

Empowering University Students Through SDG Awareness: A Mandate for Higher Education

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EDITORIAL

The Sustainable Development Goals (SDGs), adopted by the United Nations in 2015, comprise 17 interconnected goals and 169 targets designed to address major social, economic, environmental, and health challenges by 2030. However, The Sustainable Development Goals Report 2025 indicates that global progress remains substantially below the level required to achieve many of these targets within the remaining implementation period [1]. This widening gap reinforces the responsibility of institutions that shape knowledge, professional practice, leadership, and public behaviour. Higher education institutions are particularly important because they educate future professionals, generate research, influence communities, and operate as organizations whose policies and practices can directly support sustainable development [2,3].

University students represent an important population within this process, but meaningful participation requires more than general familiarity with sustainability. SDG awareness primarily refers to recognition of the goals and their broad purposes, whereas SDG literacy involves a more detailed understanding of individual goals, their targets, their interconnections, and their relevance to local and global problems. These concepts should also be distinguished from sustainability-related attitudes, civic engagement, and everyday practices. Although these dimensions may influence one another, awareness alone does not necessarily lead to behavioural or institutional change. Students must also develop systems thinking, ethical reasoning, problem-solving skills, self-efficacy, and practical opportunities to apply sustainability principles within their academic disciplines and communities.

Available evidence suggests that university students frequently express favourable attitudes toward themes such as health, equality, environmental protection, and social responsibility, but their detailed understanding of the SDGs remains inconsistent. A cross-sectional study among medical students reported considerable variation in knowledge and perceptions across the different goals, indicating that support for sustainable development does not always correspond with comprehensive knowledge of the SDG framework [4]. Similarly, research conducted among university students in a coastal setting found that sustainability-related practices remained moderate or insufficient in several areas, suggesting that positive attitudes may not consistently translate into action without supportive institutional structures [5]. Multi-country evidence has also shown considerable variation in the extent to which universities incorporate sustainability into teaching, research, governance, and campus operations [6].

From SDG Literacy to Civic and Professional Responsibility

Developing SDG literacy may contribute to stronger civic and professional responsibility, although this relationship should not be interpreted as automatically causal. Studies of global citizenship and sustainability education suggest that students with greater awareness of social and environmental challenges may demonstrate stronger interest in community participation, public advocacy, and socially

responsible action [3,7]. Nevertheless, the transition from awareness to engagement is likely to depend on whether students perceive the SDGs as relevant to their lives, believe they can contribute meaningfully, and are provided with genuine opportunities for participation.

Universities must therefore move beyond simply displaying the 17 goals or organizing occasional awareness activities. Students need structured opportunities to connect SDG knowledge with disciplinary learning, institutional decision-making, research, service learning, and community engagement. A more realistic pathway is one in which awareness develops into knowledge, knowledge supports systems understanding, systems understanding strengthens perceived relevance and self-efficacy, and institutional opportunities enable students to translate these competencies into action.

The professional relevance of the SDGs extends across academic disciplines. Engineering students must consider environmentally responsible infrastructure and resource use, business students must understand ethical entrepreneurship and sustainable production, and health-professions students must recognize the relationships among health equity, universal health coverage, climate-sensitive healthcare, social determinants of health, and responsible use of healthcare resources. Integrating these perspectives into higher education can help future professionals evaluate the wider social and environmental consequences of their decisions rather than treating sustainability as separate from professional competence [2,3].

This integration is particularly relevant in countries such as Pakistan, where universities must respond simultaneously to challenges involving public health, poverty, inequality, climate vulnerability, water security, urbanization, educational access, and employment. Resource constraints may limit the ability of institutions to establish extensive sustainability infrastructure; however, they also increase the importance of preparing graduates who can identify local problems, work across disciplines, and develop practical solutions suited to community needs.

