



Exploring Students' Perception of Sustainable University: Empirical Findings in IPB University, Indonesia

Anisa Dwi Utami¹, Ibnul Qayim², Heriansyah Putra*³, Rina Mardiana⁴, Fifi Gus Dwiyaniti⁵,
Hana Khoirunisa³, Zayyaan Nabiila Khairunnisa³

¹Department of Agribusiness, Faculty of Economics and Management, IPB University, Indonesia

²Department of Biology, Faculty of Mathematics and Natural Sciences, IPB University, Indonesia

³Campus Sustainability Office, IPB University, Indonesia

⁴Department of Communication Science and Community Development, Faculty of Human Ecology, IPB University, Indonesia

⁵Department of Silviculture, Faculty of Forestry, IPB University, Indonesia

* corresponding author: heriansyahptr@apps.ipb.ac.id

Article Info

Received:

14 March 2025

Accepted:

10 June 2025

Published:

19 June 2025

DOI:

10.14710/jsp.2025.26215

Abstract. Universities play a key role in driving positive change by equipping students to address environmental and social challenges. This study examines how students at IPB University perceive various sustainability initiatives implemented on campus. Based on a survey of 1,545 undergraduate students, the research explores their knowledge, awareness, and interest in these efforts. The results show that while most students are familiar with the general concept (87.6%), fewer have knowledge of specific programs, institutional rankings, or the university's Campus Sustainability Office. Nevertheless, nearly all respondents consider these efforts important (98.7%) and support active student involvement (97.2%). Many also express a desire to see these topics integrated into academic courses (84.9%). These findings highlight the need for improved internal communication and curriculum development to enhance student participation. The study offers practical and academic insights for improving sustainability strategies in higher education institutions. Future research should include multiple universities and consider mixed-method approaches to better understand the factors influencing student engagement.

Keyword:

Awareness, engagement, interest, sustainable campus

1. Introduction

Sustainable solutions in higher education must be acknowledged by all countries with increasing recognition of global environmental, social, and economic challenges [1–3]. A sustainable university plays an essential role in advancing the principles of sustainable development through education, research, community engagement, and global collaboration [2,4–7]. Universities wield significant influence on the local, national, and international implementation of Sustainable Development Goals (SDGs) through collaboration with stakeholders in various fields. This influence is crucial for advancing sustainability-focused educational programs and engaging students, faculty, and staff in the collective efforts needed to create sustainable communities [4,6]. These initiatives are aligned with global sustainability goals. Nevertheless, they also allow universities to directly shape practices that lead to a more sustainable and resilient future for society [8]. The influence of universities can extend well beyond campus boundaries, impacting positive local, national, and even global changes.

Universities are uniquely positioned to address the sustainability challenges faced by society today. They can lead by example and create changes at a systemic level. As institutions of higher learning, universities are not only centers of knowledge, but also key players in driving sustainability policies and practices. They engage with various stakeholders, such as government entities, NGOs, industries, and local communities, to devise innovative solutions for sustainable development. Universities serve as incubators of change by providing education, conducting cutting-edge research, and offering solutions that help mitigate and adapt to environmental, social, and economic challenges [9–11].

The role of higher education institutions in advancing sustainability is multifaceted. In addition to conducting sustainability-focused research, universities are also implementing practical sustainability initiatives within their campuses. Some universities have adopted green campus initiatives to reduce their environmental footprint. These initiatives may include energy-efficient buildings, waste reduction programs, sustainable transportation options, and green spaces to promote environmental sustainability. Studies indicate that universities are increasingly turning to renewable energy sources, such as solar and wind power, to power their campuses, thereby reducing their environmental impact [12,13].

In addition to their physical infrastructure, universities contribute to the growth of sustainability knowledge through capacity-building initiatives [14,15]. These may involve organizing workshops, training sessions, and courses that equip faculty, staff, and students with the necessary skills and knowledge to tackle sustainability issues. By offering these programs, universities build internal capacity and prepare future leaders to address global sustainability challenges [16].

Although significant progress has been made in promoting sustainable universities, especially in developed countries, challenges persist, particularly in developing countries. In many parts of the world, limited financial resources and institutional capacity pose significant obstacles to establishing sustainable higher education practices. Financial constraints make it difficult for universities in developing nations to invest in sustainable infrastructure, research, and educational programs. Moreover, many institutions lack sufficient expertise and trained personnel to implement sustainability initiatives. Without the necessary knowledge and skills, it is challenging to integrate sustainability into curricula or campus operations [9,17,18].

In some developing countries, competing priorities may hinder focus on sustainability. For instance, universities may be grappling with issues related to access to education,

poverty alleviation, or political instability, all of which may take precedence over sustainability initiatives. Nonetheless, growing recognition of the importance of sustainability in education is pushing universities worldwide to integrate sustainable practices and principles into their core operations. To address these challenges, universities in developing countries must leverage international collaboration, government support, and local partnerships to effectively integrate sustainability into education, research, and campus operations.

