Antecedents of Sustainable Development Goals (SDGs) in Curriculum Implementation: A Review of Selected University Academic Programmes

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Abstract

This study explored the integration of the Sustainable Development Goals (SDGs) into curriculum implementation processes using a dual methodology that combined questionnaire administration and analysis of academic program curriculum objectives. The underlying rationale was that incorporating select SDGs into relevant programs can enrich and diversify curriculum implementation processes, thereby enhancing their relevance and effectiveness. The study undertook a qualitative questionnaire survey design, and by administering a questionnaire to students and reviewing academic programme curriculum objectives, this study investigated the inclusion of aspects of SDGs in curriculum implementation processes. The sample comprised 600 students in three faculties of management studies, education, and social sciences, and 340 students filled and returned the questionnaire. The rationale was that the processes of curriculum implementation could be enriched and diversified by including contemporary aspects like some of the 17 SDGs goals in related programs. There is limited attention paid to the promotion of SDGs in curriculum development processes in Uganda's higher education institutions (HEIs). Engaging HEIs in the pursuit of SDGs can significantly facilitate the attainment of these objectives. As centres of diverse stakeholders, including students, faculty, researchers, and community partners, HEIs possess a unique capacity to leverage their collective expertise, resources, and influence to drive SDG implementation. This espouses existing literature that the numerous gaps in higher education training, coupled with the high degree of indigenization of knowledge through geographically inclined curriculum designs and implementation, and gaps in graduate competencies and skills, call for a very diversified intervention.

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Introduction

The unanimous adoption of the Sustainable Development Goals (SDGs) by world leaders at the United Nations (UN) General Assembly in New York on September 25, 2015, foreshadowed a paradigm shift in global sustainability efforts. The integration of these goals into economic systems has the potential to eradicate poverty and alleviate human suffering worldwide, fostering a more equitable and resilient future. The SDGs outline a comprehensive agenda for global sustainable development, emphasizing the interconnectedness of economic growth, environmental protection, and social inclusion.

However, over ten years since their adoption, the implementation of these goals remains uneven among nations. Notably, scholarly discourse has expressed persistent skepticism regarding the feasibility of achieving these goals, citing significant challenges and complexities. Despite the UN hailing the SDGs as the largest consultation in its history, nations will only reap minimal benefits unless governments and non-state actors ensure effective implementation through strategic mobilization (Stafford-Smith et al., 2017). A significant challenge lies in the SDGs' lack of a comprehensive conceptual policy framework for indicator development, rendering it difficult for users to ascertain the adequacy of measurement (Hák et al., 2016). Notwithstanding, aligning organizational strategies with the SDGs has emerged as a crucial international benchmark for governance and sustainability implementation (Avelar et al., 2019; Caputo et al., 2021; Fleaca et al., 2018; Paletta & Bonoli, 2019). Prudent organizations recognize the importance of integrating SDGs into their strategic frameworks.

The conceptualization of SDGs remains ambiguous in numerous economies and societies worldwide. Countries continue to debate prioritizing certain goals over others, largely due to concerns surrounding insufficient Means of Implementation (MOI) and the lack of a systematic approach to MOI (Elder et al., 2016). Regular, systematic reviews of national progress and SDG implementation approaches are crucial to ensure emerging science and knowledge effectively inform national practice (Allen et al., 2018). Notably, research has identified significant gaps in SDG integration within organizational platforms. Ali et al. (2018) found key SDGs absent from mission and vision statements of companies in the Brazil, Russia, India, China, and South Africa (BRICS) economies. Their study highlights the need for BRICS nations to prioritize the UN SDGs.

Studies confirm that HEIs have a vital role to play in accomplishing SDGs (Iqbal & Piwowar-Sulej, 2021). However, it is the responsibility of various types of organisations to blend their operations with sustainability and create sustainable future and among them are the HEIs (Wright & Horst, 2013). HEIs should contribute to sustainable development by inculcating sustainability in students through teaching and research, and this is inclusive of the knowledge dissemination and integration with industry (Bayuo et al., 2020; Cetindamar, 2016; Martins, 2019). HEIs develop a future generation of leaders, policymakers, decision-makers and innovators in the area of sustainable development thereby taking the lead in society (Iqbal & Piwowar-Sulej, 2021). The inclusion, incorporation and a strategic blend of HEI objectives with SDGs is not a matter of if but when. Inculcating the SDGs agenda in a more fragile but reliable mind is more feasible than the current approach of conference-colloquial based discussions that have been going on around the world among leaders and other concerned stakeholders. Developing methods, tools and approaches where HEIs systematically introduce the SDGs in teaching-learning and research as an intrinsic part of their programmes (Heijmans & Eweg., 2023; Leal Filho et al., 2021; Vallez et al., 2022), especially curriculum design, development and implementation, could be one of the most reliable approaches of spreading and concretising the SDG gospel around countries of the world. Filho et al. (2021) conclude that universities around the world have endeavoured to include SDGs in their main operations like research and teaching, and they add that the SDGs' role and its integration in HEI has been discussed in several studies under topics like transnational collaboration between HEIs, sustainability-oriented higher education networks, means of implementation plus the main bottlenecks and challenges to integrating sustainable

