frontiers | Frontiers in Sustainability

TYPE Original Research
PUBLISHED 12 September 2025
DOI 10.3389/frsus.2025.1605743

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OPEN ACCESS

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RECEIVED 03 April 2025
ACCEPTED 25 August 2025
PUBLISHED 12 September 2025

CITATION
Yassim K, Adamu CD and Uleanya C (2025) University stakeholders' roles in sustainability integration: challenges and administrative implications for sustainable development. *Front. Sustain.* 6:1605743. doi: 10.3389/frsus.2025.1605743

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University stakeholders' roles in sustainability integration: challenges and administrative implications for sustainable development

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Stakeholder theory emphasizes engaging all stakeholders in sustainability initiatives, while the Triple Bottom Line (TBL) theory balances social, economic, and environmental factors. In Higher Education Institutions (HEIs), both theories address the integration of sustainability. This study assessed stakeholder roles and challenges in HEIs to enhance sustainable growth strategies. A qualitative design with semi-structured interviews in the interpretivism paradigm explored the perspectives of six University of Johannesburg (UJ) stakeholders (students, lecturers, and administrative personnel) who completed an eight-week online Sustainable Development Goals (SDGs) Short Learning Programme (SLP) offered by the institution. Data saturation ensured comprehensive insights without redundancy. Validity was strengthened through triangulation, peer debriefing, member checking, and transparent processes. Ethical approval was obtained. Thematic analysis identified key patterns. Findings suggest that HEIs should prioritize awareness, collaboration, curriculum integration, and long-term strategic programs. Recommendations include funded sustainability approaches, integrating sustainability into curricula, communication plans, specialized committees, professional development, external partnerships, and monitoring frameworks.

KEYWORDS

educational administration, Education for Sustainability, Higher Education Institutions, stakeholder theory, Triple Bottom Line model, University of Johannesburg, South Africa

1 Introduction

Colleges and universities have increasingly integrated sustainability into their daily operations and missions over the past few decades. It is clear that these organizations are becoming more aware of their role in achieving the Sustainable Development Goals (SDGs). Many universities are taking action to address global issues as a result of the growing emphasis on sustainability. For example, today's Higher Education Institutions (HEIs) are facing urgent challenges related to the social, economic, and environmental pillars of sustainability (Machado and Davim, 2023; Tremblay et al., 2020; Roorda, 2016). With the assistance of Education for Sustainability (EfS), several colleges worldwide have adopted a paperless strategy, utilizing computers and other ICTs to enhance learning and information access (Razman et al., 2016). A significant factor in this transformation is the SDGs of the UN, which aim to address issues such as inequality, overconsumption, and climate change (Machado and Davim, 2023). In addition to preparing future leaders and implementing sustainable practices

on campus, universities play a crucial role in driving innovative research that advances the sustainability agenda (Ruiz-Mallén and Heras, 2020). HEI stakeholders are actively working to include sustainability in their strategic plans while promoting multidisciplinary cooperation and participation on local and international scales to bring about the necessary transformation (Abo-Khalil, 2024). Universities are committed to advancing sustainability and equity in this context (Salvioni et al., 2017). According to Juárez-Nájera (2015), university stakeholders, including students, lecturers, and administrative personnel, play essential roles in promoting sustainability in higher education institutions. Each culture contributes unique customs aimed at integrating sustainability into operations, strategic plans, and the college atmosphere (Iqbal and Piwowar-Sulej, 2022). For instance, students, whether through activism or participation in student-led sustainability organizations, are among the most passionate supporters of sustainability. Universities are under pressure to expand their services to include more eco-friendly policies, manage campus buildings sustainably, and make ethical investment choices due to increased demands for corporations to implement corporate environmental responsibility standards (Nicolaides, 2006).

Students also play an active role in creating and executing research projects that address issues related to ecological, social, and economic sustainability (Maoela et al., 2024). Faculty members, often referred to as lecturers, contribute by teaching, researching, and developing curricula that emphasize sustainability. They provide students with the information and skills needed to address sustainability-related issues directly (Uleanya et al., 2024). Through their research, curriculum development, and teaching professors also play a crucial role in advancing sustainability. In addition to educating students on sustainability, they conduct innovative research on topics such as social justice, renewable energy, climate change, and sustainable development. Acting as mentors, they encourage students to pursue careers that have a positive impact on the world and help them cultivate a sustainable mindset. Meanwhile, administrative members of staff manage daily policies and operations within organizations as part of sustainability efforts. Programs focused on waste management techniques, energy conservation, and environmentally friendly purchasing are all part of this. Additionally, these administrative personnel play a vital role in ensuring compliance with sustainability programs and environmental regulations (Tshivhase and Bisschoff, 2023). By collaborating with external organizations, universities can improve their green policies and leverage their environmental credentials in the community. The foundation of sustainability programs in higher education is the collaborative efforts of lecturers, students, and support staff. Collectively, their policies and initiatives help transform HEIs into institutions that not only provide top-notch education but also globally represent sustainability and equity (Machado and Davim, 2022).

As a critical objective for higher education, South African universities are working with the Department of Higher Education and Training (DHET) to enhance sustainability in their structures and operations. This initiative involves incorporating social, economic, and environmental considerations into the institutions' policies and practices. For instance, the University of Johannesburg (UJ) is renowned for its sustainability initiatives. To reduce carbon emissions, promote sustainable procurement, and work towards achieving net-zero emissions, the institution has implemented a sustainability and climate action policy. At UJ, the university community actively participates in various sustainability initiatives through a student organization dedicated to sustainability (University of Johannesburg, n.d.-b).

Following the Global Reporting Initiative (GRI) Guidelines, UJ also publishes an annual sustainability report that highlights the institution's environmental impacts, such as waste management, energy consumption, and other environmentally friendly initiatives (University of Johannesburg, n.d.-d). In terms of education, UJ offers short courses like green building institutional arrangements and green building legislation to raise awareness of sustainability among students and the community (University of Johannesburg, n.d.-a). To reduce its carbon footprint and contribute to UN SDG 11, focused on building sustainable cities and communities, the university has introduced electric buses as part of its sustainable transportation initiatives (University of Johannesburg, n.d.-c).

By establishing regulations that support educational institutions in implementing sustainable practices, the DHET recognizes sustainability as a crucial element of higher education. The main objectives of the policy are to ensure that HEIs take their environmental responsibilities seriously, promote environmental research, and integrate sustainability into educational programs. The DHET is essential in providing a national framework that promotes sustainable practices at all South African universities. Leading the way with its Green Campus Initiative (GCI), the University of Cape Town (UCT) has been working towards making UCT a carbon-neutral campus since 2007 through a student-led initiative. This initiative has implemented recycling programs across campus, organized energy-saving competitions among residents, and promoted environmentally friendly modes of transportation such as cycling and carpooling. Green Week is one of the activities organized by UCT's Green Campus Initiative to educate staff and students about environmental issues. Meanwhile, the Global Change Initiative, established by the University of the Witwatersrand (n.d.), is addressing local and global environmental issues through research solutions. The institute collaborates with various research departments, including the Industrial and Mining Water Research Unit, to promote well-informed adaptations and creative measures to support sustainability research in southern Africa. Despite sustainability becoming increasingly important, South African universities are facing challenges in fully integrating these principles (Amiano et al., 2022). These challenges include securing adequate funding for sustainability projects, overcoming resistance to curriculum changes, and ensuring active support for sustainability efforts from all parties involved—lecturers, students, and administrative personnel. However, the sector's commitment to a sustainable future is promising, evident in the establishment of specialized sustainability programs and research centers at universities (Azeiteiro and Davim, 2020). To provide context for the challenges and opportunities of sustainability integration, the next section will review key themes: Education for Sustainability (EfS), institutional challenges, engagement strategies (1.3), future prospects, and theoretical frameworks. These themes collectively emphasize the gap that this study aims to address.

