainable Development, 7*(2), 87–99. https://journals.sagepub.com/doi/abs/10.1177/09734082134956l4b

48. Tashakkori, A., & Teddlie, C. (Eds.). (2010). *SAGE handbook of mixed methods in social & behavioral research* (2nd ed.). SAGE Publications.

https://doi.org/10.4135/9781506335193

49. Tilbury, D. (2007). *Monitoring and evaluation during the UN Decade of Education for Sustainable Development*. *Journal of Education for Sustainable Development, 1*(2), 239–254. https://doi.org/10.1177/097340820700100214 (ResearchGate PDF)

50. Tilbury, D. (2011). Education for sustainable development: An expert review of processes and learning. UNESCO. https://unesdoc.unesco.org/ark:/48223/pf0000191442.

51. Tilbury, D., & Wortman, D. (2004). *Engaging people in sustainability*. IUCN Commission on Education and Communication. https://www.researchgate.net/publication/255964143_Tilbury_D_and_Wortman_D_2004_'Engaging_People_in_Sustainability'/link/5ef4f14f299bf1c4ba113a2c/download

52. UNESCO Institute for Lifelong Learning & UNESCO Regional Centre for Adult Education (ABE-GES). (2024). *Advancing adult learning and skills development across the Arab region: Capacity-building to support education transformation* [News article]. UNESCO. Retrieved July 25, 2025, from https://www.unesco.org/en/articles/advancing-adult-learning-and-skills-development-across-arab-region

53. UNESCO. (2014b). UNESCO roadmap for implementing the Global Action Programme on Education for Sustainable Development. United Nations Educational, Scientific and Cultural Organization. https://unesdoc.unesco.org/ark:/48223/pf0000230514

54. UNESCO. (2014a). *Shaping the future we want: UN Decade of Education for Sustainable Development final report*. United Nations Educational, Scientific and Cultural Organization. https://unesdoc.unesco.org/ark:/48223/pf0000230171

55. UNESCO. (2016). *Education 2030: Incheon Declaration and Framework for Action – toward inclusive and equitable quality education and lifelong learning for all* [PDF]. UNESCO. https://unesdoc.2unesco.org/ark:/48223/pf0000245656 (unesdoc.unesco.org)

56. UNESCO. (2017*). Education for Sustainable Development Goals: Learning objectives* [Guide]. Division for Inclusion, Peace and Sustainable Development, Education Sector. Retrieved July 25, 2025, from https://unesdoc.unesco.org/ark:/48223/pf0000247444

57. United Nations Conference on Environment and Development. (1992). *Agenda 21: Programme of action for sustainable development; Rio Declaration on Environment and Development* (A/CONF.151/26) [PDF]. United Nations. https://sustainabledevelopment.un.org/content/documents/Agenda21.pdf

58. United Nations. (2015). *Transforming our world: The 2030 agenda for sustainable development*. United Nations. https://sdgs.un.org/2030agenda

59. Vella, J. K. (2002). *Learning to Listen, Learning to Teach: The power of dialogue in educating adults* (Revised ed.) [PDF]. Jossey-Bass. Retrieved July 25, 2025, from https://archive.org/details/learningtolisten0000vell_r3n6

60. Wals, A. E. J. (2014). Sustainability in higher education in the context of the UN DESD: A review of learning and institutionalization processes. *Journal of Cleaner Production, 62*, 8–15. https://doi.org/10.1016/j.jclepro.2013.06.007

61. Wals, A. E. J., & Benavot, A. (2017). Can we meet the sustainability challenges? The role of education and lifelong learning. *European Journal of Education, 52*(4), 404–413. https://doi.org/10.1111/ejed.12250

62. WCED World Commission on Environment and Development. (1987). *Our common future: Report of the World Commission on Environment and Development (A/42/427)*. Oxford University Press. Retrieved July 25, 2025, from https://sustainabledevelopment.un.org/content/documents/5987our-common-future.pdf

63. Wiek, A., Withycombe, L., & Redman, C. L. (2011). Key competencies in sustainability: A reference framework for academic program development. *Sustainability Science, 6*(2), 203–218. https://doi.org/10.1007/s11625-011-0132-6

64. Zaidan, E., Momani, R., & Al-Saidi, M. (2024). Entrepreneurial universities and integrated sustainability for the knowledge-based economy: self-perception and some structural challenges in the Gulf region. *Humanities and Social Sciences Communications, 11*, 585. https://doi.org/10.1057/s41599-024-03032-2

