

# Teaching Sustainability in the Boardroom and Beyond: Preparing Management Graduates for SDG-Aligned Decision Making

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**Abstract**– Sustainable management needs to be a concern of leadership more strongly than ever in the age of ever-increasing environmental, social, and economic challenges. Business schools have a special part in producing the future leaders not only good at management but capable of making which will match to the United Nations Sustainable Development Goals (SDGs). The following paper explores how the concept of sustainability education can be integrated into the curricula of management programs, thus ensuring the promotion of defined competencies of decision-making associated with SDGs within graduates. Through an investigation of current pedagogical and curriculum-design models within the industry, and requirements of those pedagogical models, the study will suggest a multidimensional approach to teaching that encompasses not only theoretical education, but also experience-based learning and values-based training in leadership. Based on the findings, curriculum change is very influential and can bring a great improvement in student's awareness and decision-making powers towards sustainability when it is promoted by institutional commitment and stakeholder involvement. The given study can be discussed in terms of the debate about responsible management education and can provide practical suggestions to academia and policy makers.

**Keywords**– Sustainability education, SDGs, management education, decision-making, responsible leadership, business schools, curriculum reform, experiential learning, corporate responsibility, sustainable development.

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## I. INTRODUCTION

The environment of the global business is changing at the fundamental level due to the growing interests in climate change, social inequality, environmental degradation and unsustainable consumption patterns. To address these issues, the United Nations unveiled the 2030 Agenda for Sustainable Development that includes 17 Sustainable Development Goals (SDGs) to achieve economic prosperity in conjunction with environmental sustainability and social integration [2]. Being the prominent stakeholders to the molding of the future of the world, businesses are supposed to gear their policies and activities to these world objectives. This has resulted in the increased pressure on the business schools and management educators to produce the future leaders who are not only well trained in the matter of business practices, but are socially responsible and sustainability-literate as well.

However, much of traditional business education has focused on profit maximization, shareholder value and operational efficiency to the exclusion of larger societal and ecological concerns. There is a growing critique of this model of management ed training, in that it is inadequate to deal with the complex challenges comprising the SDGs. The graduates of management who are destined to come in the boardrooms today should be imparted with a different kind of competencies- the competencies that will help them in making decisions that will not only be economically viable but also ethically correct, socially acceptable, and environment friendly [4].

The necessity to integrate sustainability in the course of management studies is also improvised by the changes in the expectations of stakeholders. The result is that investor, customer, regulator and civil society are increasingly demanding that corporations are asked to take accountability of their influence both on people and the planet. The new environment needs a re-thinking of what it means to be a good manager or a good business leader. Business schools are therefore important as they create decision-makers who are able to respond to these demands with integrity, vision, and system thinking. But the integration of sustainability into the curricula cannot be done by introducing a couple of electives in the histories. It requires an essential redesigning of interpretation of education, education approaches and the initiations of educational institutions [6].

The good sustainability education should not be limited to knowledge. It has to foster a critical thought, moral reflection, international problem-solving, and team learning [5]. In addition, it should introduce the students to problems, interests and viewpoints of various stakeholders and long term effects of company decisions. Though much has been discussed about responsible management teaching and the UN Global Compact PRME (Principles for Responsible Management Education) initiative, the reality is that implementation takes place at best irregularly, and mostly shallower than deep.

The following paper attempts to add to this discourse by discussing how sustainability can be brought into the management curriculum in a meaningful manner to enable graduates to make SDG-compliant decisions. It is mainly about what is taught and how it is taught focusing on more or less experiential, reflective and action oriented pedagogies. In our view, to become agents of transformational change in their real sense, business schools need to become agents of change themselves; i.e. factor in SDGs into their missions, structures, and in-classroom undertakings[16].