IPB University, a public institution in Indonesia, has made substantial strides in developing sustainable practices. IPB has explicitly committed itself to becoming a global leader in sustainable higher education, as articulated in its vision statement. To realize this vision, the university established the Campus Sustainability Office, an institutional body tasked with formulating strategies and programs for campus sustainability. This board's efforts are crucial in guiding IPB University towards achieving its sustainability goals and ensuring sustainability is embedded across all university operations.

IPB University has participated in several global sustainability rankings, such as UI GreenMetric, THE Impacts, and QS Sustainability, which measure the university's environmental sustainability and social responsibility performance. In 2024, IPB University ranked 29th globally out of 1477 universities and 4th at the national level in the UI GreenMetric ranking [19]. The university also earned 94th globally in THE Impacts rankings, recognizing universities' contributions to the SDGs [20]. These rankings reflect the institution's commitment to sustainability and serve as a testament to IPB University's significant progress toward achieving its sustainability targets.

Beyond participating in these rankings, IPB University has implemented sustainability practices across various domains, including campus infrastructure, waste and energy management, research, and educational programs [21]. For instance, the university has attempted to promote a green campus environment by preserving a substantial portion of its campus area. Forests cover fifty-two percent of IPB University's total campus area; 41% is covered by vegetation, and 96% comprises open spaces [22]. These efforts demonstrate the university's dedication to reducing its environmental footprint and promoting biodiversity.

This study explores students' perceptions of sustainable university practices at IPB University. Understanding students' awareness and perceptions of sustainability initiatives is critical for fostering a culture of sustainability on campus [10]. Students are at a formative stage of their lives, and their attitudes and behaviours toward sustainability are often shaped during their time in university. They will be tomorrow's leader in the future 20 [16,23,24]. Therefore, gaining insight into their level of awareness is essential for universities to design more effective sustainability programs and initiatives.

Numerous studies have explored students' perceptions of and understanding of sustainability in higher education. Leal et al. (2024) found that students' attitudes toward sustainability partially mediate the connection between their knowledge of sustainability and their sustainable behaviours. This emphasizes that attitudes are a key factor influencing how knowledge is translated into concrete sustainability-related actions [23].

In Cachero et al. (2023), A study on Spanish university students revealed a limited understanding of the Sustainable Development Goals (SDGs) overall, with more substantial knowledge and empowerment observed among social and legal sciences students [25]. This highlights the importance of curriculum adaptation and the integration of SDGs through multidisciplinary approaches in higher education. While gender had no significant effect, high student satisfaction (even with short SDG interventions) demonstrated a strong interest

in sustainability education. This study emphasizes that SDGs offer conceptual and practical frameworks for learning and support the development of real-world projects that enhance students' creativity, responsibility, and professional readiness [25].

Malik et al. (2025) demonstrated a strong positive relationship between sustainability and quality education, indicating that enhancing sustainability efforts is closely associated with improved educational outcomes [26]. This suggests that individuals who benefit from quality education are more capable of responding to global challenges and more likely to participate in sustainable actions.

A study conducted among interior design students in India [27] revealed that, although students demonstrated a strong sense of importance and a high level of interest in learning about sustainability, their overall familiarity with the concept remained limited. Moreover, this study found that the most commonly understood aspects of sustainability among students were the use of renewable energy, waste reduction, and energy efficiency. In addition, statistically significant differences were observed in the students' understanding of sustainability based on their academic level and gender.

A study at the University of South Africa (Unisa) found that just over half of the students across various disciplines were aware of the SDGs and believed such knowledge should be essential for all university staff. Despite the institution's commitment to integrating the SDGs, this limited level of awareness highlights a gap that warrants further investigation into the challenges hindering their effective implementation [28]. Many students at the Universitat Politècnica de València (UPV) report being familiar with the SDGs; however, most lack a comprehensive understanding of the 17 goals and their implementation. Nonetheless, they acknowledge the relevance of SDGs in their everyday lives [6].

One study showed that 89.5% of students were aware of the SDGs, and 62.5% had high knowledge. While knowledge is influenced by access to information, awareness is affected by both access to information and gender. It is not affected by organizational involvement [16]. Another study revealed that the knowledge and awareness levels of 158 students at Universiti Malaysia Sabah (UMS) were generally high, with average scores ranging from 70% to 91%. However, it is noteworthy that a few students were still unfamiliar with the term "Sustainable Development Goals" during the 2019 survey period [29].