XIII. Appendix I: Tables

Table 1: Comparative Summary of Hypotheses Decisions

Hypothesis	Decision	Inferential Test	Core Statistical Evidence	Interpretation
H_{01} Perceptions toward SD & ESD	Rejected	One-Sample t-test	t(256)=93.98, p<.001	Perceptions significantly above neutral
H_{02} Awareness of SDGs	Rejected	One-Sample t-test	t(256)=150.39, p<.001	Very high SDG awareness
H_{03} Gender differences	Retained	Independent t-test	p=.144	No gender-based differences
H_{04} Academic position differences	Retained	One-Way ANOVA	F=1.009, p=.430	Leadership role not differentiating
H_{05} Country differences	Retained	One-Way ANOVA	p=.053	Marginal but non-significant
H_{06} SDG understanding gaps	Rejected	One-Way ANOVA	F=12.27, p=.001	Significant inter-university gap
H_{07} Attitudes–practices alignment	Rejected	Pearson r	r=.514, p<.01	Moderate positive alignment
H_{08} University readiness	Retained	One-Sample t-test	t(256)=–19.95, p<.001	Readiness significantly below benchmark

Table 2: Convergence and Divergence between Descriptive & Inferential Analysis

Analytical Relationship	Key Findings
Convergence (Descriptive + Inferential)	Strong positive perceptions of SD/ESD; high SDG awareness; alignment between attitudes and perceptions
Partial Misalignment	Country-level differences visible descriptively but not statistically significant
Descriptive-Only Insights	Variability in institutional practices; uneven implementation across SDG dimensions
Inferential-Only Insights	Statistically significant inter-university SDG awareness gap; confirmed insufficiency of institutional readiness

XIV. Appendix II: Illustrations

Figure 1: Theory of Planned Behavior (AI Generated)

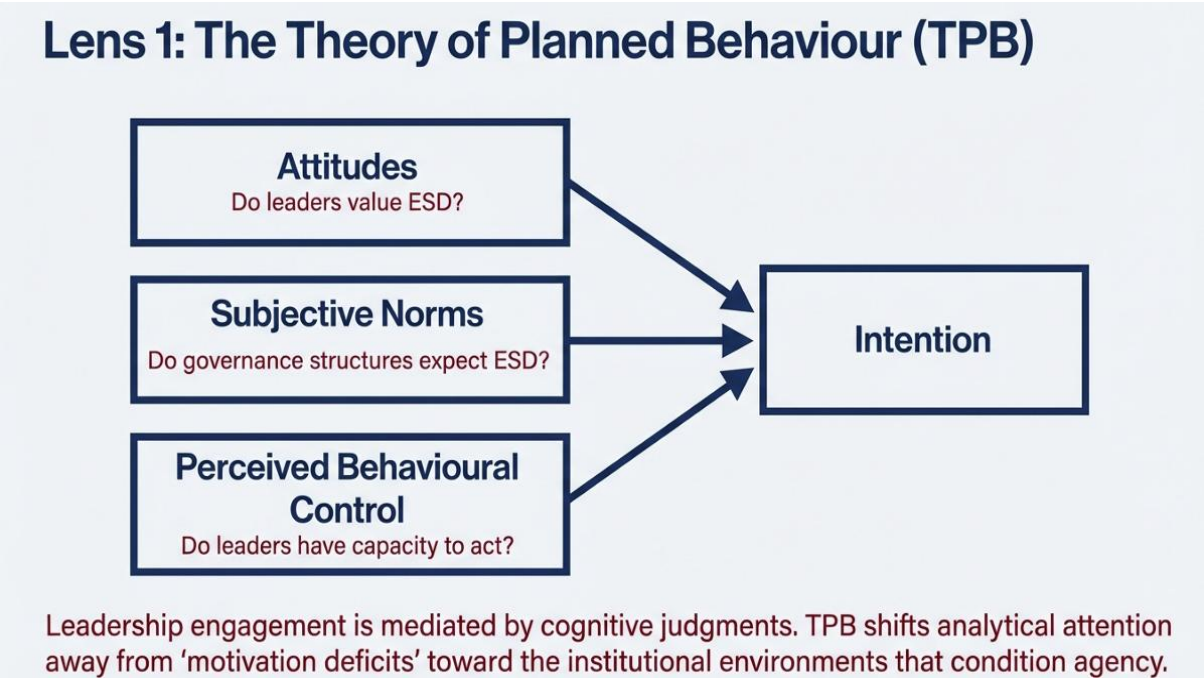

Figure 2: Transformative Learning Theory (AI Generated)