1.1 Education for Sustainability (EfS) in universities

Sustainability education in universities is greatly influenced by EfS, resulting in modifications to instructional strategies, curricula,

and overall institutional operations (Maoela et al., 2024). Academic institutions play a crucial role in providing students with the information, skills, and mindset needed to address today's environmental, social, and economic issues. Developing sustainability-related skills, involving students and teachers, and integrating sustainability into course content are all part of incorporating sustainability into higher education (Machado et al., 2018). Including sustainability in college courses is a key aspect of EfS. To achieve this, educational institutions utilize various strategies, such as designing multidisciplinary programs, integrating sustainability concepts into other subjects, and offering standalone sustainability courses. Stand-alone classes focus on topics like climate change, sustainable development, and environmental ethics. Multidisciplinary programs combine multiple academic disciplines to provide students with a comprehensive understanding of sustainability issues. Through an integration approach, sustainability concepts are incorporated into various courses, ensuring that all students are exposed to sustainability regardless of their major. Additionally, students can engage with real-world sustainability issues through experiential learning opportunities such as research projects, internships, and community service projects (Uleanya et al., 2024). Stellenbosch University, known for its EfS specialization through the Centre for Sustainability Transitions, is a prime example of EfS integration in South Africa, focusing on researching and teaching strategies to address sustainability challenges (Swilling and Annecke, 2012). Meanwhile, the University of Cape Town's Environmental and Geographical Science Department emphasizes multidisciplinary approaches and offers sustainability-focused programs (University of Cape Town, 2023). The Environmental Learning Research Centre at Rhodes University promotes sustainability education through innovative teaching methods and community involvement (Macintyre et al., 2020). Faculty and student involvement are essential for the success of EfS. Students engage in various activities, including extracurricular groups, campus projects, sustainability competitions, and courses. Some opt for sustainability-focused courses, while others participate in student-led sustainability groups, work towards making campus life more eco-friendly, or volunteer. Initiatives like the Green Impact Challenge encourage students to initiate their sustainability projects, focusing on waste reduction, eco-friendly construction techniques, and addressing climate change. Lecturers also play a vital role by offering sustainability-focused classes, researching relevant topics, and guiding students involved in sustainability projects. Many educators also support institutional practices that promote sustainability. What motivates individuals to join EfS often revolves around the institution's commitment to sustainability, availability of funding and resources, student interests and career aspirations, and access to necessary training for lecturers (Tshivhase and Bisschoff, 2023). Educating the next generation of leaders to address global sustainability challenges requires EfS.

Institutions of higher learning should consistently strive to integrate sustainability into their curricula, engage lecturers and students, and cultivate skills related to sustainable practices. Collaboration among schools, students, lecturers, and local communities is crucial for securing a sustainable future. Universities that prioritize EfS can drive significant change and equip students with the necessary skills to advance sustainable development locally and globally (Nhamo et al., 2024).

The aim of EfS, is to provide students with the essential tools to address sustainability issues effectively (Macintyre et al., 2020). One technique that helps students understand the intricate relationships among the environment, society, and economy is systems thinking (Nordén, 2024). This is followed by critical thinking and problem-solving skills, enabling students to devise creative solutions to sustainability challenges. Working across disciplines allows students to integrate diverse perspectives, and a strong sense of social and ethical responsibility guides decision-making based on values. Moreover, students are encouraged to actively participate in sustainability projects through the concept of learning by doing (Wicke et al., 2024). Education for sustainability is crucial for preparing future leaders to tackle global sustainability challenges head-on. Schools must continue their efforts to engage students and lecturers, develop relevant skills, and integrate sustainability into their curricula (Škokič et al., 2025). Cooperation is essential for schools, students, teachers, and community organizations to collaborate in creating a sustainable future. By prioritizing EfS, educational institutions can drive significant change and empower students to contribute locally and globally to sustainable development (Global Sustainable Development Report, 2023).

1.2 Challenges in integrating sustainability in universities

When attempting to integrate sustainability into their operations and programs, universities face a number of difficulties. These obstacles include lack of awareness, financial limitations, personal opposition, and the complexity of tackling global environmental issues (Markauskaite et al., 2023; Organisation for Economic Co-operation and Development (OECD), 2023; Tripon, 2022). Resource scarcity is a major obstacle; many institutions face challenges in launching sustainability projects due to a lack of funds, space, and staff. Their inability to pay inhibits them from making investments in renewable energy and environmentally suitable structures. Additionally, integrating sustainability into their educational programs is made more difficult by a lack of qualified personnel (Leal Filho et al., 2023).

Stakeholder engagement and awareness present further difficulties. According to Aslam et al. (2022) and Garrecht et al. (2018), many colleges struggle to successfully raise knowledge about sustainability, which frequently leads to misunderstandings and confusion over its implementation. Lack of understanding can cause projects to become fragmented, participation to decline, and the creation of sustainability-focused courses to lag. To promote wider participation, educational institutions should invest in interdisciplinary programs and awareness-raising efforts (Barth et al., 2011).

Furthermore, how colleges plan for sustainability is greatly impacted by the urgent problems of environmental degradation and climate change. It is becoming more and more important for universities to incorporate these subjects into their research and curricula as global issues like resource depletion and climate change worsen. Addressing these issues, however, calls for significant financial resources and can encounter resistance because these kinds of reforms often upset the traditional system (Global Sustainable Development Report, 2023).

Institutional resistance is another challenge. Due to their strong attachment to established academic traditions and their perceived goals, universities can be very resistant to change. The institutions' emphasis on stability and reputation, as well as traditional teaching methods, may conflict with the long-term objectives of sustainability. Numerous faculty members' unwillingness to teach across disciplines, which is essential for a comprehensive approach to sustainability, serves to further reinforce this opposition (Nhamo et al., 2024).

Furthermore, attempts at integration may be hampered by false information and ignorance about sustainability. Divergent perspectives on sustainable practices can cause stakeholders to become confused and demotivated, ultimately undermining institutional efforts. For educational institutions to successfully tackle this challenge, exchanging correct information and encouraging candid discussion should be their top priorities (Maoela et al., 2024).

1.3 Strategies to boost sustainability engagement among university stakeholders

One of the most important strategies for engaging university stakeholders is raising awareness about sustainability. Universities can begin by implementing sustainability-focused campaigns, workshops, and customized training programs for staff, faculty, and students. Sustainability weeks and other awareness campaigns provide excellent opportunities to educate the campus community about important sustainability issues. Universities can also assist academic staff in integrating sustainability into their courses by offering specialized training, and they can help operational staff adopt sustainable practices. These initiatives are essential in fostering a culture of sustainability and increasing awareness of its importance (Ruiz-Mallén and Heras, 2020).

Stakeholder participation in sustainability initiatives is greatly enhanced by incentive programs and recognition initiatives. University involvement can be encouraged by offering incentives such as sustainability awards, green certifications, and participation in competitions with a sustainability focus. Recognizing individuals or organizations that make significant contributions to sustainability may motivate further engagement and contribute to the university's adoption of sustainability as a core value (Wicke et al., 2024).

Lastly, training and development initiatives are crucial in providing university stakeholders with the information and skills necessary to adopt sustainable practices. The aim of comprehensive capacity-building initiatives should be to help staff implement sustainable practices in their daily work and assist lecturers in integrating sustainability into their courses.

Ultimately, these efforts enhance the university's overall sustainability capacity by ensuring that individuals and organizations are equipped to incorporate sustainability into their operations and curricula (Tshivhase and Bisschoff, 2023).

