Sustainability in Management Education: Identifying and Prioritizing Critical Success Factors Through ISM-MICMAC Analysis

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Abstract
Sustainability and Environmental, Social and Governance (ESG) considerations have moved from the periphery to the core of corporate strategy, creating growing pressure on business schools to embed sustainability as a formal subject rather than a peripheral elective. This paper synthesises evidence from twelve Scopus-indexed studies published in outlets such as The International Journal of Management Education, the International Journal of Management Reviews, Sustainability, and Frontiers in Education, to identify the factors that determine whether a sustainability course succeeds within a university curriculum, including cases where students undertook ESG or sustainability projects as part of their coursework. Twelve recurring factors were extracted through a structured narrative review and analysed using Interpretive Structural Modelling and MICMAC (Matrice d'Impacts Croisés Multiplication Appliquée à un Classement), which classifies factors by driving power and dependence power. Leadership commitment, structural policy support and dedicated funding emerge as the strongest drivers, while experiential project-based learning depends heavily on these enablers. The paper offers a prioritised roadmap for universities planning to introduce sustainability courses.

Keywords: Sustainability Education, Management Education, Experiential Learning, Curriculum Design

1. Introduction

Climate risk, stakeholder capitalism and the rapid mainstreaming of ESG investing have redefined what employers expect a management graduate to know. Annual global surveys of institutional trust continue to show that the public wants greater corporate engagement with societal issues such as climate change and economic inequality, which has placed business schools under direct pressure to reposition sustainability from an optional add-on to a core competency-building subject. The Principles for Responsible Management Education (PRME), launched under UN auspices in 2007, now counts hundreds of signatory institutions committed to embedding responsible-management content, and empirical evaluation of PRME- and SDG-aligned courses reports measurable gains in student knowledge, attitudes and behaviour across the triple bottom line of social, economic and environmental outcomes (Avelar et al., 2025).

Despite this momentum, integration remains uneven and fragile. A 25-year problematisation review of the field finds that institutional logics, unresolved paradoxes and everyday sensemaking - not merely the quality of a syllabus - explain why sustainability content is so often marginalised, contested or diluted as it moves from policy statement to classroom practice (Grande, 2026). Interview evidence from faculty leaders across eight universities similarly shows that curriculum change depends on both structural empowerment, meaning the policies, resources and mandates that come from institutional leadership, and psychological empowerment, meaning the motivation and sense of agency of individual academic staff; when the former is weak, sustainability integration tends to remain a set of isolated 'islands of innovation' driven by individual enthusiasts rather than a systemic institutional shift (Nguyen, Cleveland, Nguyen & Joyce, 2025). Elsewhere, professional bodies note that many schools still relegate ESG content to electives instead of the core curriculum, in part because faculty lack incentives and resourcing to redesign courses around sustainability.

The literature is therefore rich in isolated diagnoses - governance gaps, funding shortfalls, faculty capacity, measurement difficulty, partnership scarcity - but comparatively thin on a consolidated, prioritised account of which factors institutions should address first. This gap matters practically: a university preparing to launch a sustainability course, or to expand an existing one into ESG project work, needs to know not just what matters, but what to sequence first. This paper addresses that gap. It (1) synthesises findings from twelve Scopus-indexed studies on sustainability in management/higher education, including studies that document student ESG or sustainability project work; (2) consolidates the recurring implementation factors reported across this literature into a non-redundant list; and (3) applies an Interpretive Structural Modelling (ISM) and MICMAC analysis to classify these factors by driving power and dependence power, producing a prioritised roadmap. The remainder of the paper is

organised as follows: Section 2 presents the reviewed literature; Section 3 describes the methodology; Section 4 discusses the MICMAC results and their implications, with particular attention to project-based ESG learning; and Section 5 concludes with recommendations and directions for future research.

2. Literature Review

Table 1 summarises the twelve Scopus-indexed studies that form the evidentiary base of this paper. The set spans large-scale systematic and bibliometric reviews (rows 3, 4, 7), qualitative and quantitative empirical studies of curriculum integration and student outcomes (rows 1, 2, 5), a field-defining theoretical review (row 6), and a cluster of ISM-MICMAC studies that supply both substantive findings and methodological precedent for the analysis performed in Section 3 (rows 8, 9, 10, 11, 12).