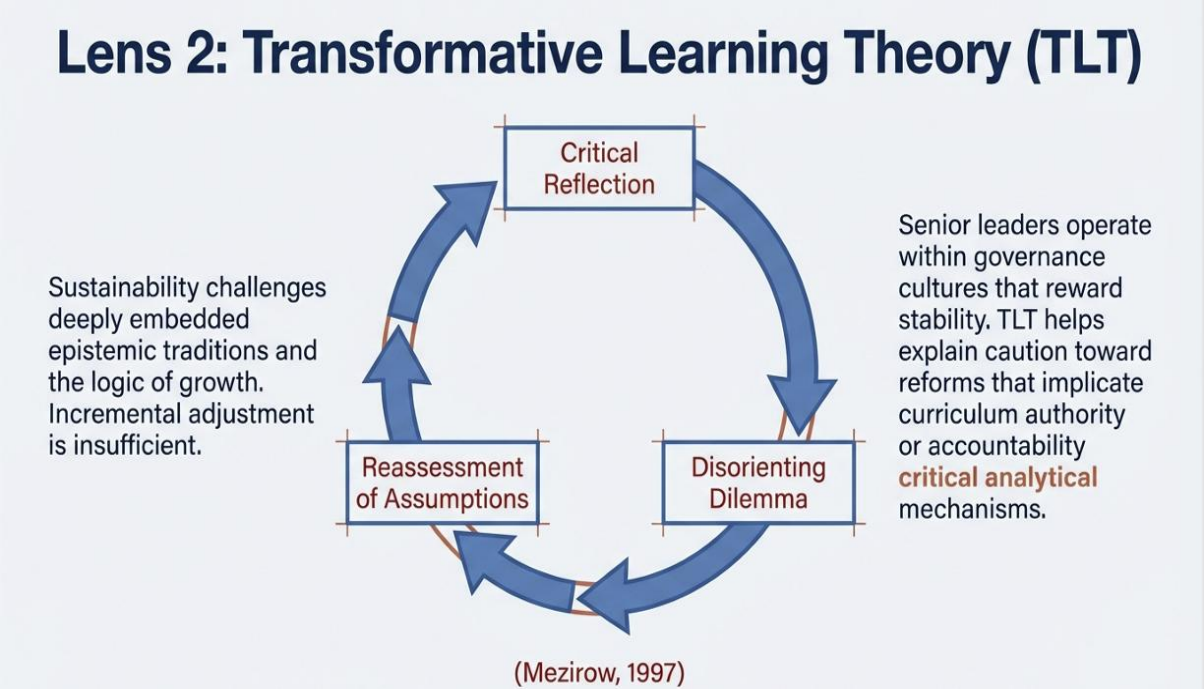

Figure 3: The Vision/Action Gap (AI Generated)