Sustainability initiatives can be significantly strengthened through collaboration and partnerships with local governments, businesses, and communities. Universities have a unique opportunity to collaborate with industry partners to find innovative solutions and engage with local communities on sustainability projects. Public-private collaborations not only offer opportunities for growth and innovation that benefit both parties but also provide universities with the resources and expertise needed to address complex sustainability challenges. These partnerships allow universities to make an impact beyond campus, promoting sustainability at the local and international levels (Global Sustainable Development Report, 2023).

The role of student-led initiatives in promoting sustainability in higher education is expanding. Environmental advocacy organizations, green campus initiatives, and sustainability clubs empower students to take on leadership roles and actively participate in sustainability initiatives. These student-led projects often lead the way in promoting environmentally friendly policies and procedures on campus. By encouraging student involvement and leadership, institutions can ensure that sustainability is not just a subject of study but also a practice actively embraced by students who play a key role in shaping the university's sustainability culture (Maoela et al., 2024).

1.4 Future prospects and suggestions for academic institutions

Universities need to implement a variety of strategies in order to truly integrate sustainability into the fabric of campus life. To do this, they must adopt more inclusive governance models, reevaluate their structures, and modify their policies (Arocena and Sutz, 2021). In order to link university actions with global sustainability targets, such as the SDGs of the United Nations, it is imperative that institutions develop comprehensive sustainability policies (Abo-Khalil, 2024). Changes in structure, such as the introduction of multidisciplinary sustainability initiatives, encourage cooperation between departments. Universities must also ensure that their governance models are inclusive, and sustainability committees are essential in integrating sustainability into resource management, decision-making, and community involvement (Angelaki et al., 2023). According to Macintyre et al. (2020), these adjustments are necessary to support a systemic approach to sustainability in university operations. Additionally, academic institutions are becoming more creative in how they incorporate sustainability into their operations and programs. One prominent trend is the development of "green campuses," where academic institutions prioritize eco-friendly transportation choices, waste minimization, renewable energy, and sustainable infrastructure (Tshivhase and Bisschoff, 2023). Furthermore, interdisciplinary teams are tackling urgent global issues including social injustice, climate change, and sustainable development, with a growing emphasis on research driven by sustainability (Shih et al., 2025). As universities monitor and make their sustainability performance publicly available, sustainability reporting is growing in popularity. In addition to promoting responsibility, this degree of openness lays the groundwork for continuous development (Ceulemans et al., 2015).

The importance of EfS is set to grow in the future. In the pursuit of the SDGs, universities are becoming increasingly important participants. Education for sustainability will likely be incorporated into the core curriculum in a number of disciplines in the years to come, elevating sustainability to a high priority in fields such as engineering, economics, and health sciences, in addition to environmental studies (Shenkoya and Kim, 2023). Additionally, as universities address global sustainability issues through cooperative research and cross-cultural interactions, international alliances will become more and more significant (Škokič et al., 2025). The rise of

digital platforms that support global learning will be another noteworthy trend, enabling students to interact with sustainability issues from anywhere in the world (Walter et al., 2023). Universities will continue to take the lead in regional and international sustainability initiatives because of these advancements.

1.5 Theoretical applications

Stakeholder theory and the Triple Bottom Line (TBL) theory are two theoretical frameworks that we examined in this study to better understand how higher education institutions are addressing sustainability. Freeman first proposed the idea of stakeholder theory in 1984, which holds that organizations are part of a network of many stakeholders, each with distinct interests and influences. This perspective makes it evident that effective sustainability initiatives need to include a wide range of internal and external stakeholders, such as students, lecturers, staff, administrators, local communities, industrial partners, and governmental organizations. By ensuring that these opinions are heard, universities may improve inclusive decision-making, obtain important institutional support, and more effectively handle social, economic, and environmental issues. By engaging a wide range of stakeholders, South African HEIs play a crucial role in promoting sustainability. Students, lecturers, staff, administrators, local communities, business partners, and government policymakers all make substantial contributions to sustainability programs, whether through operational projects, research, advocacy, or policy creation. For example, students frequently lead advocacy efforts for sustainability to be integrated into academic curricula and campus regulations. Launched in 2007, the University of Cape Town's (UCT) Green Campus Initiative (GCI) has sparked a number of student-led environmental projects, including frequent recycling campaigns, carpooling efforts, and the yearly Green Week event, which aims to raise awareness of sustainability among the campus community (University of Cape Town, n.d.-a).

Lecturers are crucial in incorporating sustainability into their research and teaching. A strong commitment to sustainability is evident at Rhodes University, where they have united in interdisciplinary research networks that tackle urgent global issues like climate change (Thondhlana and Nkosi, 2024). Meanwhile, by implementing sustainable policies, administrative workers are also having a big impact. For instance, administrative personnel at the Durban University of Technology (DUT) contribute to the development of an environmentally conscious culture on campus and in the local community through active participation in cooperative awareness initiatives focused on environmental sustainability (Durban University of Technology, 2023; Shange et al., 2025). By setting rules, allocating resources, and fostering an institutional culture that prioritizes environmental responsibility, university administrators provide the strategic vision for sustainability. Administrators at DUT have demonstrated their dedication to being leaders in sustainability by not only establishing the framework but also taking part in environmental awareness campaigns alongside other universities (Shange et al., 2025). Another important component of the sustainability picture is interacting with the local community. In order to ensure that community viewpoints impact the university's sustainability initiatives, Rhodes University has carried out research to understand how staff and students perceive campus sustainability, including their thoughts on day-to-day operations and sustainability priorities (Thondhlana and Nkosi, 2024). Industry partnerships greatly improve sustainability projects by providing funds, resources, and practical applications for sustainability research. For instance, DUT has collaborated with industry participants on environmental sustainability awareness initiatives that encourage ethical behavior in the public and private spheres (Durban University of Technology, 2023).

Financial incentives and governmental regulations are key factors in determining how HEIs approach sustainability. Rhodes University, South Africa has demonstrated a significant commitment to harmonizing with national sustainability goals through its campus sustainability research, demonstrating their commitment to governmental objectives (Rhodes University, 2023; Thondhlana and Nkosi, 2024). In order to effectively engage stakeholders, colleges need to put strategic initiatives into action. The multidisciplinary research networks that address climate change at Rhodes University demonstrate how they may provide a comprehensive sustainability education by encouraging interdisciplinary research and teaching (Rhodes University, 2023). Inclusive governance mechanisms like sustainability committees ensure that a range of perspectives are taken into account when making decisions. DUT's cooperative sustainability awareness initiatives actively engage staff, lecturers, and students to promote a sense of shared responsibility for environmental challenges (Durban University of Technology, 2023).

By assisting regional projects, forming community relationships with corporations, organizations, and local governments improves sustainability efforts even more. Research on campus sustainability at Rhodes University highlights the school's dedication to including community viewpoints (Thondhlana and Nkosi, 2024). Students can also take the lead in encouraging environmental stewardship through student-led projects like UCT's Green Campus Initiative (University of Cape Town, n.d.-b). Public-private partnerships are crucial in the game of sustainability because they unite academia and business to translate research into practical solutions. DUT's involvement in industry-led environmental campaigns exemplifies this cooperative strategy. Furthermore, maintaining accountability and encouraging ongoing development within these organizations depend on being transparent about sustainability initiatives. In order to do this, Rhodes University routinely asks employees and students for their opinions on campus sustainability, stressing the value of monitoring advancement and keeping lines of communication open with all parties involved (Thondhlana and Nkosi, 2024). Universities in South Africa are incorporating sustainability into their everyday operations with ease by implementing these diverse strategies, creating an academic climate that is more socially and environmentally conscious.