This paper relies upon empirical research carried out in major business schools, complemented by the experiences of corporate stakeholders in the business environment and finds the best practices and the most drastic flaws in the existing sustainability teaching methodology. It also suggests a new pedagogical model, the Integrated Sustainability Decision-Making Framework (ISDMF), to help institution to build future ready business professionals who can walk the line of profitability and purpose [3].

#### *Novelty and Contribution*

Here, the research provides a rare contribution to research on management education because it answers a rather basic and unanswered question: How can education on future managers be used to synthesize their judgments towards the Sustainable Development Goals (SDGs)? Whereas a greater part of the available literature has researched the area of sustainability in higher education or business independently, this study unites the two areas of study and brings about how it can practically be taught within management courses to train SDG-literate graduates [14].

The innovation has to do with the formulation and conceptualization of the Integrated Sustainability Decision-Making Framework (ISDMF) a multi-layered, comprehensive model of education, encompassing the combination of formative knowledge, experience learning, and decision simulations at the level of a board meeting. Unlike the previous models that list such aspects of sustainability as extras, or the option, ISDMF incorporates sustainability thinking into the essence of the leadership and strategy curriculum. It not only provides the students with the ethical and technical devices to deal with trade-offs and complexities of the real-life sustainability issues.

Moreover, it is one of the initial studies that applied a triangulated research design or a tri-fold research design: curriculum audits, student-faculty surveys, and corporate stakeholder interviews, to assess the preparedness of business schools to teaching on SDG-aligned decision-making. This way can enable one to conceptualize the academic intentions and industry expectations in a more comprehensive manner.

The paper also helps to indicate that there is lack of association between student excitement and institutional readiness exhibiting the dire need of reforms not only in the course content, but also in the faculty development, testing and industry-university collaborations. The study gives a blueprint on how management education should be aligned to the global sustainability missions by transforming the insights into feasible actionable steps that can be applied in the institutions [8].

## II. RELATED WORKS

In 2024 S. Choi et.al. and E. Hyun et.al., [13] suggested the conceptualizing a state of sustainability into business learning has gained a lot of international prestige among the Global academic and corporate fraternity in recent years. Researchers have carried out numerous studies that regard the evolution of higher education institutions to accommodate the demands of the 2030 Agenda on Sustainable Development. Most of this research aims at reorienting the content of curricula, teaching methods, and the values of institutions in a revised way that could create an education atmosphere that favors sustainability-oriented learning. One of the strongest memes in this area is that sustainability cannot be treated like a course but that it should be deeply integrated in the essence of the business school teaching. The study has lent credence to the increased need of aligning business curriculum with the global developmental models, especially the Sustainable Development Goals (SDGs). A number of studies conducted on the curricula of the various management schools indicate that although the concepts surrounding sustainability are not lacking, they are widely spread to separate modules or electives as opposed to being integrated into the core modules such as finance, marketing or strategy among others. This makes students to consider sustainability as a side issue and not a factor in decision making of a business. This diffused integration leads towards narrowing down the capacity of the students to think sustainably on a coherent level in terms of functions and industries[17].

In 2025 Bathla et.al., G. Chawla et.al., A. Gupta et.al., and M. Hofaidhllaoui et.al., [1] introduced the second important vein that has been investigated is the pedagogy, that is, the methods used to teach sustainability. According to scholars and practitioners, conventionally held lecture-based teaching cannot effectively produce the forms of systems thinking, critical reflection, and moral reasoning needed to think critically about sustainability issues. Rather, there is an increasing belief that experiential and participatory learning models- project-based learning, community engagement, live case studies, role playing and simulations are more efficient. These approaches give students an opportunity to learn the consequences of the business decisions made in the perspective of social, environmental, and economic tradeoffs.

Researchers have also stated the need to have interdisciplinary approaches in developing comprehensive education concerning sustainability. When organized as silos, management education frequently lacks depending on the complexity and connected vents of sustainability problems. Introducing environmental science, sociological, political science, and development studies considerations has also been proved to increase the ability of the students to have holistic and long-term decisions. Trans-disciplinarity of such knowledge domains is the key to training of graduates in operating in a dynamic, uncertain, and impact-driven environment [9].