Institutional Barriers to Meaningful Integration

Despite the potential contribution of universities, several practical barriers may impede meaningful SDG integration. Limited funding can restrict student projects, faculty development, research activities, and improvements in campus infrastructure. Curricula are frequently crowded, leaving little room for additional material unless sustainability is integrated strategically into existing courses. Faculty members may also lack training in interdisciplinary teaching, systems thinking, or the practical application of the SDGs within their respective disciplines [2,3,6].

Institutional fragmentation creates a further challenge. Sustainability initiatives may be managed separately by academic departments, administrative offices, student societies, and quality-assurance units, with limited coordination among them. Without clear leadership, defined responsibilities, and appropriate resources, such initiatives may remain short term or primarily symbolic rather than being embedded within institutional planning, curriculum development, resource allocation, and governance.

Student-level barriers must also be considered. Students may have limited time, perceive sustainability as unrelated to their field, lack incentives for participation, or have unequal access to projects and leadership opportunities. Institutions may additionally struggle to define what constitutes SDG literacy, identify appropriate indicators, and distinguish meaningful impact from the simple counting of events, activities, or publications. Effective implementation therefore requires attention to educational, organizational, financial, and evaluative barriers rather than reliance on awareness campaigns alone.

A Four-Pillar Framework for Higher Education Institutions

Drawing on existing whole-institution approaches to sustainable development, a practical framework for higher education institutions can be organized around four interconnected pillars: interdisciplinary curricula, actionable research, operational authenticity, and monitoring, evaluation, and accountability.

This framework represents an evidence-informed synthesis intended to guide institutional planning rather than a formally validated intervention.

Interdisciplinary Curricula

Global challenges such as climate change, poverty, inequality, public-health disparities, and environmental degradation cannot be adequately understood within a single discipline. Universities should combine foundational SDG education with discipline-specific integration. Introductory courses, interdisciplinary seminars, project-based learning, service-learning activities, and sustainability modules embedded within existing programmes may be used according to institutional needs and resources.

A combined approach is preferable to relying exclusively on one stand-alone course. Dedicated courses can establish a common foundation, whereas integration within professional programmes can demonstrate how sustainability relates to real disciplinary decisions. Learning outcomes should therefore include not only knowledge of the 17 goals but also critical thinking, ethical reasoning, systems analysis, collaboration, and problem-solving.

Actionable Research

Higher education must extend beyond theoretical discussion by supporting research that addresses locally relevant sustainability problems. Universities should encourage student-led and faculty-mentored projects involving issues such as community health, equitable access to services, waste management, environmental risks, responsible consumption, energy use, social inclusion, and climate resilience.

Where institutional grants are provided, universities should use transparent selection criteria, define expected outcomes, provide appropriate academic mentorship, and ensure ethical and community safeguards. Projects should be assessed not only according to academic completion but also according to their relevance, feasibility, continuity, and potential contribution to institutional or community decision-making. Findings should be shared with relevant stakeholders rather than remaining confined to classrooms or student reports.

Operational Authenticity

Universities must align their internal practices with the sustainability principles they teach. Institutional credibility may be weakened when sustainability is promoted academically but is absent from procurement, energy management, waste reduction, accessibility, employment practices, student participation, or community partnerships.

Campuses should therefore function as practical learning environments in which students can observe, evaluate, and contribute to sustainable institutional practices. This may include energy conservation, responsible procurement, waste segregation, inclusive campus policies, accessible facilities, and partnerships with surrounding communities. Responsibility should be shared among university leadership, academic departments, quality-enhancement units, administrative offices, faculty members, and student organizations rather than being assigned to a single committee with limited authority.

Monitoring, Evaluation, and Accountability

Universities must establish mechanisms to determine whether institutional commitments produce meaningful change. The process should begin with a baseline audit of curricula, research activities, student knowledge, campus operations, governance arrangements, and community engagement.

Indicators should distinguish among inputs, activities, outputs, educational outcomes, and longer-term effects. Relevant measures may include the proportion of academic programmes mapping learning outcomes to the SDGs, the percentage of students completing sustainability-related learning activities, changes in SDG-literacy scores, faculty participation in professional development, the number and

quality of student-led projects, energy and resource consumption, waste-diversion rates, and evidence of community or policy impact.