Let us now investigate the TBL and how it relates to assessing sustainability. This idea, first presented by John Elkington in 1997, provides a comprehensive view of sustainability by emphasizing three important areas: social, economic, and environmental (Elkington, 1997). It exhorts academic institutions to think about their wider effects on society and the environment rather than just their financial results.

As far as environmental sustainability is concerned, multiple educational institutions are taking action to lessen their ecological footprints by improving their efficiency in controlling carbon emissions, water use, waste products, and energy consumption. As

part of its environmental policy, the University of Cape Town (UCT) has pledged to achieve net-zero carbon emissions by 2030. All students will receive free sustainability courses as part of this program, which also aims to promote environmentally friendly behavior on campus and in the community at large (Educations.com, 2025). Regarding social sustainability, colleges are aggressively advancing social justice, community involvement, and inclusivity. Murdoch University, for example, has been a strong advocate for diversity from the start and has demonstrated a deep regard for the opinions of indigenous people.

Their initiatives, such as K-Track and OnTrack Flex, provide opportunities for students from disadvantaged groups, guaranteeing that everyone has an equal opportunity to pursue higher education. This strategy helps to develop a more creative and productive workforce in addition to improving the educational experience for students (The Guardian, 2024). Universities are essential for maintaining the long-term financial viability of sustainability projects while simultaneously promoting economic expansion. For instance, consider the University of Newcastle, which presents itself as an "economic anchor" for its community by emphasizing high-quality research and collaborating with businesses in vital fields like clean energy and health. According to The Australian (2024), the institution ensures that its programs meet the demands of the local workforce by holding industrial open days and forming strategic alliances, ultimately promoting sustainable economic development. Incorporating the TBL paradigm into their operations and academic programs can help HEIs become leaders in sustainability by striking a balance between social advancement, environmental stewardship, and economic viability.

1.6 Research problem

Despite the increased focus on sustainability in higher education, it is surprising how little we actually know about the specific challenges and responsibilities faced by university stakeholders as they try to integrate sustainability into their operational and academic frameworks. The practical challenges that these stakeholders face when promoting sustainability, such as climate change, misinformation, lack of awareness, and limited resources, remain largely unknown, even though universities are being asked to contribute to global sustainability targets. Furthermore, the administrative aspects of these issues have not been fully investigated, leaving university administrators without a clear plan for improving stakeholder participation and incorporating sustainability into their operations.

By assessing the roles of university stakeholders, recognizing the challenges they encounter, and suggesting strategies for more effectively integrating sustainability into their institutions, this study aims to close that gap. The ultimate objective of this study is to examine in detail the roles played by university stakeholders in integrating sustainability, draw attention to the challenges they face, and offer solutions for enhancing administrative and engagement strategies that support sustainable growth. The specific objectives of the study are as follows:

(1) Assess how university stakeholders participate in EfS programs, focusing on their roles, involvement in projects, contributions to the curriculum, community engagement, and ways to increase future participation in sustainability and the SDGs.
(2) Examine the challenges that university stakeholders face in integrating sustainability, including climate change, misinformation, lack of awareness, resource limitations, low engagement, and water scarcity.
(3) Identify strategies to improve sustainability engagement among university staff and students, emphasizing awareness-raising, stakeholder involvement, training, curriculum integration, mentorship programs, incentives, promoting student-led initiatives, and encouraging sustainability-focused activities.

This study investigates stakeholder roles and challenges in sustainability integration at HEIs using stakeholder theory and TBL frameworks. The following section outlines the qualitative methodology, which involves conducting semi-structured interviews with stakeholders at UJ.

2 Methodology

The aim of this interpretivist study is to understand the perspectives and experiences of university stakeholders regarding sustainable integration (Creswell and Poth, 2018). According to Bryman (2016), interpretivism is an ideal approach for exploring how stakeholders view their responsibilities and the challenges they encounter when advocating for sustainability in higher education. At the UJ, a qualitative study approach was utilized to gain a deeper insight into the experiences, challenges, and strategies related to sustainability. By encouraging exploration and adaptation, this approach allows the researchers to capture the diverse and rich perspectives of the stakeholders (Merriam and Tisdell, 2015). The study specifically targeted key UJ stakeholders, such as students, lecturers, and administrative personnel involved in sustainability education.

Six participants who had completed an eight-week online self-study Short Learning Programme (SLP) focusing on sustainability and the UJ's SDGs were selected using a purposive sampling technique. This method was chosen to ensure that participants possessed relevant expertise and knowledge regarding sustainability integration (Patton, 2015). The decision to prioritize in-depth, specific qualitative findings over broader generalizability led to a sample size of six participants. Smaller sample sizes can be highly beneficial in qualitative research, especially when participants have extensive, context-specific information that aligns with the study's objectives (Creswell and Poth, 2018). While qualitative research prioritizes depth over breadth, we acknowledge that a sample of six participants may raise concerns regarding generalizability. However, our use of purposive sampling ensured the inclusion of key stakeholders, including students, lecturers, and administrative staff who had direct experience with sustainability education. This approach allowed us to gather rich, context-specific insights that are central to the aims of our exploratory study. To further justify the adequacy of our sample size, we drew on recent literature on data saturation (Hennink et al., 2017; Saunders et al., 2018), which supports the idea that meaningful thematic saturation can be achieved with small, focused samples in qualitative research. In our case, no new themes emerged after the fifth interview, confirming that thematic saturation had been reached. This reinforces the sufficiency of our

sample for the purposes of this study. These stakeholders were well-positioned to provide insightful perspectives on their roles, the challenges they encountered, and practical methods for incorporating sustainability due to their active engagement in sustainability education through the SLP. Additionally, the importance of data saturation—reaching a point where recruiting additional participants no longer yields new themes or insights—is emphasized in qualitative research (Guest et al., 2006). The six participants in our study provided sufficient information to comprehensively address each of our research questions without redundancy. To enhance transparency, we are now providing a demographic breakdown of participants in Table 1.

Semi-structured interviews were conducted to collect data, enabling a thorough exploration of participant viewpoints while maintaining key themes (Kvale and Brinkmann, 2015). The main topics covered in the interviews were stakeholders' roles in sustainability integration, the challenges they faced, and the strategies they employed to enhance sustainability engagement. Each interview was conducted online, lasting approximately 45 to 60 min to accommodate participants' schedules and preferences. The key questions addressed during the interviews were categorized into three main groups:

Roles and Participation: Participants were asked, "How do you view the importance of sustainability in your role at the university?" and "Could you elaborate on your involvement in sustainability-related projects or curriculum development?"

Challenges: To understand the difficulties participants faced, they were asked, "What challenges have you encountered in incorporating sustainability into your work or studies?" and "How do issues such as misinformation or limited resources impact sustainability efforts?"

Strategies for Engagement: To pinpoint methods for enhancing participation, interviewees were asked, "What strategies do you think would boost sustainability engagement among students and staff?" and "How can the university provide better support for stakeholder involvement in sustainability initiatives?" For increased transparency, we have included the complete interview guide as Supplementary material (refer to Appendix A).

Thematic analysis was employed to identify patterns and themes in the data (Braun and Clarke, 2006). This process involved six essential steps: familiarizing with the data, generating initial codes, identifying themes, reviewing those themes, defining and labeling them, and ultimately creating the report. NVivo software was utilized to facilitate coding and data organization (Jackson and Bazeley, 2013). The three primary themes that emerged from our analysis—stakeholders' participation in EfS programs, challenges faced by university stakeholders in sustainability integration, and strategies for promoting and enhancing sustainability among staff and students—were identified, with the first theme having sub-themes. These topics provided insights into stakeholders' perspectives on sustainability integration through their focus on participation, challenges, and strategies to increase engagement. Thematic analysis offered a systematic approach to uncovering these themes, aiding in a more comprehensive understanding of our findings.