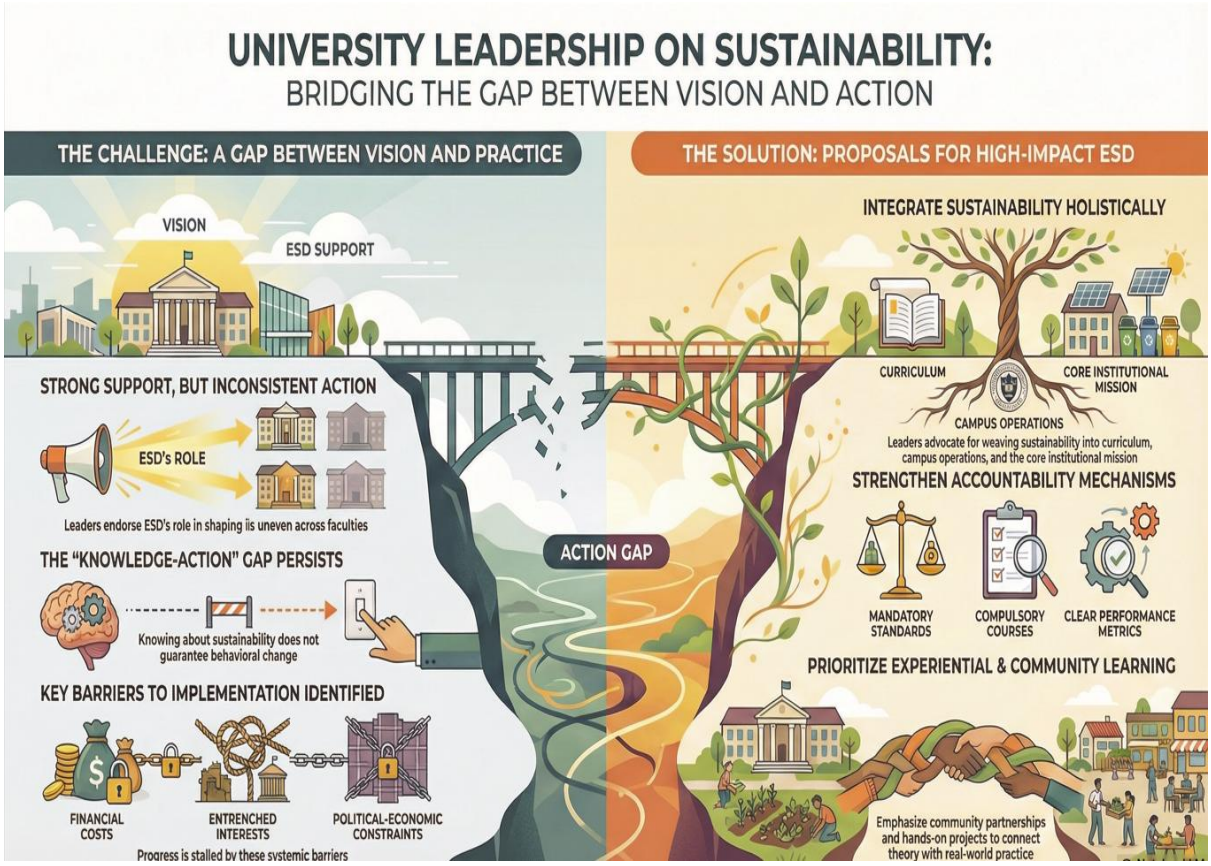

Figure 4: Semi-Structured Interviews – Five Emerging Themes (AI Generated)

Figure 5: Academic Leaders' Uneven Awareness of SDGs (AI Generated)

Figure 6: JU Vs. HUJI Models of Embedding Sustainability (AI Generated)

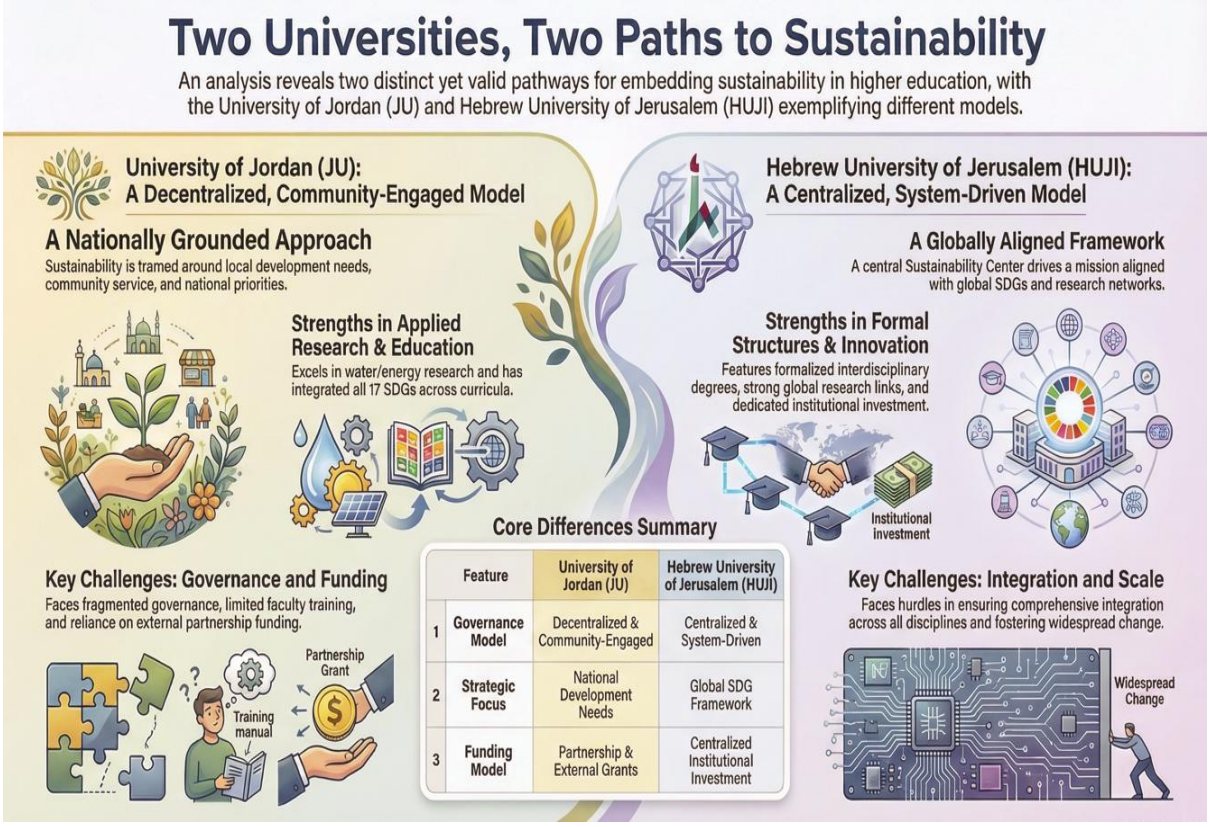

Figure 7: Recommendations for Advancing ESD (AI Generated)