Meanwhile, a study found that while 95.8% of students acknowledged the importance of sustainability, only a minority were familiar with its meaning. Despite the university's formal commitment to climate and sustainability initiatives, most students were unaware of these efforts, and only 17% knew that sustainability was part of the university's strategic plan. Awareness during student orientation was also limited (36%), and knowledge of recycling programs, alternative energy sources, and curriculum integration remained low [30].

Overall, these studies highlight the growing interest among students in sustainability and recurring gaps in knowledge, awareness, and institutional engagement across various higher education contexts. These patterns indicate the importance of further research that systematically examines how students perceive sustainability at the university level, particularly to inform future curriculum developments and institutional strategies.

Although numerous studies have explored students' perceptions of sustainability in higher education, most have been conducted in developed countries or institutions with strong sustainability frameworks. There remains a lack of empirical research focusing on student perspectives in the context of developing countries, particularly within Southeast

Asian universities, especially in Indonesia. This gap is significant considering the growing global emphasis on sustainability and the need for inclusive insights from diverse educational systems. By assessing students' understanding of sustainability practices, universities can identify gaps in their sustainability education programs and take action to address them [31]. This insight helps tailor curricula by incorporating sustainability principles and practices across disciplines [32]. Furthermore, involving students in outreach and active sustainability programs fosters long-term commitment, as habits formed during university are likely to continue beyond graduation [33].

This study addresses this gap by examining students' knowledge, awareness, and interest in sustainability at IPB University, an institution actively engaged in global sustainability rankings and policies in Southeast Asia. The novelty of this study lies in its focus on a large-scale student population in Indonesia, application of the knowledge-awareness-interest model, and contextual analysis that connects institutional sustainability initiatives with student engagement. This perspective contributes empirically and practically to the discourse on sustainability education in under-represented regions.

2. Methodology

2.1. Research Design

To obtain a wide range of perspectives, this study utilized a nonprobability convenience sampling method, which allowed for the inclusion of all available active undergraduate students at IPB University. This sampling approach ensured that the study captured a diverse sample of students from different disciplines, providing a comprehensive overview of their perceptions of sustainability [34]. Leal Filho et al. also used this method in a 2019 study on sustainable development goals (SDGs) and sustainability teaching at universities [35].

The research design was structured to explore three key dimensions: students' knowledge, awareness, and interest in sustainable university practices. These dimensions were assessed through a series of questions designed to probe various aspects of sustainability, from understanding the concept of a sustainable university to understanding the perceived importance of sustainability in the academic curriculum. Each dimension comprises several questions, with respondents providing "Yes" or "No" answers or dichotomous scales. Using closed-ended questions is considered adequate for identifying general patterns and assessing awareness efficiently, especially in large-scale surveys [36,37].

2.2. Data Collection

This study employed a survey method to collect data on students' knowledge, awareness, and interest in sustainable universities at IPB University. A questionnaire was distributed to the entire population of active undergraduate students at the university, resulting in 1,545 responses from various faculties. This research aimed to gather comprehensive insights into how students perceive the concept of a sustainable university and how familiar they are with sustainability-related initiatives, rankings, and policies at their institution. The data collection process was conducted in December 2023, primarily focusing on understanding students' knowledge and engagement with sustainability issues. The collected data were analysed and organized into a table that outlines the results of the questionnaire, which serves as the foundation for this study's findings. Table 1 presents the

responses to the questionnaire and categorizes them into three distinct dimensions.

3. Results and Discussion

The data presented in Table 1 offers valuable insights into students' perceptions, knowledge, and awareness of sustainability issues within the context of their university. Table 1 summarizes the responses across three main dimensions: students' knowledge, awareness, and interest. Each dimension highlights students' understanding of sustainable university practices, engagement with sustainability rankings, and attitudes toward integrating sustainability into their academic and extracurricular activities. By analysing these findings, we can better understand how students engage with sustainability issues and identify potential areas for universities to enhance their sustainability initiatives.

Table 1. Results for questions in the questionnaire

Dimension	Question	Yes (%)	No (%)
Students' knowledge	Do you know about sustainable universities?	87.60	12.40
	Do you know about the sustainability rankings for universities worldwide?	66.90	33.10
	Do you know your university rankings in the sustainability rankings?	48.30	51.70
	Do you know the organizational unit responsible for developing a sustainable campus at your university?	39.80	60.20
Average		60.65	39.35
Students' awareness	Do you think it is important to make your university become a sustainable university?	98.70	1.30
	Do you think it is important for students to participate in pursuing sustainable university goals?	97.20	2.80
	Do you think your university deserves to be a sustainable university?	88.20	11.80
Average		94.70	5.30
Students' interest	Are you interested in sustainability issues?	91.80	8.20
	Do you think it is important to include sustainability issues in the curriculum?	84.90	15.10
	Do you think having a sustainability course as a mandatory subject is necessary?"	68.30	31.70
Average		81.67	18.33

This study contributes to the growing body of research on sustainability in higher education by applying the knowledge-awareness-interest model to assess student perceptions. This model sequence has been applied in various fields of environmental education to explore how foundational knowledge influences awareness and subsequently stimulates deeper interest and willingness to engage [7,16,27–30,38].