To ensure the credibility and trustworthiness of our findings, we employed various strategies. Member checking was utilized, allowing participants to review transcripts and interpretations to validate their responses (Lincoln and Guba, 1985). Peer debriefing was conducted to enhance the rigor of our analysis, and an audit trail was maintained to document our research decisions and processes (Nowell et al., 2017). Our study received ethical approval from the UJ's research ethics committee. Participants were fully informed about the study's purpose before participation, and their involvement was entirely voluntary, with the option to withdraw at any time. Pseudonyms were assigned, and all data was stored in password-protected files to ensure confidentiality (Silverman, 2016). The next section presents findings on UJ stakeholders' participation barriers, challenges, and strategies, concluding with recommendations for HEIs. By structuring the paper in this manner, we aim to provide a clear pathway from theory to practical solutions.

3 Results

3.1 Theme 1: participation of stakeholders in Education for Sustainability programs

This theme focuses on the participation of stakeholders in EfS programs. Sub-themes discussed here include: the importance of sustainability in stakeholders' roles, involvement of stakeholders in sustainability projects, module design and community engagement, and plans to increase involvement and participation in sustainability and SDGs.

3.1.1 Sub-theme 1.1: importance of sustainability in university stakeholders' roles

During interviews at UJ, staff highlighted three interconnected rationales for prioritizing sustainability: (1) empowering students to lead in addressing global challenges, (2) aligning with UJ's mission to nurture responsible global citizens, and (3) equipping students with skills for real-world problem-solving. As one lecturer noted, "Sustainability is central to our mission as it prepares students to tackle pressing challenges while fostering responsible leadership" (UJ CDL lecturer). A researcher further emphasized its transformative potential: "It's not just about knowledge; it's about empowering future leaders" (UJBS researcher).

3.1.2 Sub-theme 1.2: involvement of stakeholders in sustainability projects, module design, and community engagement

As shown in Figure 1, staff and students at UJ disclosed their involvement in sustainability projects. One staff member shared

TABLE 1 Clarification of demographic representation.

Role	Gender	Age range	Department
Lecturers (2)	Male (1), Female (1)	35–50	Business, Environmental Science
Administrative Staff (2)	Female (2)	30–45	Sustainability Office
Students (2)	Male (1), Female (1)	22–28	Postgraduate Studies

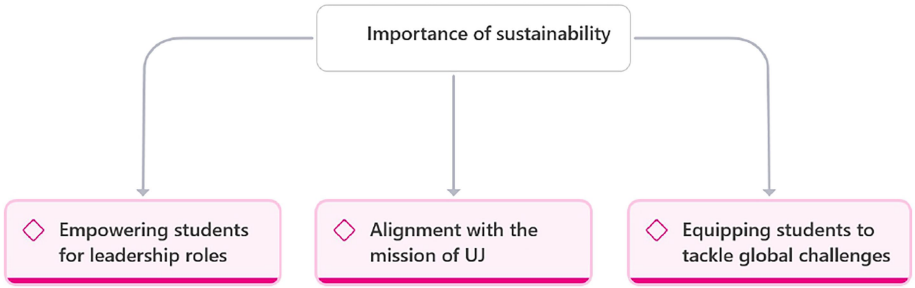

FIGURE 1
The importance of sustainability in stakeholders' roles. Source: Authors' analytical results.

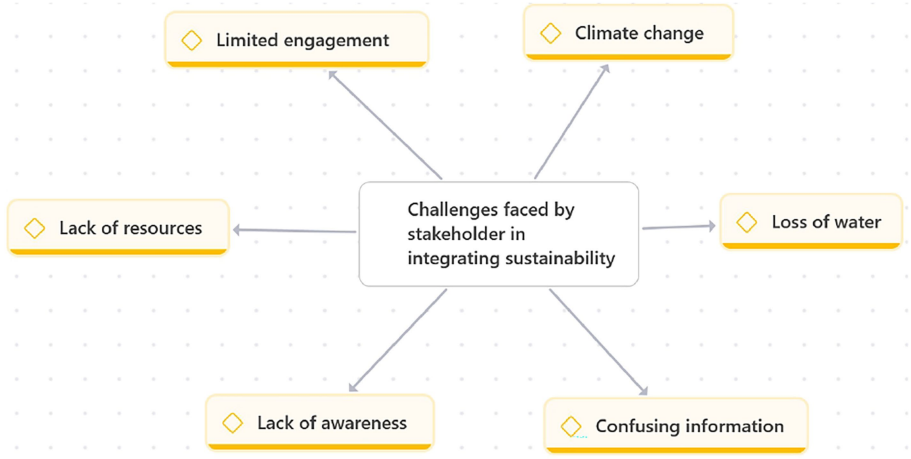

FIGURE 2
Challenges faced by stakeholders in integrating sustainability Source: Authors' analytical results.

that he became involved in sustainability projects while working on a related project. Another staff member mentioned his participation in sustainability-related research projects focused on community-based solutions to environmental challenges. Additionally, a staff member discussed his involvement in a project examining the impact of urban agriculture on food security in local communities. He emphasized how this project allowed him to apply theoretical knowledge in a practical setting, contributing to meaningful changes in the communities (Figure 2).

"I am involved in a sustainability-related research project that focuses on developing community-based solutions to environmental challenges," said one UJ CDL Lecturer.

Another lecturer shared, *"I am involved in a sustainability project that examines the impact of urban agriculture on food security in local communities. This hands-on experience allows me to apply theoretical knowledge while contributing to meaningful change."*

Two students mentioned their involvement in sustainability-related projects. One student discussed his participation in voluntary workshops on sustainability during his undergraduate studies, noting that the workload had made it impossible to continue during postgraduate studies. *"I was involved in voluntary workshops during my undergraduate studies, but the workload in postgraduate studies has made it impossible to continue,"* explained a PhD student at JBS.

Some lecturers mentioned designing modules that incorporated sustainability and SDGs into the curriculum. They emphasized real-world applications, critical thinking, and practical experiences for students. "*I have designed modules that incorporate sustainability and the SDGs into the curriculum, emphasizing real-world applications and critical thinking about sustainability issues,*" said a UJ CDL Lecturer.

Another lecturer added, *"I have designed courses that incorporate sustainability themes across different disciplines, emphasizing the relevance of these issues to students' future careers and promoting sustainable practices."*

Several staff members discussed collaborating with communities and other institutions on sustainable projects. They highlighted the importance of working together on sustainability initiatives. "*I have collaborated with fellow researchers from other institutions both locally and abroad. I collaborated with communities only when the projects I am working on involve sustainability in communities,* shared a UJBS Researcher. *"I collaborate with local organizations and other institutions to undertake sustainability projects, which is part of my work requirements,"* added a UJ CDL Lecturer.

After discussing stakeholder involvement in sustainability projects, module design, and community collaboration, the next sub-theme focuses on stakeholders' future plans to increase involvement and participation in sustainability and SDGs.

3.1.3 Sub-theme 1.3: plans to increase involvement and participation in sustainability and SDGs

Staff members shared their plans to increase involvement and participation in sustainability and SDGs. One staff member expressed intentions to participate more in university committees focusing on sustainability initiatives and advocate for more resources dedicated to sustainability-related activities and programs. *"I plan to further my involvement by participating in university committees focusing on sustainability initiatives and advocating for more resources dedicated to these efforts,"* said a UJBS Researcher.