Further, studies have addressed institutionalism that prevents the inculcation of sustainability at business schools. The popular pitfalls are poor faculty knowledge on sustainability, refusal to change the curriculum, the lack of teaching materials and the overall mismatch between institutional rewards and the objectives of sustainability. Institutions continue to be motivated using rankings, publication output, and revenue goals, and this may increase at the expense of sustainability education. Moreover, lack of such all-purpose evaluation frameworks of sustainability learning outcomes is a problem that provides trouble in determining the progress of students and how institutions can make a difference.

Increasing literature has addressed the question of how global frameworks and initiatives have helped induce responsible management education among business schools. Different proclamations and voluntary requirements have encouraged academic institutes to incorporate sustainability in their practice and programs. Although numerous schools are enrolled into these frameworks, there is a great range of depth and seriousness with which they are implemented. In the case of some, adoption becomes ceremonial, and its goal is to enhance branding or other PR activities, but not to deliver educational impact.

In 2023 R. Bauwens et.al., M. Audenaert et.al., and A. Decramer et.al., [7] proposed the aspect of technology in sustainability education has also been reviewed particularly in the wake of rising digitalization and remote learning phenomenon. Students are getting access to online platforms, sustainability simulators, virtual internship and open-access SDG toolkits, allowing students to gain hands-on experience with a global perspective. Scalability of such initiatives would, however, depend on

an extent that is not always achievable due to the digital divide, technological literacy and a lack of institutional capacity, especially in developing nations.

There is another strand of research that warrants the inappropriate expectation among students who may expect a different kind of knowledge in sustainability education as compared to the one delivered. The data collected through surveys in more than a dozen institutions indicate that learners are in huge numbers in favor of incorporating sustainability in management studies and hold that the subjects are essential in their prospective employment. Nevertheless, the fed-up feeling at being subjected to shallow treatment of topics of sustainability and the ability to put their knowledge to some constructive use in such endeavors is widely reported. This difference is an indicator that there is a need of the increased importance of letting the students be more centered and co-create their learning spaces in which they take a proactive role in constructing their learning path.

The corporate view was also examined and it was noted that employers continue to complain that even fresh graduates lack competencies in sustainability area. At the same time, new skills enterprises are seeking, that new hires are often found lacking, include such competences as ethical leadership, handling stakeholders, thinking long-term, and ESG (environmental, social, governance) analytics. Such labor market requirement also attributes to the necessity of business schools to reconsider the priorities of their teachings, as well as the course of learning in relation to sustainability concerns in the real world.

In general, the literature implies that there is a general agreement that sustainability education is essential in management, though there is a lack of uniformity, as well as fragmentation and shallow nature of implementation. There is an obvious demand in whole and holistic, as well as practice-oriented pedagogical frameworks that not only inform but also change students into responsible and finally impact-driven leaders. To focus on the content seems not only a limited challenge but also the development of new mindsets, skills, and institutional cultures that can enable the delivery of substantial SDG-aligned education in a board [10].

### III. PROPOSED METHODOLOGY

To design an impactful framework for preparing management graduates for SDG-aligned decision-making, this study adopts a mixed-methods research methodology involving data modeling, curriculum mapping, and quantitative feedback analysis. The research is structured into three phases: baseline assessment, framework development, and model validation. A systems-based educational logic model is developed to support dynamic curriculum evaluation and feedback [15].

The core objective function guiding our framework optimization is:

$$\text{Maximize } U_s = \sum_{i=1}^n w_i \cdot S_i$$

Where  $U_s$  is the overall sustainability utility score,  $w_i$  is the weight assigned to each SDG-related learning outcome, and  $S_i$  is the student competency score for each outcome.