development in universities. A factor that is important to consider that could be useful for integrating sustainable development in HEIs as documented by an international survey, is innovation. This indicated that there would be improvement in products, services and processes related to environmental issues especially if innovative approaches were deployed (Leal Filho et al., 2021).

Although some HEIs have included education for sustainable development in their study programmes, deeper analyses like online description of courses presents a limited presence of the SDGs in the curriculum design (Friman et al., 2021; Leal Filho et al., 2021). This is coupled with the dire need by universities to improve their teaching and learning through inclusion of sustainable development but highly incapacitated by SDGs awareness (Friman et al., 2021; Leal Filho et al., 2021). This study reviewed selected university academic programmes in Uganda, using a questionnaire administered to students and qualitative techniques of documentary and content analysis to investigate the inclusion of SDG aspects in curriculum implementation processes, and analysed the programme objectives of selected programmes. The rationale was that the processes of curriculum implementation can be enriched and diversified by including contemporary aspects like some of the 17 SDGs goals in related programmes.

Research Question and Objectives

The central question of the study was:

To what extent are SDGs implementation emphasised by HEIs in Uganda during curriculum processes especially under academic programme objectives, learning outcomes, course units structuring and assessment?

The above research question was answered by the following objectives;

1. To assess the direct or implied inclusion of SDGs under academic programmes objectives.
2. To quantify students' knowledge of the of 17 Sustainable Development Goals.

Literature Review

Curriculum Development and Implementation Processes

To dig up the antecedents of SDGs in curriculum implementation, we must excavate the complex process of curriculum development and implementation. This process unfolds in two crucial dimensions of development and implementation, with the latter bound to the former. The development process lays the groundwork for the skills and competencies that implementation seeks to cultivate, but a chasm often emerges during development, crippling the implementation process. The integration of SDGs in curriculum implementation must stem from the development process, which provides a clear roadmap for implementers to navigate the intricacies of pedagogy. A meticulously crafted curriculum must explicitly demarcate the pedagogies and procedures for its implementation, lest its development becomes a futile exercise in intellectual gymnastics.

Therefore, curriculum innovation processes must be comprehensive to effectively address the diverse needs of students (Whisted & Green, 2015). Curriculum development encompasses a range of essential components, including the creation of a planned curriculum, pedagogy, instructional materials, delivery methods, assessment, and evaluation (Adagale, 2015). These elements collectively aim to enhance the teaching

and learning experience for both instructors and students. Moreover, the relevance of the curriculum and its development process significantly contribute to the growth and development of communities. However, the global economic landscape has undergone a profound transformation, driven by rapid globalization, technological advancements, and innovations, which has substantially impacted the nature of work (Adagale, 2015; Chan et al., 2017). Consequently, the skills demand of the labor market has shifted, and employers have expressed concerns that existing higher education programs are not adequately preparing graduates with the requisite skills to adapt to these changes. Source?

The imperative for higher education institutions to respond to the dynamic environment in a learner-centred and adaptive manner, through the development of quality curricula, is increasingly evident. To achieve excellence in programs and services, institutions must establish a robust foundation in curriculum design, a crucial imperative that transcends program type and institutional modalities (Khan & Law, 2015). Consequently, the development of integrative curricula has emerged as a pressing global concern and challenge. Moreover, the incorporation of SDGs into curriculum development processes should be prioritized as a global initiative, fostering a paradigm shift in education that aligns with the United Nations' 2030 Agenda for Sustainable Development. Curriculum development constitutes the key player of a vibrant education system, and this perpetually evolves and adapts to fluid circumstances. Modern times present unique and peculiar circumstances in higher education circles, and some of these are knowledge production – whereby the opportunities for curriculum development are expanding and are driven by innovations in knowledge production modalities. Remarkably, paradigmatic shifts in the scholarly community, as evident in recent research, have significantly influenced knowledge production in higher education, thereby creating new imperatives for curriculum reform (Tisani, 2004).