Annual reporting should include baseline values, year-to-year comparisons, methods used to calculate indicators, responsible institutional offices, achievements, and unmet targets. Transparent reporting can reduce the risk that sustainability becomes primarily promotional and can position it instead as an accountable component of institutional quality and governance.

Measurable Actions for Institutional Progress

Universities can translate this framework into practice through several measurable actions. First, institutions should map existing curricula against the SDGs before introducing new courses. This process can identify where sustainability is already addressed, where major gaps remain, and whether stand-alone, integrated, or combined teaching models are most appropriate. Institutions can then introduce credit-bearing foundational courses, discipline-specific modules, interdisciplinary seminars, or co-curricular certification according to programme needs.

Second, universities should establish small institutional grant schemes for student-led sustainability projects. Grant criteria should be transparent, projects should receive faculty mentorship, and expected outputs should be defined in advance. Evaluation should consider community relevance, ethical conduct, feasibility, student learning, continuity, and potential institutional or social impact.

Third, institutions should develop and publish clear campus sustainability indicators. These may include energy and water consumption, waste-generation and diversion rates, responsible procurement practices, accessibility measures, participation in sustainability education, faculty training, and student involvement in community projects. Indicators should be relevant to the institution's size, available resources, and local context.

Fourth, universities should publish annual sustainability reports mapped against the SDGs. These reports should present both progress and unresolved challenges rather than highlighting achievements alone. Responsibility for each target should be assigned to a specific office or committee, and progress should be reviewed through established quality-assurance and governance mechanisms.

Fifth, faculty development should be treated as a central component of implementation. Educators require support to integrate sustainability into disciplinary teaching, supervise interdisciplinary projects, use active-learning approaches, and assess sustainability-related competencies. Without faculty preparation, curricular reforms may remain inconsistent or superficial.

Finally, students should be included in institutional planning rather than treated only as recipients of awareness activities. Student representatives should participate in curriculum discussions, sustainability committees, campus audits, community partnerships, and annual progress reviews. Participation should be inclusive so that opportunities are available across disciplines, socioeconomic groups, disability statuses, and campus locations.

Implementation in Resource-Constrained Settings

The proposed framework should be adapted to the financial capacity, governance structure, disciplinary profile, and community responsibilities of each institution. Universities with limited resources may initially prioritize low-cost but meaningful actions, including curriculum mapping, faculty orientation, student-led community projects, online learning resources, waste-reduction initiatives, and integration of sustainability indicators into existing quality-assurance systems.

Implementation should proceed through an iterative sequence. Institutions should conduct a baseline assessment, consult students and other stakeholders, identify priority areas, pilot selected initiatives, monitor progress, and revise their approach based on the results. Small, measurable actions supported

by clear institutional ownership may produce greater long-term value than numerous disconnected activities without defined outcomes.

Universities should also avoid assuming that increased awareness alone will lead to sustainable behaviour. Educational activities must be accompanied by supportive policies, visible institutional commitment, opportunities for participation, recognition of student contributions, and mechanisms through which successful projects can influence campus or community practice.

CONCLUSION

Empowering university students through SDG literacy is an important investment in the ability of societies to respond to complex social, environmental, economic, and health challenges. However, awareness alone is insufficient. Students also require disciplinary understanding, systems-thinking skills, opportunities for meaningful participation, supportive faculty members, and institutions that demonstrate sustainability through their own operations. By integrating the SDGs into curricula, applied research, campus governance, community engagement, and transparent evaluation, universities can help students translate knowledge into professional, civic, and community action. The immediate responsibility of higher education institutions is therefore not merely to promote the SDGs, but to assess existing practices, establish measurable responsibilities, and create sustained opportunities for students to contribute to locally relevant and globally connected solutions.

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