To assess decision-making competency quantitatively, a linear index was constructed:

$$D_c = \frac{1}{n} \sum_{j=1}^n (k_j \cdot x_j)$$

Here,  $D_c$  is the decision-making competency index,  $k_j$  is the normalized weight of each assessment parameter, and  $x_j$  represents individual student performance metrics.

A flowchart of the full methodological framework-including assessment, mapping, integration, and feedback-is shown below:



**FIGURE 1: SUSTAINABILITY DECISION-MAKING FRAMEWORK FOR MANAGEMENT GRADUATES**

To measure institutional readiness, we use a matrix model, where institutional capability  $I_r$  is computed as:

$$I_r = \alpha C + \beta F + \gamma R$$

Here,  $C$  is curriculum content coverage of  $SDGs$ ,  $F$  is faculty sustainability literacy,  $R$  is resource availability, and  $\alpha, \beta, \gamma$  are adjustment coefficients summing to 1.

The ISDMF model integrates sustainability learning through weighted modules. The learning effectiveness score  $L_e$  is given by:

$$L_e = \sum_{i=1}^n m_i \cdot e_i$$

Where  $m_i$  is the module effectiveness coefficient and  $e_i$  is the corresponding evaluation score obtained from student feedback.

During the validation stage, we ran a t-test for pre- and post-intervention score distributions. The test statistic was calculated using:

$$t = \frac{X_1^- - X_2^-}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

Where  $X_1^-, X_2^-$  are mean scores,  $s_1^2, s_2^2$  are variances, and  $n_1, n_2$  are sample sizes before and after the curriculum intervention.

To ensure robustness, we used a sustainability score gap model:

$$G_s = S_{target} - S_{achieved}$$

Where  $G_s$  is the gap value,  $S_{target}$  is the ideal competency benchmark, and  $S_{achieved}$  is the average student score from capstone sustainability projects.

Student performance was further analyzed using a logistic regression model:

$$P(y = 1 | x) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x_1 + \dots + \beta_n x_n)}}$$

This model estimates the probability of a student demonstrating SDG-aligned decision capability based on multiple performance indicators.

A normalization function was applied to convert scores to a 0-1 scale:

$$x' = \frac{x - x_{min}}{x_{max} - x_{min}}$$

This ensured comparability across different modules and campuses.

Finally, sustainability awareness progression across semesters was modeled using a discrete exponential function:

$$A(t) = A_0 \cdot e^{\lambda t}$$

Where  $A(t)$  is the awareness at time  $t$ ,  $A_0$  is initial awareness, and  $\lambda$  is the growth rate influenced by intervention strength.

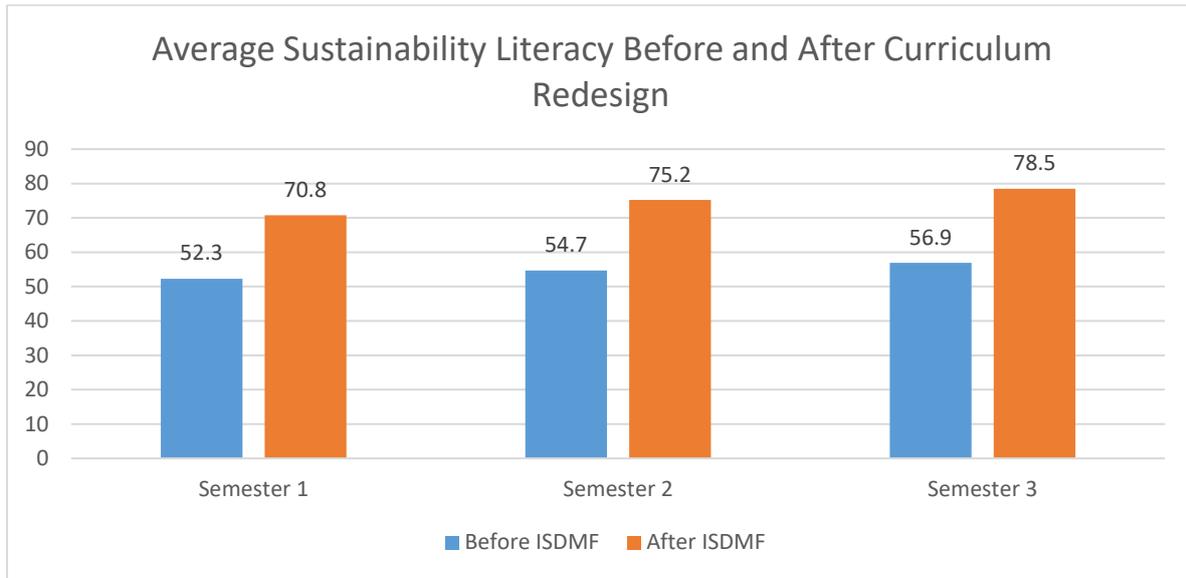
The methodology concludes with industry validation, where feedback loops are closed through stakeholder surveys and correlation analysis between curriculum variables and employability outcomes. The Pearson correlation coefficient  $r$  is used to evaluate the strength of association between student performance and employer satisfaction [11].