The results presented in Table 1 highlight a distinct gap between students' levels of knowledge, awareness, and interest in sustainability on campus. The average score for

students' knowledge was relatively low at 60.65%, indicating that, although most students were familiar with sustainable universities (87.6%), fewer were aware of more specific institutional aspects. For instance, only 48.3% knew their university's position in sustainability rankings, and only 39.8% were aware of the organizational unit responsible for implementing sustainability initiatives. This suggests that students possess a surface-level understanding, lacking more profound institutional knowledge, a finding echoed in similar contexts [39].

By contrast, students' awareness of sustainability issues was significantly higher, with an average of 94.7%. The vast majority believe that it is important for their university to pursue sustainability (98.7%) and support student participation in related efforts (97.2%). This reflects a strong affective dimension, indicating that students highly value sustainability as a goal within the university context [40].

Similarly, students' interest in sustainability was also relatively high, averaging 81.67%. While 91.8% expressed interest in sustainability issues and 84.9% supported their incorporation into the curriculum, only 68.3% agreed that sustainability should be mandatory. This decrease may suggest reluctance when sustainability shifts from a voluntary concern to a formal academic requirement, possibly due to curriculum overload or a lack of perceived relevance to specific study programs [38].

These findings align with the knowledge-awareness-interest framework, in which knowledge forms the cognitive basis that influences awareness and ultimately drives interest and willingness to engage [38,40]. However, the noticeable gap between knowledge and awareness in this context may imply that general values and social narratives influence students' attitudes more than specific institutional knowledge. This pattern is consistent with other studies in which institutional sustainability commitments did not fully translate into student understanding [41,42].

High levels of awareness and interest are encouraging, yet relatively low knowledge scores point to the need for enhanced communication and visibility around institutional sustainability efforts. Making sustainability structures, rankings, and strategies more visible and integrating sustainability topics meaningfully into academic programs could help bridge this gap and foster deeper student engagement [42,43].

3.1. Students' Knowledge

The first dimension focuses on students' sustainability knowledge in the university context. The questions in this category assess how familiar students are with sustainable universities, sustainability rankings, and the organizational structure responsible for sustainability at their institutions. The responses provided an understanding of students' awareness of sustainability on a broader level, from a conceptual perspective to specific institutional details, as depicted in Figure 1.

The findings show that a large majority of students (87.6%) were already familiar with the general concept of a sustainable university, indicating strong foundational awareness. This is a promising starting point because it suggests that sustainability has gained conceptual recognition among students across disciplines. Moreover, more than half of the respondents (66.9%) were aware of the global sustainability rankings of universities, demonstrating a growing connection between local academic culture and global sustainability discourse.

While fewer students knew about their university's specific ranking (48.3%) or the exact unit responsible for implementing sustainability programs (39.8%), this gap presents a valuable opportunity for institutional communication strategies. Rather than reflecting a lack of concern, these numbers may indicate that students are receptive but have not yet been

fully engaged with formal structures or detailed information. Similar patterns were found in studies by Bonilla-Jurado et al. (2024) and Maela et al. (2024), who emphasized the need to build on students' existing awareness by improving the internal communication and visibility of sustainability governance [28,31].