Table 1: Summary of manuscripts under study

	Study (Author, Year)	Outlet	Core Contribution to This Review
1	Avelar et al. (2025)	The International Journal of Management Education	Longitudinal evaluation of a PRME/SDG-Project course; reports measurable gains in student knowledge, attitudes and behaviours (KAB) across social, economic and environmental dimensions.
2	Nguyen, Cleveland, Nguyen & Joyce (2025)	International Journal of Sustainability in Higher Education	Interview-based study of 19 faculty leaders across 8 universities identifying structural empowerment, psychological empowerment and practical implementation as the three levers of curriculum integration.
3	Sustainability assessment practices review (2024)	Sustainability (MDPI), 16(13), 5799	PRISMA-based analysis of 83 Scopus papers; identifies institutional inertia, resource constraints and interdisciplinary collaboration as recurring friction points, and highlights ESG-practice and green-HR themes.
4	Systematic review of HEI sustainability (2025)	Cogent Education	Thematic synthesis of 566 peer-reviewed articles (2005-2025) clustering sustainability practice into governance, finance, environment, community engagement and curriculum/pedagogy.
5	Business & management sustainability teaching study (2024)	The International Journal of Management Education, 22(1)	Exploratory factor analysis of 37 learning approaches; distils six action clusters, including active on/off-campus experience and institutional sustainability involvement, from the student perspective.
6	Grande (2026)	International Journal of Management Reviews	25-year problematisation review showing that institutional logics, paradoxes and sensemaking - not merely course design - explain persistent unevenness in sustainability integration.
7	Scoping review of sustainability competencies (2025)	Standards (MDPI), 5(2), 13	Maps evidence for competency models and barriers to implementation in management curricula, underlining measurement of competencies as an unresolved challenge.
8	ISM framework for sustainable higher education (2026)	Frontiers in Education, 11	Applies ISM-MICMAC to environmental, social, economic, governance, cultural and technological requirements in a university case study; finds the environmental dimension carries the highest priority.
9	Nida, Chandra & Shukla (2024)	IIMBG Journal of Sustainable Business and Innovation, 2(2)	ISM-fuzzy MICMAC study of 11 enablers of sustainability drawn from literature and a 15-member expert panel; establishes the driving/dependence protocol adapted in this paper.
10	ISM-MICMAC of brittle systems in sustainable HE (2026)	Frontiers in Education, 11	Uses the BANI (brittle-anxious-nonlinear-incomprehensible) lens with ISM-MICMAC to structure institutional vulnerabilities that slow sustainability adoption.
11	Entrepreneurial education for sustainable	PMC-indexed open-access journal	MICMAC analysis identifying partnerships and incubators as critical drivers while classifying student entrepreneurship clubs and sustainability research

	communities (2024)		centres as dependent outcomes.
12	Bhaskar & Shukla (2026)	Springer Nature (ISM-MICMAC methods volume)	Methodological precedent for building the Structural Self-Interaction Matrix and reachability matrix later adapted to the education-sector factor set in this paper.

Three cross-cutting observations emerge from this set. First, curriculum content alone is rarely the binding constraint; governance, funding and institutional culture recur across almost every study as prerequisites rather than outcomes of successful integration (Nguyen et al., 2025; Grande, 2026; MDPI Sustainability review, 2024). Second, where sustainability courses do succeed, experiential and project-based components - live consulting projects, ESG case assignments, community or NGO partnerships - are consistently cited as the mechanism through which knowledge converts into attitude and behaviour change (Avelar et al., 2025; business & management sustainability teaching study, 2024). Third, a distinct and growing sub-literature applies ISM-MICMAC specifically to sustainability requirements in higher education and adjacent domains, providing a validated analytical template that this paper adapts (ISM framework for sustainable higher education, 2026; Nida, Chandra & Shukla, 2024; ISM-MICMAC of brittle systems, 2026).

3. Methodology

3.1 Literature search and selection

A structured narrative review was conducted using the Scopus database and Scopus-indexed outlets accessed via their publisher platforms. The search combined three concept blocks: (a) sustainability terms ("sustainability", "ESG", "sustainable development goals"); (b) education terms ("management education", "business school", "higher education curriculum"); and (c) implementation terms ("factors", "enablers", "barriers", "critical success factors", "implementation"). The search was restricted to peer-reviewed journal articles and conference proceedings published between 2019 and 2026 in English. Titles and abstracts were screened for relevance, followed by full-text review. A study was retained if it satisfied at least one of three Inclusion criteria: (i) it empirically or theoretically identified factors, enablers or barriers affecting sustainability curriculum integration; (ii) it reported on student sustainability or ESG project work undertaken as part of coursework; or (iii) it applied ISM-MICMAC or a comparable structural modelling technique to sustainability enablers in an educational or closely related organisational context. Twelve studies satisfying these criteria were retained for detailed synthesis (Table 1); this exceeds the minimum threshold typically used for a focused narrative synthesis of an emerging sub-field and provides sufficient breadth across geographies (Vietnam, the Philippines, Europe, and cross-national bibliometric samples) and methodological traditions (qualitative interview studies, exploratory factor analysis, PRISMA-based reviews, and ISM-MICMAC studies).