Another lecturer discussed plans to seek collaboration with other departments, institutions, and engage more in community projects. "*I plan to increase my involvement by seeking collaborations with other departments, academics elsewhere, and engaging more in community projects,"* explained a UJ CDL Lecturer.

Another lecturer revealed intentions to seek partnerships with external organizations focused on sustainability to create more opportunities for student engagement. *"I am intending to increase my involvement by seeking partnerships with external organizations focused on sustainability to create more opportunities for student engagement,"* shared an Economics Lecturer. The importance of sustainability in university stakeholders' roles is visualized in Figure 1.

3.2 Theme 2: challenges facing university stakeholders in integrating sustainability

Staff and students at UJ highlighted challenges they faced in integrating sustainability into their work, including climate change, confusing information, lack of awareness, lack of resources, limited engagement, and water scarcity. One student mentioned climate change and water scarcity as major challenges in integrating sustainability into his work and lifestyle. *"Climate change and water scarcity are the challenges I see,"* stated a student at the Soweto library.

Another student mentioned the overwhelming amount of conflicting information as a challenge in achieving sustainability practices, making it difficult to prioritize sustainable actions effectively. *"One challenge people face in achieving sustainability practices is the overwhelming amount of conflicting information. It can be difficult to know which sustainable practices to prioritize,"* shared a PhD student at JBS.

Staff members also identified lack of awareness and resources as challenges. Lack of awareness hindered stakeholders from integrating sustainability into their work, while a lack of resources limited the implementation of new initiatives. *"One challenge is the lack of awareness among some stakeholders about the importance of sustainability initiatives,"* said a UJBS Researcher. *"One challenge I have faced in integrating sustainability into my work is the lack of resources for implementing new initiatives. This has limited our ability to act effectively in sustainability efforts,"* explained a UJ CDL Lecturer.

Limited engagement from some staff members was another challenge mentioned, posing significant obstacles to integrating sustainability into work. *"One challenge I have encountered is limited engagement from some staff members regarding sustainability initiatives,"* shared an Economics Lecturer. Figure 2 presents the challenges stakeholders faced in integrating sustainability into their work.

3.3 Theme 3: strategies for enhancing sustainability engagement among university staff and students

The stakeholders suggested various strategies through which sustainability could be encouraged and enhanced among staff and students. These include awareness creation, stakeholder involvement, collaboration, comprehensive training, compulsory modules on sustainability, continuous improvement, creation of engagement platforms, encouraging student-led initiatives, ensuring equal opportunities, flexible learning options, focusing on key actions, mentorship programs, motivation through incentives, sustainability-focused competitions, and sustainability-focused seminars. All the interviewees opined that the major strategy through which UJ can encourage and enhance sustainability is by creating awareness and public campaigns. They added that they should communicate existing sustainability initiatives to stakeholders and motivate staff and students to participate in them. Sharing success stories in their awareness campaigns will also encourage stakeholders. The importance of sustainable practices should be emphasized while creating room for student-led initiatives.

> *"I think UJ leadership can encourage sustainability among students by promoting awareness campaigns that highlight the importance of sustainable practices and creating more opportunities for student-led initiatives."*—Interview with a UJ Diploma Student.

> *"Provide more awareness and campaigns. UJ could further promote sustainability by enhancing communication about existing initiatives and success stories, motivating staff and students to participate in sustainability efforts."*—Interview with an Economics Lecturer.

Some of the interviewees also advised involvement of stakeholders in sustainable initiatives. They believed UJ needed to involve staff and students in developing sustainability plans to give them a sense of ownership and commitment. They added that ongoing dialogue and collaboration should be promoted among staff, students, and the community to inculcate a culture of sustainability within the university.

> *"I believe it is essential to cultivate a culture of sustainability within the university. This can be achieved through promoting ongoing dialogue and collaboration among students, staff, and the community. Together, we can work towards our sustainability goals and make a positive impact on society"*—Interview with an Economics Lecturer.

> *"UJ could enhance sustainability by developing a comprehensive sustainability plan that outlines clear goals and actions, involving*

> *students and staff in the process to foster a sense of ownership and commitment."*—Interview with a UJBS Researcher.

Engagement of all stakeholders through collaborative projects was also pointed out as a strategy that could encourage and enhance sustainability. The staff suggested comprehensive training for staff and students on this subject matter to furnish them with the skills needed to participate effectively in sustainable practices.

> *"We can also create more opportunities for collaborative projects that focus on sustainability for our community and stakeholders."*—Interview with a UJ CDL Lecturer.

> *"To address this, I suggest we need more comprehensive training and communication strategies to engage the entire university community."*—Interview with a UJBS Researcher.

It was also suggested that modules and programs on sustainability be made compulsory to promote sustainability consciousness among stakeholders. The need to keep improving sustainability practices was also advised. The institution needed to continuously assess its efforts and strategies to ensure meaningful progress towards its sustainability goals. The stakeholders also proposed more platforms for fruitful discussions on sustainability. They opined that such platforms would facilitate discussion and collaboration, making sustainability a top priority across the departments of the institution. The students added that such platforms would project the voice of the students, making their voices heard.

> *"Also, make the program on sustainability compulsory."*—Interview with a UJ Diploma Student.

> *"It is essential to continuously assess our efforts and adapt our strategies to ensure that we are making meaningful progress toward our sustainability goals."*—Interview with a UJ CDL Lecturer.

> *"To overcome this, I believe we need to create more engaging platforms for discussion and collaboration, making sustainability a shared priority across all departments."*—Interview with an Economics Lecturer.

> *"It should create more platforms for student voices to be heard."*—Interview with a student in Soweto library.

Furthermore, the students opined that UJ needed to implement programs that promote equal opportunities for all in education. They added that some students dropped out of the institution due to a lack of finance and other reasons. They advocated scholarship opportunities and material assistance for students from less privileged backgrounds. They advised that the institution collaborate with local schools and organizations to provide mentorship and resources to students from disadvantaged backgrounds in their education and career pursuit.

> *"I believe UJ should strive more towards achieving the SDGs by implementing programs that promote equal opportunities in education. Many students drop out of UJ due to financial reasons, and UJ should provide scholarships and material assistance for disadvantaged students."*—Interview with a PhD student at JBS.

The interviewee further proposed flexible learning options where students would be able to choose what works for them. They explained that options like online courses and evening classes should be available to accommodate different schedules, giving more people access to education. Creation of mentorship programs was also suggested. According to some of the interviewees, mentorship programs would connect students from various backgrounds with professionals in their field of interest, providing them with the guidance and support needed to excel in their career path.

> *"I believe we could implement more flexible learning options, such as online courses and evening classes, to accommodate different schedules."*—Interview with an Economics Lecturer.

> *"UJ needs to create mentorship programs that connect students from diverse backgrounds with professionals in their fields of interest, providing guidance and support to give them a head start in their careers."*—Interview with a PhD student at JBS.

The institution was also advised to motivate stakeholders to participate in sustainability programs through the provision of incentives like recognition and awards. They added that such incentives would drive greater involvement of the stakeholders in sustainability activities and programs. Two of the students opined that organizing sustainability-focused competitions could also inspire students to engage more actively in sustainability-related activities. One of them further suggested sustainability-focused seminars where the institution would invite guest speakers from various sectors to share their insights and experiences in sustainability activities with the staff and students. He believed this would provoke sustainability thought in them, making them ponder on their roles in promoting sustainability in their careers.

> *"Additionally, providing incentives for students to participate in sustainability programs, such as recognition or rewards, could motivate greater involvement."*—Interview with a UJ Diploma Student.

> *"Additionally, organizing sustainability challenges or competitions may inspire students to engage more actively in these efforts."*—Interview with a student in Soweto library.