Higher education institutions are compelled to undergo planned curriculum transformation due to various driving forces, but the intricate process of implementation poses significant challenges. To overcome these hurdles, effective strategies are crucial to sustain and succeed in curriculum reform. Key factors that reinforce successful curriculum change include faculty development and engagement, meticulous planning, adequate funding, rigorous quality assurance, student participation, and strong leadership. All these factors seem to be weak, inadequately available or lacking in most Ugandan HE circles. The curriculum framework in higher education is shaped by diverse stakeholders, including students, educators, research advancements, regulatory bodies, and the community (Anderson & Rogan, 2011). These influences prompt institutions to revamp curriculum content, learning outcomes, pedagogical approaches, educational settings, assessment methods, and learning environments (Dent & Harden, 2013). By acknowledging and addressing these factors, institutions can ensure a successful and sustainable curriculum transformation. A study by Mugishu and Mugimu (2015) unequivocally underscores the pivotal role of learning theories in shaping curriculum development and implementation. Their research reveals a resounding consensus of the strategic integration of learning theories in informing the curriculum development process. It is therefore imperative that educators and curriculum designers judiciously select and apply relevant learning theories to create robust and effective programs that foster meaningful learning experiences.

The curriculum development process in Uganda has a rich historical trajectory, dating back to the British colonial era, and has undergone significant transformations over the years. A seminal milestone was achieved in 2007, when the primary education curriculum was comprehensively reviewed and revamped to incorporate the Thematic curriculum (Amone, 2019; Muyanda, 1996). This paradigmatic shift was followed by the introduction of the Competency-Based Curriculum for the Uganda Certificate of Education in 2020, marking a significant departure from traditional pedagogical approaches. A curriculum's efficacy is predicated on the performance of its products, and its success is contingent upon the realization of its stated aims, national goals, and expectations (Muyanda (1996).

Higher Education Curriculum Development and SDGs

Despite several studies on HEIs with incorporation of sustainability and aspects of SDGs in their operations, it is important that in depth research on a blend of SGDs and HEIs programmes and syllabi be given keen attention (Wang et al., 2022). According to (Filho, 2011), sustainability programmes in HEIs should consider concrete actions like in areas like curriculum, campus operations, research, concrete projects and extension. The unfortunate bit however is that majority of contemporary HEIs have inclined so much towards academic programmes that aim at yielding more employment for their students since priority by parents has been given to job opportunities and wealth accumulation. Therefore, degree programmes with more employability and economic opportunities are preferred in the most HEIs strategies than implementing sustainability programmes (Parr et al., 2022). Subsequently it will be important to integrate different pedagogical approaches with sustainability competences during the process of development (Lozano et al., 2019; Wang et al., 2022). Implementing strategic development at HEIs embeds a well-designed strategic planning process since it proceeds from institutional commitment, objectives, concrete actions to achieve the objectives, associating the goals with responsible human resource staff and identifying the availability or shortage of resources at given periods of time to implement the strategy (Fantauzzi et al., 2021; Filho et al., 2019). The key studies cited in this paper are not referenced.

According the UN guidelines for HEIs, one of the keys areas is integrating sustainability into education (SDSN, 2020). According to (Lozano et al., 2021; Wang et al., 2022), incorporating sustainability into education and curricula by HEIs is not a new phenomenon, and emphasis was given to modules, courses and programmes. However, recent trends have taken the direction of research focuses on sustainability competencies, tutorial approaches and how to link them. To groom a formidable foundation of sustainable development in HEIs should be the guiding thread of all HEI systems, activities and areas in an interconnected way (Ceulemans et al., 2015; Yañez et al., 2019). Implementing education of sustainability development at higher education enhances understanding of the concept (Fisher & McAdams, 2015), and it therefore becomes an operational gist for HEIs to assess which pedagogical approaches must be adopted if they are to effectively mitigate the what (Claudy et al., 2013), and the "attitude–behavior gap" in sustainability education (Claudy et al., 2013; Wang et al., 2022). Much as HEIs have a critical role to play in a bid to promote sustainable development through education, and which includes equipping students with knowledge and skills so that they can devote to a more sustainable future (Lozano et al.,

2015), there is still need for much deeper and far-reaching transformation (Caeiro et al., 2020). Indeed, HEIs have fundamentally exhibited their role in the agenda of sustainability although not that evident in the contribution to the SDGs (Parr et al., 2022).