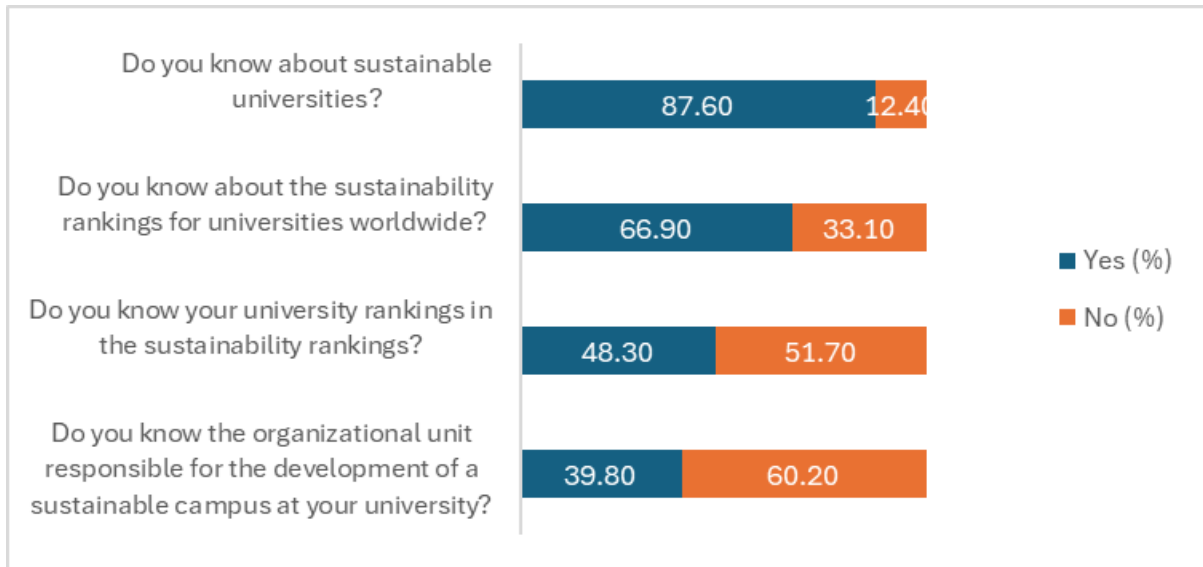


Figure 1. Students' knowledge of sustainable university

3.2. Students' Awareness

The second dimension, students' awareness, gauges how students recognize the importance of sustainability and their role in contributing to a sustainable university environment. The questions in this category focused on students' attitudes toward sustainability, their perceived importance of pursuing sustainability goals, and their belief in the potential of their university to become a sustainable institution, as depicted in Figure 2.

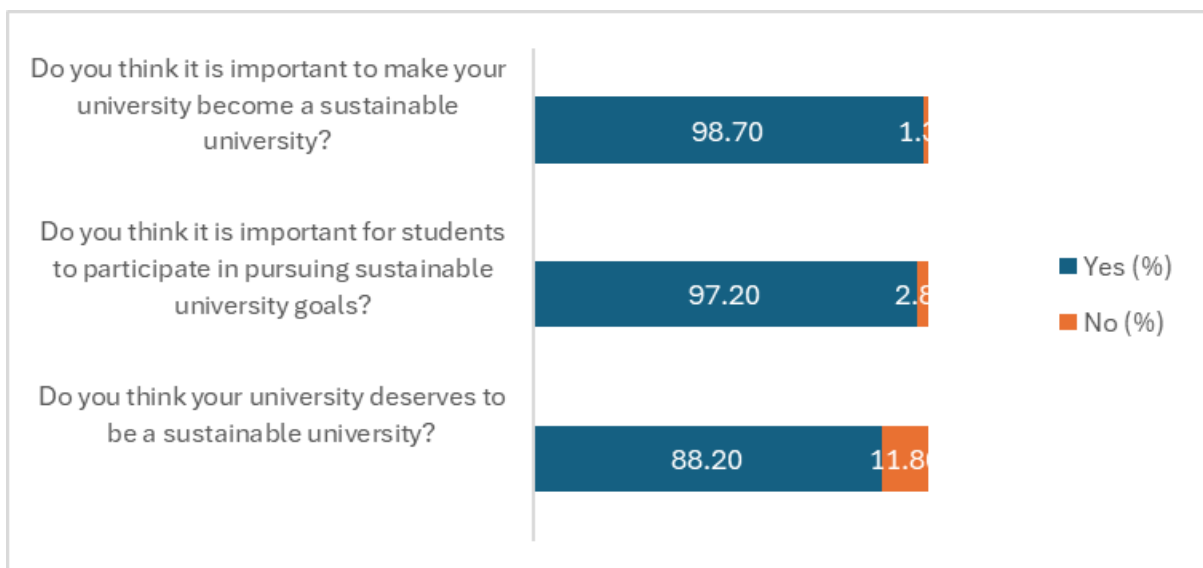


Figure 2. Students' awareness of sustainable university

Building on this solid knowledge foundation, students also demonstrated an exceptionally high awareness of the relevance and urgency of sustainability within their university environment. Nearly all respondents recognized that sustainability is an important institutional goal (98.7%), student involvement is essential (97.2%), and their university deserves to be acknowledged for its sustainability achievements (88.2%).

These high awareness levels indicate that students understand sustainability as a concept and perceive it as significant in shaping university values and practices. This mirrors findings by Trevethan (2017), who argued that awareness can flourish through institutional culture and shared norms, even before detailed knowledge is attained. This further strengthens the knowledge-awareness-interest framework perspective, positioning awareness as a motivational bridge between knowledge and action [40].

3.3. Students' Interest

The final dimension, students' interest, examined student engagement and curiosity about sustainability issues. It provides insights into how much students care about sustainability and whether they believe sustainability should be integrated into their academic experience, as shown in Figure 3. Encouragingly, students' strong knowledge and awareness also translated into high levels of interest in sustainability engagement. Most students (91.8%) expressed an interest in sustainability issues, and a large proportion (84.9%) supported the integration of these topics into the university curriculum. This reflects a genuine willingness among students to acknowledge sustainability and actively learn and contribute to it.