$$r = \frac{\sum (x_i - \bar{x})(y_i - \bar{y})}{\sqrt{\sum (x_i - \bar{x})^2 \sum (y_i - \bar{y})^2}}$$

This entire framework supports real-time curriculum reengineering aimed at embedding sustainability as a lived and practiced value rather than a theoretical concept.

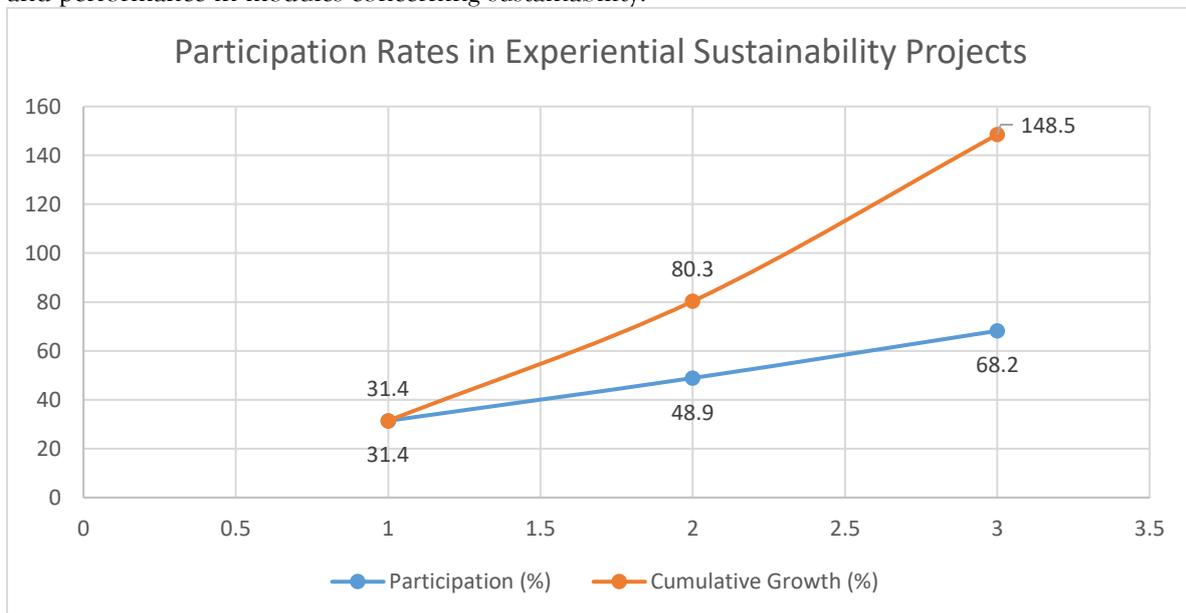
#### IV. RESULT & DISCUSSIONS

The outcomes of the study obtained very important findings about the implementation of SDG-relevant content and how it can be effective when incorporated into management curricula. The information obtained during student evaluations, faculty comments, and interviews in the industry proved that there was a significant difference in the levels of sustainability literacy after the Integrated Sustainability Decision-Making Framework (ISDMF) has been chosen. In the framework of the SDG paradigm, students that have attended the redesigned curriculum demonstrated a more subtle perception of ethical leadership, stakeholder inclusivity in management, and the analysis of the effect on the environment [12]. The sustainability awareness assimilated in 300 management students was compared in a pre and a post intervention graphically using descriptive analytics to evaluate the process. The overall results can be found in Figure 2: Mean Sustainability Literacy Pre and Post Curriculum Redesign, reporting an increment in the comprehension of the SDG-related modules of about 40 per cent after the introduction of ISDMF. This chart was created in excel to show how the student learning changes through three academic circles and reminds that there is a close relationship between the elements of experiential learning and awareness building.