HEIs have a crucial role in promoting awareness and developing skills among future professionals, essential for the successful implementation of the SDGs (Amorós et al., 2023). This role should be integrated into the four primary objectives of HEIs, which encompass teaching and learning, research, community outreach, and serving as sources of expertise and vocational identity. A study conducted by Amorós et al. (2023) revealed that the integration of SDGs in bachelor-level education was most prevalent in programs that focused on economics, engineering and technology, business administration, humanities, and social sciences. The study showed that the incorporation of SDGs into higher education curricula was primarily achieved through pedagogical approaches such as workshops, lectures, and courses, with the frequency of these methods varying across countries. Notably, high-income countries tended to adopt a more theoretical and academic approach, whereas low-income countries focused on practical applications aimed at resolving real-world problems, highlighting the need for context-specific strategies in SDG integration. The current study offers valuable insights and a promising outlook on the integration of SDGs in HE, with empirical evidence suggesting notable progress in this regard, particularly in highly developed nations. It is incumbent upon the academic community to facilitate a robust knowledge-sharing framework, whereby best practices and lessons learned from global universities on SDG integration can be disseminated widely, ultimately benefiting all stakeholders in HE (Amorós et al., 2023). This knowledge sharing is crucial for fostering a global culture of sustainability and advancing the SDG agenda in HE.

Notwithstanding Uganda's commitment to align its development agenda with the global SDGs framework, the country faces significant constraints in accurately measuring SDG indicators and compiling reliable data (Habaasa, 2019). This limitation hinders the effective monitoring and evaluation of progress towards achieving the SDGs, thereby undermining the country's ability to make informed decisions and optimize development outcomes. According to a 2021 report from the Prime Minister's office, Uganda has made significant strides in achieving the SDGs, surpassing the 50% target and ranking an impressive 18th among 52 African nations. However, the current situation is marred by a glaring limitation - the reliance on official surveys and administrative data, which neglects the valuable insights from civil society organizations, the private sector, and academia. The report further indicates that data from Civil Society Organisations (CSOs) and academia are largely non-representative and do not fit into the definition of indicators. Furthermore, the online presence of SDG-related research in Uganda is woefully inadequate, necessitating reliance on continental or governmental data sources that may lack academic rigor. This scarcity of scholarly research underscores the imperative to integrate the SDGs into curriculum implementation, ensuring a more comprehensive and evidence-based approach to sustainable development. By doing so, Uganda can enhance the robustness of its development agenda, aligning it with globally accepted standards and fostering a culture of data-driven decision-making.

The Office of the Prime Minister's report (2021) further reveals a disconcerting trend of uneven progress towards achieving the SDGs, with the COVID-19 pandemic inflicting a significant setback on the country's development momentum. Despite this,

the report expresses cautious optimism that through concerted efforts and collaborative action, Uganda can still make meaningful strides towards realizing the SDGs by 2030, salvaging the country's development prospects. Uganda has made notable strides in its quest to achieve the SDGs, particularly in the education sector, where the government has demonstrated unwavering commitment to universal access to free and compulsory secondary education. This laudable initiative is further strengthened by the deployment of qualified teachers across all schools and regions, ensuring a strong foundation for human capital development (Arinaitwe & Williamson, 2023). This proactive approach is a testament to Uganda's resolve to leave no one behind in its pursuit of sustainable development.

There is no doubt that countries globally have mobilized and engaged towards achieving the SDGs within the 2030 deadline. Nevertheless, the inherent globality of the SDGs poses a significant implementation challenge at the national level, hindering progress and casting doubt on the feasibility of achieving these goals (Mwangu, 2023). This dichotomy between global aspirations and local realities underscores the need for contextualized strategies and coordinated efforts to overcome the impediments and ensure the successful realization of the SDGs. Uganda's pursuit of the SDGs is beset by significant challenges, primarily due to its heavily donor-dependent economy, which constrains program implementation and limits resource allocation. The country's reliance on external funding sources restricts its autonomy in implementing SDG-related programmes, exacerbating the struggle to achieve these goals. Furthermore, the unexpected emergence of the COVID-19 pandemic in 2020 necessitated a rapid shift in priorities, diverting attention and resources away from SDG implementation. Currently, Uganda is grappling with the critical task of localizing SDG implementation, a crucial step in translating these global goals into national reality (Mwangu, 2023). This endeavour requires careful consideration of contextual factors, alignment with national priorities, and sustained commitment to ensure successful implementation.