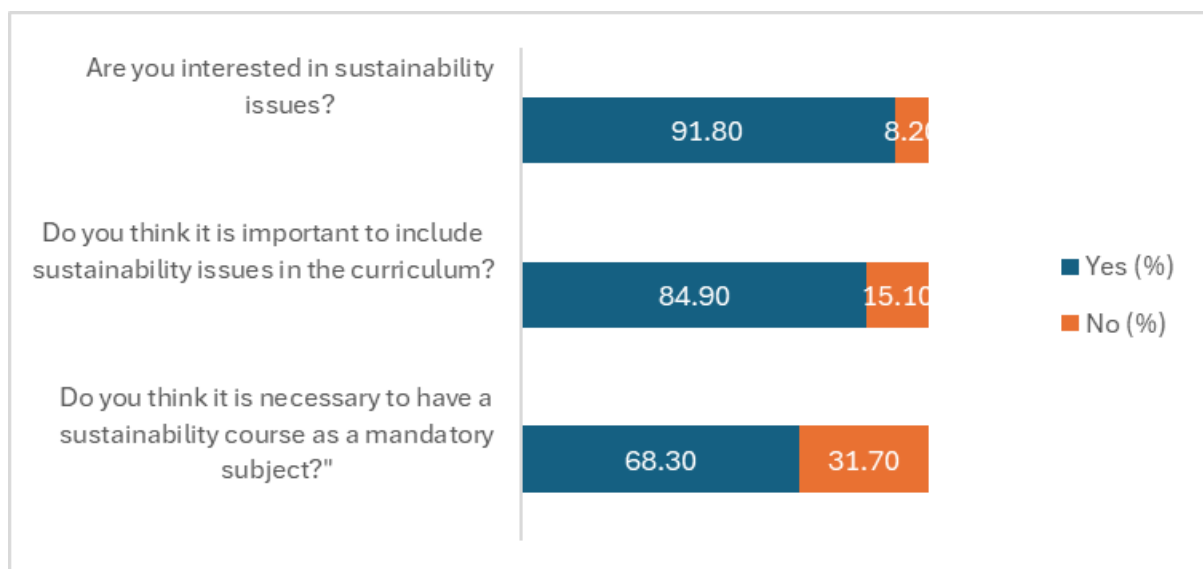


Figure 3. Students' interest in sustainable university

While support for making sustainability a mandatory course was slightly lower (68.3%), this still indicated a majority favoring structured learning. This may reflect a preference for flexibility or the need for a stronger demonstration of relevance to all academic disciplines, which is consistent with another study [38]. Nonetheless, these results show that student interest is a strong driver of institutions leveraging inclusive and well-contextualized educational strategies.

Based on the positive outcomes observed in students' knowledge, awareness, and

interest, this study identified several strategic areas where universities can build existing strengths and closely identify gaps. Students' high baseline awareness and enthusiasm reflect a readiness to engage more deeply with sustainability, provided institutions respond with clear structures, inclusive educational strategies, and effective communication. The implications outlined below explore how universities can harness this momentum to improve their sustainability agenda's academic and operational dimensions.

3.4. Implication of The Research

The implications of this study shed light on several pivotal areas in which universities can focus on enhancing sustainability initiatives and educational offerings. As sustainability becomes an increasingly crucial concern for societies worldwide, universities must lead the way by fostering environments that are not only sustainable but also academically rigorous and aligned with global efforts to combat climate change. The study reveals some promising outcomes while pointing to areas where universities can improve student engagement and expand their sustainability programs. This study explored these areas in depth, providing a comprehensive analysis of the current state of university sustainability initiatives and offering actionable recommendations for improving these efforts.

a) Building on a Strong Foundation of Awareness

One of the most encouraging findings of this study is that students are highly aware of the concept of sustainable universities. With 87.6% of the students reporting a strong foundational understanding of sustainability, universities have made significant strides in raising awareness at the conceptual level. This result suggests that sustainability is no longer a fringe topic within academic circles but a central concern for many students. The rise in awareness can be attributed to various factors, including integrating sustainability into institutional missions, increased visibility of sustainability initiatives, and a growing global focus on environmental and social issues [24,44].

At the conceptual level, sustainability is a holistic approach that balances the economic, social, and environmental factors. The fact that a large majority of students clearly understand these principles indicates that universities have succeeded in imparting basic knowledge of sustainability [30]. However, while this conceptual knowledge is vital, other dimensions of sustainability require further exploration in academic and institutional contexts [4].

b) Addressing Gaps in Knowledge about Sustainability Rankings

Despite intense awareness of sustainability principles, there are significant gaps in the specific and practical aspects of sustainability, such as rankings and metrics that measure the sustainability of universities. According to the research, only 66.9% of the students were aware of the global sustainability rankings, and only 48.3% were familiar with their university's ranking in this area. This disparity suggests that while students may grasp the general concept of sustainability, they lack detailed knowledge of how their institution compares with others in the global sustainability stage [45].