> *"UJ could further encourage sustainability among students by hosting guest speakers from various sustainability sectors to share their insights and experiences. This would not only educate students but also inspire them to think about their roles in promoting sustainability in their future careers."*—Interview with a PhD student at JBS.

Figure 3 presents the opinions of the staff and students on how UJ could encourage and enhance sustainability among its stakeholders.

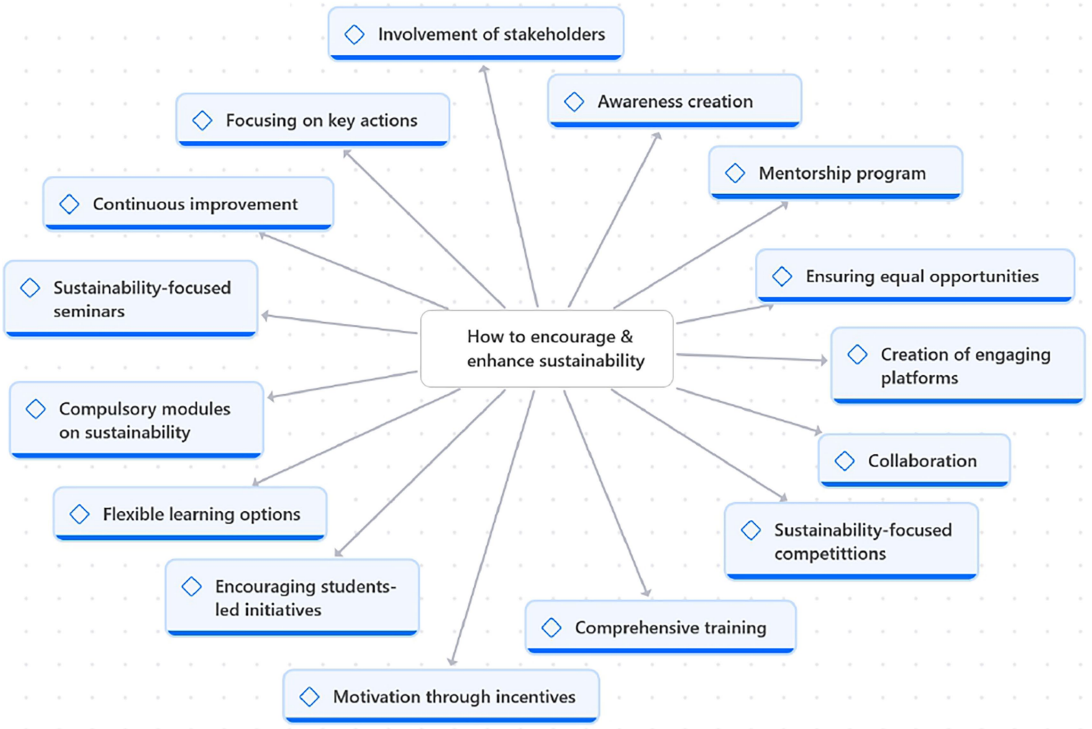

FIGURE 3
Suggestions for encouraging and enhancing sustainability among staff and students Source: Authors' analytical results.

4 Discussion of findings

4.1 Theme 1: university stakeholders' roles in EfS initiatives

The results clearly demonstrate the importance of university stakeholders in the UJ's EfS initiatives. The roles that these stakeholders—lecturers, administrative personnel, and students—play in sustainability programs vary. Their recognition of sustainability as a crucial component of their duties at the university is a significant message. Many respondents stated that they actively participate in community outreach, curriculum creation, and sustainability initiatives because they believe these are crucial means of incorporating sustainability principles into their academic and professional endeavors.

Freeman first proposed the stakeholder theory in 1984, emphasizing how crucial it is to involve all stakeholders in decision-making to ensure sustainability in organizations. This theory is especially pertinent in the context of universities, highlighting the importance of involving both internal and external stakeholders in sustainability initiatives. Everyone at an institution has a part to play in promoting sustainable development, and this idea is further supported by university stakeholders' involvement in EfS. Universities can increase the efficacy, inclusivity, and impact of their sustainability projects by promoting active engagement (Freeman et al., 2021; Freudenreich et al., 2020).

Stakeholders identified several areas needing improvement to increase their involvement in EfS. For instance, there was a strong demand for sustainability programs to have more defined and structured roles because certain stakeholders were unclear of their specific responsibilities. Teaching sustainability through module design can increase students' comprehension of and dedication to sustainable behaviors (Machado et al., 2018; Lotz-Sisitka et al., 2015; Sterling, 2012). Community participation projects are a fantastic method to put sustainability knowledge into practice, demonstrating the significance of taking part in impactful projects (Sachs, 2015; Barth et al., 2021; Tilbury, 2011).

Experts recommend making sustainability a required course in school curricula to boost involvement even further. This would promote student-led initiatives and open up channels for cooperation where people can come together and exchange ideas.

4.2 Theme 2: challenges university stakeholders face in integrating sustainability

The study highlights several challenges that university stakeholders' encounter when trying to incorporate sustainability into their daily operations (Markauskaite et al., 2023; Tripon, 2022). Water shortages and climate change were identified as the primary concerns, with many respondents stating that these urgent environmental issues make it challenging to implement sustainable practices. Additionally, stakeholders struggled to determine which methods would be most effective due to the ambiguity and conflicting signals surrounding sustainability. To effectively lead sustainability programs, there is an urgent need for precise, evidence-based guidance (Leal Filho et al., 2019).

A major obstacle identified was stakeholders' general lack of awareness. Many staff members and students were unaware of the existing sustainability programs, resulting in low engagement rates (Aslam et al., 2022; Garrecht et al., 2018). Stakeholders also faced challenges with inadequate institutional, financial, and technological support for their sustainability initiatives, exacerbating the issue (Organisation for Economic Co-operation and Development (OECD), 2023). Additionally, the limited involvement from staff and students indicated that sustainability was often overlooked in favor of more immediate academic and professional commitments (Lozano et al., 2015).

The TBL theory emphasizes three fundamental elements of sustainability: profit, planet, and people. These challenges can be effectively addressed with the help of this framework. Many institutions struggle to balance these factors due to a lack of resources and participation, hindering their efforts to achieve environmental, social, and economic sustainability (Elkington, 1997). Universities may face difficulties in achieving their long-term sustainable development goals if they fail to successfully integrate all three components of the TBL model.

A comprehensive strategy is crucial to overcoming these challenges. Universities should prioritize disseminating accurate information on sustainability and implementing awareness-raising training initiatives. They should also explore ways to engage a broader range of stakeholders in sustainability discussions and allocate resources more effectively. This approach can promote a more proactive and inclusive stance in addressing these issues (Cebrián et al., 2020).

4.3 Theme 3: strategies for enhancing student and staff involvement in sustainability

The results indicate that raising awareness is the primary strategy for improving UJ's sustainable engagement. Stakeholders emphasized the importance of knowledge exchange and public campaigns in effectively communicating ongoing sustainability initiatives. They specifically noted that using success stories in awareness campaigns could be a highly effective way to inspire staff and students to take action. Universities can motivate stakeholders to participate in sustainability projects by showcasing real examples of sustainable practices and their benefits (Redman et al., 2021). Furthermore, it has been shown that a successful sustainability strategy relies on the involvement and cooperation of stakeholders.