This paper contributes to SDGs implementation at HEIs by assessing and analysing curriculum processes to identify antecedents of SDGs in the academic programme objectives, learning outcomes, course units and assessment processes of selected programmes from three universities in Uganda.

Methods

The study employed a qualitative questionnaire survey design to investigate the integration of Sustainable Development Goals (SDGs) within curriculum implementation processes. By administering a questionnaire to students and reviewing the academic program curriculum objectives, this research was conducted at a Ugandan university comprising six academic faculties. Three academic programs were selected for analysis regarding their inclusion of SDGs, and the questionnaire was distributed to students across three faculties. A total of 600 students from the faculties of Management Studies, Education, and Social Sciences received the questionnaire, with 340 students completing and returning it. The study focused on final-year students during the sixth week of their final semester.

Permission was obtained in writing from the Directorate of Research, Publication, and Innovation, as the study involved human subjects. After a waiting period of three weeks, approval was granted, allowing us to proceed with the random

mobilization of participants. To raise awareness of the study, sensitization efforts were conducted during lectures across various courses, and we sought the lecturers' in-charge's permission. In the sixth week, when students were taking their semester tests, we administered the questionnaire. The questionnaire comprised 18 items, 17 of which directly related to the Sustainable Development Goals, while the 18th item assessed the general awareness of students regarding the SDGs. What was the target population?

Population and Sample

No specific attention was paid to the sample specification, as the objective of administering the questionnaire was to determine students' level of knowledge of the SDGs during their time at university. Sample size in qualitative research is not about statistical power, but about theoretical saturation (Mason, 2010). The academic programmes reviewed were Bachelor of Business Studies, Bachelor of Arts in Education and Bachelor of Social Work and Social Administration. A questionnaire was sent out to 600 students in three faculties of management studies (150), education (250) and social science (200). A total of 340, which was 57% of the total sample, filled and returned the questionnaire. Of these, 47% of them were from management studies, 52% from education, and 70% from social sciences.

Data Analysis

Data analysis was qualitative, focusing on the direct inclusion of SDGs in the academic programmes of selected universities. This was by matrixing programme objectives against the SDG goals. This was on addition to a quantified content analysis of students' responses on their knowledge and awareness of the 17 SDGs.

Findings

The findings indicate that there are generally no direct antecedents or linkages to the SDGs in the curriculum implementation of selected academic programmes, and that university students are not well acquainted with the SDGs. Students' responses to the questionnaire indicate some knowledge related to the Sustainable Development Goals, although this is not enough, as it is not part of the academic programme objectives.

Assessing the Direct or Implied Inclusion of SDGs under Academic Programmes Objectives

Results from the review of academic learning programme objectives indicated that there is no mention of SDGs in the three programmes that were randomly chosen from the three faculties. There is some relationship of a few programme objectives (PO) with some goals, which is rather coincidental and hence not intended by the curriculum developers. When reviewing programme objectives, to find out whether they align with a related SDG goal, specific attention was paid to SDGs that are in line with a specific faculty.

Bachelor of Business Studies

PO1.   Provide the students with knowledge about business management and development.

PO2.   Equip the students with the skills, techniques and practices used in managing Businesses.

PO3.   Offer students the learning process that enables progression to higher level studies.
PO4.   Equip the students with knowledge that will enable them to meet the requirements of the labour market and enhance the chances of employability.
PO5.   Equip the students with the entrepreneurial skills.
PO6.   Produce a graduate who can integrate theory and practice to work effectively and efficiently in organizations.
PO7.   Produce a graduate who can enhance his/her career development and progression.
PO8.   Equip the students with generic skills that enable acceptance as a team member in a business environment.
PO9.   Enable the students develop awareness and understanding of the skills necessary to live and work in a diverse multinational environment.
PO10. Enable the students promote ethical behaviour in the business environment.

Figure.1
Programme Objectives of the Bachelor of Business Studies and the Respective SDG that they Align with

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10
Goal 1				🟧	🟧					
Goal 2										
Goal 3										
Goal 4										
Goal 5										
Goal 6										
Goal 7										
Goal 8		🟦		🟦			🟦	🟦	🟦	
Goal 9										
Goal 10										
Goal 11										
Goal 12										
Goal 13										
Goal 14										
Goal 15										
Goal 16										
Goal 17										

Only two goals indirectly fall under the 7 Programme objectives. That goal 1 to end poverty in all its forms everywhere, and goal 8 to promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all.