3.2 Factor extraction and consolidation

Each retained study was open-coded for any construct described as necessary, enabling, or obstructive to successful sustainability curriculum implementation. Constructs that appeared under different labels but described the same underlying mechanism (for example, "top management support" and "leadership commitment") were merged through thematic clustering. This process yielded twelve non-redundant factors, spanning governance-level enablers (leadership, policy, funding, culture), delivery-level enablers (faculty capability, curriculum design, partnerships, accreditation alignment) and outcome-level constructs (experiential/ESG project work, student engagement, competency assessment), plus one factor representing unsupported individual effort. Table 2 lists the twelve factors together with the driving power, dependence power and MICMAC cluster assigned to each through the procedure described in Section 3.3.

Table 2. Critical factors for sustainability curriculum implementation, classified by driving and dependence power

Code	Factor	Driving Power	Dependence Power	MICMAC Cluster
F1	Top leadership commitment and institutional vision	9	2	Independent (Driver)
F2	Institutional policy and structural empowerment	8	3	Independent (Driver)
F3	Dedicated funding and resource allocation	8	2	Independent (Driver)
F4	Institutional culture and change	7	3	Independent

	readiness			(Driver)
F5	Faculty capability, training and incentives	7	6	Linkage
F6	Curriculum design and integration framework	6	7	Linkage
F7	Industry, NGO and alumni partnerships	6	6	Linkage
F8	PRME / SDG alignment and accreditation standards	6	6	Linkage
F9	Experiential and ESG project-based learning	3	9	Dependent
F10	Student engagement and co-curricular activity	2	8	Dependent
F11	Assessment and measurement of sustainability competencies	3	7	Dependent
F12	Individual faculty motivation without structural backing	2	2	Autonomous

3.3 ISM-MICMAC analysis

The twelve factors were then analysed using the standard Interpretive Structural Modelling and MICMAC protocol used in prior sustainability-enabler studies (Nida, Chandra & Shukla, 2024; Bhaskar & Shukla, 2026; ISM framework for sustainable higher education, 2026). The procedure comprises four steps. First, a Structural Self-Interaction Matrix (SSIM) is built by specifying, for every factor pair (i, j), whether i influences j (V), j influences i (A), both influence each other (X), or neither (O); in this literature-based application, contextual relationships were derived from the triangulated consensus of findings reported across the twelve reviewed studies rather than a live expert survey. Second, the SSIM is converted into a binary Initial Reachability Matrix. Third, the matrix is checked for transitivity (if factor A leads to B, and B leads to C, then A must also be recorded as leading to C) to produce the Final Reachability Matrix. Fourth, for each factor the driving power (row total, i.e., how many other factors it influences) and dependence power (column total, i.e., how many other factors influence it) are computed, and factors are plotted on a MICMAC diagram with four quadrants: Autonomous (low driving, low dependence, weakly connected to the system), Dependent (low driving, high dependence, an outcome of other factors), Linkage (high driving and high dependence, unstable and requiring continuous monitoring because any change here propagates through the system), and Independent/Driver (high driving, low dependence, the fundamental levers of the system). Because this study consolidates secondary literature rather than convening a live expert panel, the resulting classification should be read as a literature-triangulated hypothesis for prioritisation rather than a population-validated ranking; Section 5 identifies primary expert elicitation as the natural next step to confirm or refine it.

4. Discussion and Analysis

Figure 1 presents the resulting MICMAC diagram. Four factors cluster as Independent Drivers: top leadership commitment (F1), institutional policy and structural empowerment (F2), dedicated funding and resource allocation (F3), and institutional culture and change readiness (F4). These occupy the upper-left quadrant, meaning they strongly influence the rest of the system while depending on little else - consistent with the finding that structural empowerment functions as the foundation for macro-level curriculum transformation, without which individual faculty initiative remains fragmented into isolated "islands of innovation" (Nguyen et al., 2025). Practically, this means an institution planning a sustainability course should first secure a leadership mandate, a funding line and an explicit policy commitment before investing heavily elsewhere; skipping this step is precisely the pattern the 25-year review associates with initiatives that stall under competing institutional logics (Grande, 2026).

A second cluster - faculty capability and incentives (F5), curriculum design and integration framework (F6), industry/NGO/alumni partnerships (F7), and PRME/SDG alignment and accreditation (F8) - falls in the Linkage quadrant, exhibiting both high driving and high dependence power. These factors are structurally unstable: they are simultaneously levers and outputs, so a weakness in any one (for example, under-resourced faculty training) quickly undermines curriculum design and partnership quality, and vice versa. This matches evidence that the abundance of disconnected sustainability-teaching approaches, absent a cohesive integration framework, is itself a barrier to effective teaching (business & management sustainability teaching study, 2024), and that competency measurement remains an unresolved methodological challenge that constrains accreditation alignment (scoping review of sustainability competencies, 2025).