Therefore, the importance of sustainability rankings cannot be overstated. These rankings are not only a measure of how environmentally friendly or socially responsible a university is; they also serve as indicators of a university's commitment to long-term sustainability and its influence in shaping global solutions to sustainability challenges. Sustainability rankings can influence prospective students' decisions, shape a university's reputation, and provide valuable insight into areas of improvement.

Universities should consider implementing more robust communication strategies to

increase student awareness of these rankings [44]. Targeted outreach programs, workshops, and informational seminars can play a crucial role in bridging this knowledge gap. For instance, universities can invite sustainability experts or representatives from global-ranking organizations to explain the criteria for assessing sustainability and its importance. In addition, universities can provide students with easy access to sustainability rankings and steps to improve their performance. This will empower students to understand the significance of these rankings and instill a sense of pride and ownership in their institutions' sustainability efforts.

c) Empowering Students Through Participation

Another notable finding of this study is the overwhelming consensus among students regarding the importance of sustainability. An impressive 98.7% of the students agreed that sustainability is crucial, and 97.2% recognized the importance of their participation in sustainability initiatives. These figures underscore that students are not only aware of sustainability but are also motivated to contribute to sustainability efforts in meaningful ways. This presents a valuable opportunity for universities to harness student enthusiasm and empower them to play more active roles in sustainability initiatives.

Student involvement can take various forms, including participation in sustainability committees, internships, service-learning projects, and student-led initiatives. Universities can ensure that sustainability is integral to campus life by fostering an environment that encourages active student engagement. Establishing a participatory governance structure is a one-way university that facilitates greater student involvement. For example, universities can create sustainability councils with student representatives from different departments. These councils can act as advisory bodies, providing input on sustainability policies and programs and helping to identify areas where student contributions can significantly impact. Universities can cultivate a sense of community ownership over these initiatives by involving students in decision-making processes related to sustainability. This can lead to a more sustainable campus culture in which students, faculty, and staff collaborate to achieve common goals [30]. Furthermore, students actively participating in sustainability efforts are more likely to incorporate these values into their professional lives, influencing broader societal change.

d) Integrating Sustainability into the Curriculum

The research also revealed high interest among the students in incorporating sustainability into the curriculum. 84.9% of students expressed interest in integrating sustainability into their courses, and 68.3% supported the idea of mandatory sustainability courses. This finding highlights the growing demand for universities to adopt more structured approaches to sustainability education. Students are eager to learn how sustainability principles can be applied to their respective fields of study, whether in business, engineering, health sciences, or arts.

Incorporating sustainability into the curriculum allows universities to prepare students for the complex environmental, social, and economic challenges of the 21st century [28,30,31]. Developing interdisciplinary programs focusing on sustainability can enrich the educational experience and help students think critically about sustainability issues in their chosen fields [10]. For example, universities can offer joint programs that combine business administration with sustainability studies or engineering with environmental sciences. These programs would equip students with the skills and knowledge to address global challenges like climate change, resource depletion, and social inequality.

Universities can review and update their curricula to ensure sustainability is integrated

into various courses. For instance, economics, political science, and sociology courses explore sustainability from a social justice perspective, whereas agriculture, biology, and engineering programs focus on environmental sustainability. Providing students with interdisciplinary education on sustainability will better prepare them to navigate the complexities of global sustainability challenges and position themselves as leaders in their future careers.

e) Enhancing Communication about Sustainability Programs

Another significant finding of this study is the gap in student awareness regarding the organizational unit responsible for sustainability initiatives. The study found that 60.2% of students were unaware of which department or office managed sustainability programs at their university. This lack of awareness points to a critical need for universities to improve their internal communication regarding sustainability efforts and initiatives.

When students are unaware of available resources, it becomes challenging for universities to fully engage them in sustainability activities. Therefore, universities must work to enhance the visibility and accessibility of sustainability offices and programs. This can be achieved through various means, such as incorporating information about sustainability resources into orientation programs, creating dedicated web pages with detailed information about sustainability initiatives, or hosting events introducing students to sustainability-focused offices and staff [16].