Bachelor of Social Work and Social Administration
PO1.   Apply critical thinking skills within the context of professional social work practice.
PO2.   Understand the value base of the profession and its ethical standards and principles, and practice accordingly.
PO3.   Practice without discrimination and with respect, knowledge, and skills related to clients' age, class, colour, culture, disability, ethnicity, family structure, gender, marital status, national origin, race, religion, sex, and sexual orientation.
PO4.   Understand the forms and mechanisms of oppression and discrimination and apply strategies of advocacy and social change that advance social and economic justice.

PO5.   Understand and interpret the history of the social work profession and its contemporary structures and issues.

PO6.   Apply the knowledge and skills of generalist social work practice with systems of all sizes.

PO.7   Use theoretical frameworks supported by empirical evidence to understand individual development and behaviour across the life span and the interactions among individuals and between individuals and families, groups, organizations, and communities.

PO8.   Analyse, formulate, and influence social policies.

PO9.   Evaluate research studies, apply research findings to practice, and evaluate their own practice interventions.

PO10.   Use communication skills differentially across client populations, colleagues, and communities.

PO11.   Use supervision and consultation appropriate to social work practice.

PO12.   Function within the structure of organizations and service delivery systems and seek necessary organizational change.

Figure 2

Programme Objectives of the Bachelor of Social Work and Social Administration and the Respective SDG that they Align with

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
Goal 1												
Goal 2												
Goal 3												
Goal 4												
Goal 5			▨									
Goal 6												
Goal 7												
Goal 8				▨	▨							▨
Goal 9												
Goal 10			▨	▨	▨							
Goal 11												
Goal 12												
Goal 13												
Goal 14												
Goal 15												
Goal 16				▨								

Five goals are covered under three program objectives, which makes sense given the overlapping nature of academic programs. Furthermore, these goals are not intended as direct contributions to SDG inclusion in academic program development, but rather as incidental.

Bachelor of Arts Education

PO1.   To prepare the teacher for an active career in all facets of professional Education.

PO2.   To develop the intellectual, professional and social characteristics of teachers to enable them to become responsible leaders within the school and the community

PO3.   To develop the capacity of the teachers so that they should be able to teach effectively at the secondary school, colleges and tertiary levels

PO4.   Identify research problems and design appropriate procedures for investigating and analysing them

PO5.   To provide a basis for Education training that enables the teachers to pursue advanced training in both professional and academic areas.

Figure 3
Programme Objectives of the Bachelor of Arts Education and the Respective SDG that they Align with

	PO1	PO2	PO3	PO4	PO5
Goal 1					
Goal 2					
Goal 3					
Goal 4					
Goal 5					
Goal 6					
Goal 7					
Goal 8					
Goal 9					
Goal 10					
Goal 11					
Goal 12					
Goal 13					
Goal 14					
Goal 15					
Goal 16					
Goal 17					

Only one goal—Goal 4: Education for All—is thoroughly addressed through three program objectives. The academic program in question is a Bachelor of Art Education, which directly reflects this alignment. Thus, it is not simply a matter of strategy to connect this goal with the associated program objectives.

Quantifying Students' Knowledge of the of the 17 Sustainable Development Goals
The results obtained from the questionnaire reveal a nuanced understanding of the Sustainable Development Goals (SDGs) among students. While there is a noticeable level of awareness about certain SDG goals, the data indicates that a significant proportion of students from the Faculty of Education and Management lack direct knowledge regarding the comprehensive significance of SDGs in contemporary society.

When analysing the results by faculty, it became evident that students majoring in fields closely aligned with specific SDG objectives tended to score higher in their understanding. For instance, students from the Faculty of Management showed a marked familiarity with Goals 1 (No Poverty), 5 (Gender Equality), 8 (Decent Work and Economic Growth), and 12 (Responsible Consumption and Production). Conversely, those from the Faculty of Education demonstrated greater awareness of Goals 1, 4 (Quality Education), 10 (Reduced Inequalities), and 16 (Peace, Justice, and Strong Institutions). Additionally, students from the Faculty of Social Sciences ranked Goals 1, 4, 10, and 13 (Climate Action) higher in their responses.

These findings not only highlight the varying levels of awareness across different faculties but also illustrate the necessity of targeted educational interventions to enhance understanding of the SDGs and their critical relevance in the modern world. The graphical representations of these results, as shown in figures 4, 5, and 6, further elucidate these trends.