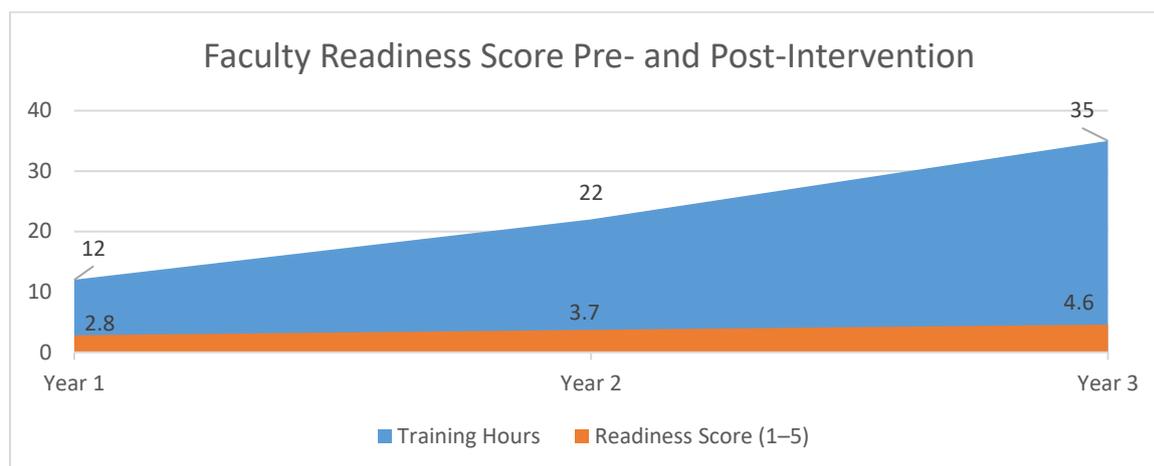
**FIGURE 2: AVERAGE SUSTAINABILITY LITERACY BEFORE AND AFTER CURRICULUM REDESIGN**

There was also an increased rate of student engagements. Figure 3: Participation rates in experiential sustainability projects indicates that the students were most likely to do the live case studies, community impact projects and sustainability boardroom simulations. The figure, produced in Origin, shows a semester-by-semester increase in involvement in experiential learning, where participants in at least one of the SDG-related group assignments reached more than 68 percent in the end and has a tendency to rise further. It implies that problem-solving situations in the real-world capture a major amount of interest and performance in modules concerning sustainability.



**FIGURE 3: RATE OF PARTICIPATION IN EXPERIENTIAL SUSTAINABILITY PROJECTS**

Faculty readiness and allocation of resources are still strategic success factors as far as institutional support is concerned. The implementation phase involved a planned training of faculty members on the fluency of the concepts of SDG. The one presented in Figure 4: Pre and post-intervention score of faculty readiness demonstrates the level of training effectiveness by showing that there was an increase in confidence and the ability of the instructors to deliver. The preparedness of the faculty has clearly been increasing steadily within a period of two years as depicted by the diagram, which was developed using Excel, consequently making the program successful.