Creating opportunities for diverse groups to participate and promoting collaboration across disciplines can inspire innovative solutions to sustainability challenges. Key strategies for providing stakeholders with the necessary skills and information were also highlighted, including recommendations for training courses, mentorship programs, and sustainability-focused seminars (Barth et al., 2021). Stakeholders suggested integrating sustainability concepts into the university's curriculum to ensure that every student develops a strong understanding of sustainability principles. This approach aligns with the global trend in higher education, as universities and colleges are integrating sustainability into their curricula to produce environmentally conscious graduates (Tilbury, 2011). For example, the preference for awareness campaigns reflects stakeholder theory's emphasis on engagement (Freeman et al., 2021), where transparent communication, such as sharing success stories, fosters shared ownership of sustainability goals. Similarly, the call for compulsory modules aligns with the TBL's social pillar, which requires institutionalizing sustainability into core structures to balance environmental, economic, and educational priorities (Elkington, 1997; Sterling, 2012).

To further enhance engagement and encourage active participation, student-led projects, contests, and incentive-based programs can be implemented. The importance of integrating sustainability into higher education is underscored by both the TBL and stakeholder theories. Long-term success depends on involving all relevant stakeholders in sustainability discussions and decision-making processes, as supported by stakeholder theory. Meanwhile, the TBL framework highlights the importance of academic institutions balancing social, environmental, and economic aspects to ensure a comprehensive approach to sustainability. By incorporating these theoretical concepts into practical applications, UJ can develop a more cohesive and inclusive sustainability plan that increases involvement and makes a significant impact.

The study's findings ultimately emphasize the importance of UJ adopting a more structured and institutionalized approach to sustainability. The institution can strengthen its commitment to sustainability and empower stakeholders to actively contribute to advancing the SDGs by addressing challenges, raising awareness, and promoting collaboration.

5 Conclusion, limitations and suggestions for further studies, and recommendations

5.1 Conclusion

This study underscores the importance of university stakeholders in integrating sustainability. It highlights both the successes and challenges stakeholders often encounter while participating in sustainability programs. Students, lecturers, and administrative personnel are key participants in EfS initiatives, according to the research, but their engagement is frequently hindered by misinformation, lack of awareness, limited resources, and inadequate institutional support. The study emphasizes the need for HEIs to adopt a more comprehensive, well-funded, and structured approach to sustainability by utilizing the stakeholder theory and the TBL framework. It stresses the importance of increasing awareness, fostering cooperation among interested parties, integrating sustainability into curricula, and implementing institutional policies that prioritize sustainability in all aspects of university life. Universities must implement long-term, strategic programs that address current issues and cultivate a sustainable culture to achieve significant change. This involves investing in training, sharing knowledge, and establishing collaborations among various stakeholders to integrate sustainability into academic and administrative processes. By implementing these strategies, HEIs can significantly impact the global sustainability movement and empower the next generation to lead sustainable development.

Sustainability integration in higher education should eventually become ingrained in the institution's ethos rather than being the focus of isolated initiatives. By adopting innovative strategies and promoting a sustainable mindset, UJ has the potential to lead the way in achieving sustainability objectives. Universities looking to enhance their sustainability efforts and make a meaningful contribution to the environment and society can greatly benefit from the insights provided by this study.

5.2 Limitations and suggestions for further studies

This study provides insights into the roles, challenges, and strategies for integrating sustainability into HEIs, with a specific focus on the UJ. However, it is important to acknowledge several limitations.

1 Sample Size and Generalizability: The study involved a small sample of university stakeholders, which may limit the broader applicability of the findings. Future research should aim to include a more diverse range of institutions and stakeholders to enhance the generalizability of the results.
2 Potential Interviewer Bias and Power Dynamics: As a qualitative study relying on interviews and self-reported data, there is a possibility of interviewer bias or power dynamics influencing the findings, especially within academic hierarchies where participants may feel pressured to provide socially desirable responses. To address this, future studies should incorporate reflexive practices like researcher positionality statements and peer debriefing. Triangulation through multiple data sources, such as document analysis and anonymous surveys, could also improve credibility.
3 External Influences on Institutional Sustainability: While this study primarily focuses on internal institutional challenges, external factors such as national education policies, donor agendas, corporate partnerships, and socioeconomic conditions also play a crucial role in shaping sustainability initiatives. Future research should explore how these external forces impact sustainability integration in HEIs to provide a more comprehensive understanding.
4 Methodological Considerations: While the qualitative approach allowed for an in-depth exploration of stakeholder experiences, a mixed-methods design incorporating quantitative measures like sustainability impact assessments and longitudinal case studies could lead to stronger findings. Future studies should consider combining surveys with observational methods to reduce reliance on self-reported data.
5 Long-Term Impact of Sustainability Strategies: Although the study identified key strategies for promoting sustainability, the long-term effectiveness of these strategies remains unexamined. Future research should investigate how these interventions impact institutional policies, curricula, and campus operations over time.

5.3 Recommendations

Based on the research findings, the following recommendations are proposed:

1 Incorporate sustainability into the core curriculum for all university faculty members. Making sustainability courses mandatory will ensure that every student gains essential knowledge and practical skills related to sustainability, leading to lasting behavioral changes. This approach aligns with global trends in higher education and establishes sustainability as a fundamental aspect of the educational experience.
2 Develop a comprehensive communication strategy to enhance staff and student awareness of sustainability initiatives. This could involve targeted public outreach, regular newsletters, active social media engagement, and the sharing of success stories to encourage greater participation and commitment to sustainability efforts.
3 Establish specialized sustainability committees or task forces with representatives from key stakeholder groups to increase engagement in sustainable practices. By creating collaborative platforms for information exchange, fostering interdisciplinary teamwork, and promoting participatory decision-making, the university can ensure inclusivity, shared ownership, and accountability in sustainability initiatives.
4 Allocate adequate financial, technological, and institutional resources to support sustainability projects. This includes securing funding for sustainability-focused research, backing student-led sustainability initiatives, and implementing infrastructure upgrades that align with the SDGs and the university's sustainability objectives.
5 Implement ongoing professional development programs that emphasize the latest sustainability knowledge and skills to empower university stakeholders. Providing workshops, seminars, and mentorship opportunities will facilitate the integration of sustainability principles into academic and administrative responsibilities for lecturers and staff.
6 Strengthen the institution's sustainability initiatives by enhancing partnerships with external organizations, government entities, and business leaders. Through internships, collaborative projects, and practical applications of sustainability principles, students can gain valuable experience while contributing to broader societal impact.
7 Establish a robust monitoring and evaluation framework to assess the effectiveness of sustainability measures. Regular assessments, stakeholder feedback, and sustainability audits will enable the university to track progress, identify challenges, and continuously improve sustainability practices.

Data availability statement

The original contributions presented in the study are included in the article/Supplementary material, further inquiries can be directed to the corresponding author.

Ethics statement

The studies involving humans were approved by University of Johannesburg Research Ethics Committee (REC). The studies were conducted in accordance with the local legislation and institutional requirements. The participants provided their written informed consent to participate in this study.

Author contributions

KY: Writing – review & editing, Supervision, Resources, Conceptualization. CA: Resources, Formal analysis, Methodology, Investigation, Data curation, Writing – original draft, Writing – review & editing. CU: Validation, Investigation, Conceptualization, Writing – review & editing.

Funding

The author(s) declare that financial support was received for the research and/or publication of this article. This research did not receive any external funding; however, the APC will be covered by the UJ in South Africa.

Acknowledgments

The authors would like to thank the Faculty of Education at UJ for their support and resources during the research. We also want to express our gratitude to the students, lecturers, and administrative staff at the university who participated in the study. Many of them are graduates of the online self-study SLP of the UJ sustainability initiative, and their cooperation was essential for the successful completion of this study.

Conflict of interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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Supplementary material

The Supplementary material for this article can be found online at: https://www.frontiersin.org/articles/10.3389/frsus.2025.1605743/full#supplementary-material

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