Figure 4
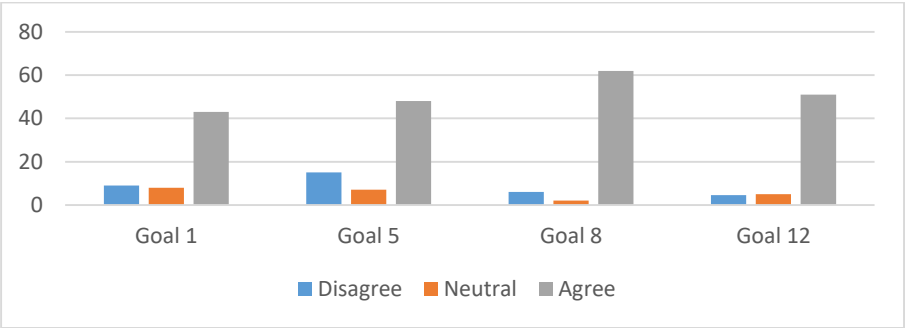*Agreeableness to Goals Related to Management and Business Studies*

Figure 5
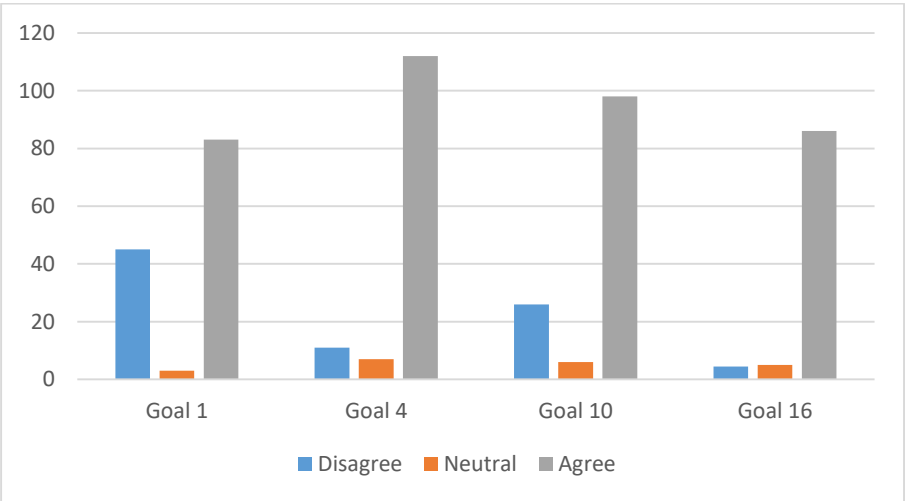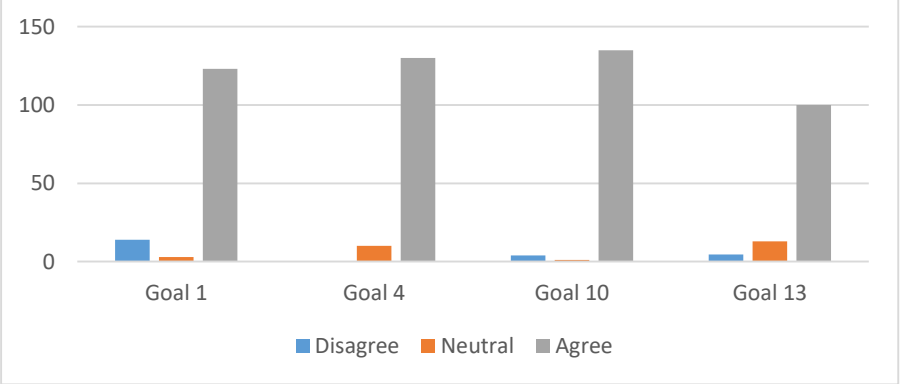*Agreeableness to Goals Related to Education*

Figure 6
*Agreeableness to Goals Related to Social Sciences*

Question 18 of the Questionnaire stated that "As a final year student at the university, I have been equipped through my course studies with knowledge of Sustainable Development Goals and their relevance in the modern world and my society" and the general response to this question by respondents in all faculties indicates that SDGs have not been prioritised in the curriculum development and implementation process as shown in Table 1 and Figure 7.