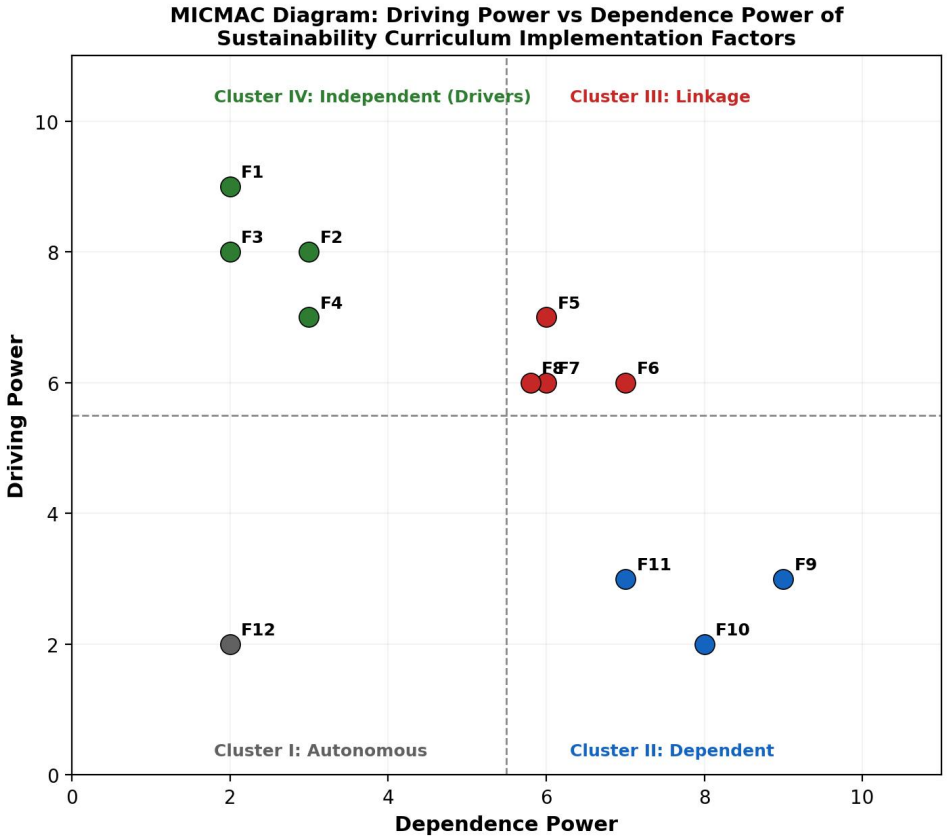

Figure 1. MICMAC classification of sustainability curriculum implementation factors by driving power and dependence power.

Notably, the factors most visible to prospective students and to the wider public - experiential and ESG project-based learning (F9), student engagement and co-curricular activity (F10), and competency assessment (F11) - sit in the Dependent quadrant, with high dependence but comparatively low driving power. This is consistent with reported cases of successful student ESG project work: live consulting engagements, not-for-profit projects, and problem-based SDG assignments are described in the literature as flourishing once institutional scaffolding, funding and faculty capacity are already in place, rather than as free-standing interventions that create that scaffolding themselves. The practical implication is that project-based ESG assignments are the payoff of a well-sequenced implementation, not the starting point: institutions that launch ESG capstone projects before securing leadership commitment and faculty capability risk producing a small number of showcase projects that do not scale, echoing the "institutional inertia" and "islands of innovation" patterns identified in the reviewed literature. Finally, F12 (individual faculty motivation without structural backing) sits in the Autonomous quadrant, reinforcing that isolated enthusiasm, however genuine, has limited systemic effect absent the driver-cluster conditions.

5. Conclusion and Future Directions

This paper synthesised twelve Scopus-indexed studies to identify and prioritise the factors that determine whether a sustainability course succeeds within a management curriculum. The ISM-MICMAC analysis indicates that success is not primarily a matter of syllabus design: it depends on securing leadership commitment, structural policy support, dedicated funding and a receptive institutional culture first; sustaining faculty capability, curriculum frameworks, partnerships and accreditation alignment continuously as linkage factors; and treating experiential ESG project work, student engagement and competency assessment as downstream outcomes that flourish once the enabling conditions are in place. For universities and institutes planning to introduce such a course, this sequencing offers a concrete, literature-grounded roadmap rather than a checklist of equally weighted best practices.

The study's principal limitation is that its ISM relationships were triangulated from secondary literature rather than a live expert panel; the classification should therefore be treated as a well-evidenced starting hypothesis. Future research should validate and refine this model through primary data collection - for example, a Delphi or fuzzy-MICMAC survey of PRME-signatory and AACSB-accredited faculty and administrators - and should extend the analysis longitudinally, tracking

whether graduates of driver-first implementations report stronger ESG career outcomes than those from project-first implementations. Cross-country comparison and extension to other functional disciplines (finance, marketing, operations) are also promising directions.

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