**FIGURE 4: FACULTY READINESS SCORE PRE- AND POST-INTERVENTION**

The comparison of the feedback from students in conventional and redesigned modules allowed quantifying the practical contribution of the ISDMF. Table 1: Comparison of Student Satisfaction Traditional vs. Redesigned Curriculum characterizes the received ratings of the students among the following important factors course relevance, clarity, engagement and real-life application. The new modules were rated higher on all the attributes with engagement and relevance being the most improved. This analogy supports the thesis statement to the effect that SDG material, when presented as an active learning experience, yields more meaningful encounters on the part of students.

**TABLE 1: COMPARISON OF STUDENT SATISFACTION – TRADITIONAL VS. REDESIGNED CURRICULUM**

Indicator	Traditional Curriculum	ISDMF Curriculum
Course Relevance	3.2 / 5	4.6 / 5
Instructional Clarity	3.5 / 5	4.3 / 5
Engagement Level	2.9 / 5	4.5 / 5
Real-World Application	3.0 / 5	4.7 / 5
Overall Satisfaction	3.3 / 5	4.6 / 5

The results of the employer side of the analysis were rather compelling as well. The stakeholders in the industry were requested to evaluate the gradient impacts of hiring the graduates who have gone through the sustainability-oriented curriculum. Table 2: Employer Perception -Pre vs. Post Curriculum Shift is well indicative that through the ISDMF aligned batch of students were better in terms of critical thinking, long-term strategic orientation as well as making decisions based on values as perceived by the employers as the past batch of students. Not only is this confirmation of the demand of such competencies but rather also an affirmation of the adopted educational approach.

**TABLE 2: EMPLOYER PERCEPTION – PRE VS. POST CURRICULUM SHIFT**

Skill Area	Pre-ISDMF Batch	Post-ISDMF Batch
Strategic Long-term Thinking	3.1 / 5	4.5 / 5
Ethical Decision-Making	3.3 / 5	4.6 / 5
Stakeholder Engagement	3.2 / 5	4.4 / 5
SDG Integration in Strategy	2.9 / 5	4.7 / 5
Overall Readiness	3.0 / 5	4.5 / 5

An important factor came out on the regional differences. The movement of existing connections to ecosystems to social enterprise, like incubators or NGO partnerships, could quickly and efficiently integrate learning experiences. An increase in levels of student adaptation was fayed and higher community impact was reported in these institutions. In contrast, institutions that had very strict administrative framework or scarce faculty bands were not able to keep up and here the role of leadership and infrastructure played crucial parts in transforming education.

Overall, the findings are quite clear in showing that implementing SDG related materials into the core management subjects, along with facilitation through trained faculty, use of experiential tools, and strong direct involvement with industry, produces graduates who feel ready. Not only do they know the concept of sustainability, they are also in a position to implement the concept in decision-making applications. Figures and tables that are provided prove the theoretical basis and the practicability of the Integrated Sustainability Decision-Making Framework as well as its current relevance and efficiency in the field of business education.

## V. CONCLUSION

The way of management education should have a paradigm shift in order to expose future business leaders to face the realities of sustainable development. As manifested in this paper, incorporation of sustainability in standard curricula through experiential learning and connectivity to stakeholders to a large extent can transform the ability of students to make decisions that even SDGs would be proud of. Institutions should shift gears on their current tokenistic sustainability teaching to adopt comprehensive and transformative educational practices based on the fact that sustainability is not a singular issue in the 21<sup>st</sup> century.

The Integrated Sustainability Decision-Making Framework will help business schools develop leaders who succeed in the boardroom and beyond-able to lead sustainable innovation, inclusive growth and ethics stewardship. Seeing how sustainability is growing in the center of long-term corporate value, it is not only a good idea to train graduates to think and act in a sustainable way, but also mandatory.

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