Table 1
Equipment of Students with Knowledge of SDGs and their Relevance

Faculty	Disagree	Neutral	Agree
Management Studies	53	2	15
Education	125	0	5
Social Sciences	74	4	62
Mean	84	2	27

Figure 7
Responses on Students Being Equipped with Knowledge of SDGs
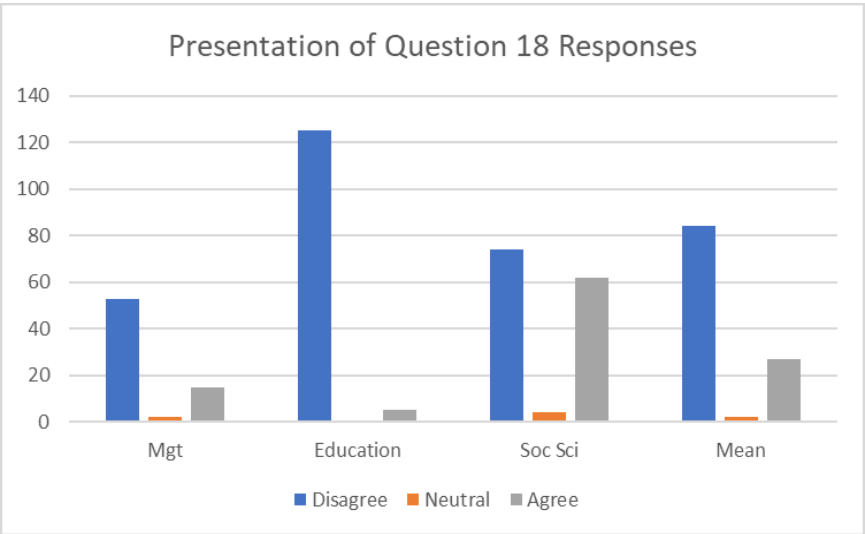
Numerous studies have highlighted the significant impact of work-integrated learning, project-based learning, and real-life experiences on students' comprehension of sustainability concepts. These approaches play a crucial role in deepening students' understanding and fostering a practical appreciation of sustainability issues, making it essential to incorporate them into educational curriculum designs (Alm et al., 2022; Fisher & McAdams, 2015).

Furthermore, it is vital to directly integrate the Sustainable Development Goals (SDGs) into the framework of university curriculum development and implementation processes. By doing so, educational institutions can effectively cultivate a generation of students who are not only knowledgeable about sustainability but are also motivated to advocate for sustainable practices in their professional lives (Wang et al., 2022). This transformation empowers students to become active promoters of sustainability,

equipping them with the necessary skills and mindsets to address environmental challenges in their chosen careers (Alm et al., 2022; Elder et al., 2016).

Conclusions and Recommendations

The findings of this comprehensive study reveal that there is a notably limited emphasis on integrating and promoting the Sustainable Development Goals (SDGs) into curriculum development processes in Uganda. This gap indicates a significant opportunity for improvement, as engaging higher education institutions (HEIs) is crucial for advancing the sustainable development agenda. These institutions comprise diverse stakeholders, including faculty, students, and community partners, who can collectively help achieve the SDGs.

In Uganda, all academic program curricula must be accredited by the Uganda National Council for Higher Education before universities implement them. This regulatory framework presents a unique challenge and, at the same time, an opportunity. It suggests that while the SDGs are currently underrepresented in curriculum design and implementation, the structured accreditation process could be an avenue for introducing contemporary and relevant topics like the 17 SDGs into educational programs.

Higher education institutions have a vital role to play in promoting global initiatives such as the SDGs. They are not just centers of learning but also powerful agents for change in their communities and beyond. Given the pressing need for sustainable development, the campaign for the SDGs must gain greater momentum in Africa, mirroring the advocacy efforts seen in the global north.

To effectively incorporate sustainability into their operations, HEIs must adopt tangible actions across various domains. This includes integrating sustainability principles into curriculum development, organizing campus activities that promote environmental consciousness, conducting innovative research and development projects that address sustainability challenges, and engaging in community outreach initiatives that foster collaboration and positive impact. Specific projects that exemplify sustainability should also be prioritized. By taking these steps, higher education institutions can lead substantial contributions toward the achievement of the Sustainable Development Goals, fostering a culture of sustainability and social responsibility among students and the wider community.

In 2015, member states of the United Nations adopted the Sustainable Development Goals (SDGs) to eradicate poverty and reduce inequality, aiming to foster more peaceful and prosperous societies by 2030. However, achieving these goals requires significant transformations across all countries, which necessitate coordinated efforts from key stakeholders, including governments, civil society, academic institutions, and businesses. Unfortunately, progress has been limited, primarily due to a lack of shared understanding among different stakeholders regarding the implementation and operationalization of these SDGs.

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