Universities should also consider integrating sustainability as a core element of their campus culture. By promoting sustainability initiatives across multiple channels, such as campus-wide sustainability fairs, social media campaigns, and sustainability-related newsletters, universities can raise awareness of sustainability programs and foster a more cohesive, integrated approach to campus sustainability. When students are aware of the programs and resources available, they are more likely to get involved and contribute to the university's sustainability goals [28].

f) Building a Sustainable Future

In conclusion, this research highlights the significant potential for universities to enhance their sustainability efforts by addressing student knowledge and engagement gaps. Universities already have a solid foundation of student enthusiasm for sustainability, as evidenced by the high levels of awareness about sustainability issues and strong support for increased student involvement. However, the gaps identified in awareness of sustainability rankings, the need for greater student participation in decision-making processes, and the demand for more structured sustainability education point to areas where universities can improve.

Universities can create a more sustainable future by implementing targeted outreach programs, revising curricula to integrate sustainability across disciplines, and improving communication on sustainability initiatives [7,28]. In doing so, they will foster an environmentally responsible campus culture and prepare students to become leaders and innovators necessary for addressing the world's most pressing sustainability challenges [16]. Through education, communication, and active student engagement, universities can create a sustainable environment that provides a powerful example for broader communities and future generations.

4. Conclusions

This study examined students' perceptions of sustainability at IPB University using three core dimensions: knowledge, awareness, and interest. The findings indicated a promising

level of awareness (94.70%) and interest (81.67%) among the students regarding sustainable university practices. However, gaps remain in students' detailed knowledge of institutional sustainability efforts, particularly regarding campus sustainability rankings and responsible units.

These results highlight the importance of enhancing sustainability communication strategies and systematically integrating sustainability topics into university curricula. From a practical standpoint, the findings can support university policymakers in designing more targeted programs that foster student engagement and long-term behavioral commitment to sustainability values. Academically, this study contributes to the limited body of knowledge on sustainability perceptions among students in the Global South.

Future research should consider expanding the scope beyond a single university and incorporating mixed methods or hypothesis-driven approaches to explore deeper causal relationships. Investigating the institutional and cultural factors influencing sustainability awareness and engagement among students in diverse educational settings is recommended.

References

1. Michel JO. Mapping out Students' Opportunity to Learn about Sustainability across the Higher Education Curriculum. *Innovative Higher Education*. 2020;45:355–371.
2. Waas T, Verbruggen A, Wright T. University research for sustainable development: definition and characteristics explored. *Journal of Cleaner Production*. 2010 May;18(7):629–636.
3. Beringer A, Adomßent M. Sustainable university research and development: inspecting sustainability in higher education research. *Environmental Education Research*. 2008 Dec;14(6):607–623.
4. Kalsum N, Isa M. Sustainable campus and academic staff awareness and behaviour in Malaysia's institutions of higher learning: A case study of UPSI. 2016;12(6):89-99.
5. Alsaati T, El-Nakla S, El-Nakla D. Level of sustainability awareness among university students in the Eastern province of Saudi Arabia. *Sustainability (Switzerland)*. 2020 Apr;12(8):1-15.
6. Leiva-Brondo M, Lajara-Camilleri N, Vidal-Meló A, Atarés A, Lull C. Spanish University Students' Awareness and Perception of Sustainable Development Goals and Sustainability Literacy. *Sustainability (Switzerland)*. 2022 Apr;14(8):1-26.
7. Hari Krishna S, Balakrishnan C, Aute K, Rohidas Patil S. Knowledge, Perception, And Awareness About Sustainable Development Goals (Sdgs) Among Students of Indian Public University. *Journal of Positive School Psychology*. 2022;6(5):2501–2511.
8. Biasutti M, Frate S. A validity and reliability study of the Attitudes toward Sustainable Development scale. *Environmental Education Research*. 2017;23(2):214–230.
9. Leal Filho W, Wu YCJ, Brandli LL, Avila LV, Azeiteiro UM, Caeiro S, da Rosa Gama Madruga LR. Identifying and overcoming obstacles to the implementation of

- sustainable development at universities. *Journal of Integrative Environmental Sciences*. 2017 Aug;14(1):93–108.
10. Lozano R, Lukman R, Lozano FJ, Huisingh D, Lambrechts W. Declarations for sustainability in higher education: Becoming better leaders, through addressing the university system. *Journal of Cleaner Production*. 2013 June;48:10–19.
 11. Wright T. The Evolution of Sustainability Declarations in Higher Education. Corcoran PB, Wals AEJ, editors. *Higher Education and the Challenge of Sustainability: Problematics, Promise, and Practice*. Dordrecht: Springer Netherlands; 2004:7–19.
 12. Larsen HN, Pettersen J, Solli C, Hertwich EG. Investigating the Carbon Footprint of a University - The case of NTNU. *Journal of Cleaner Production*. 2013 June;48:39–47.
 13. Klein-Banai C, Theis TL. Quantitative analysis of factors affecting greenhouse gas emissions at institutions of higher education. *Journal of Cleaner Production*. 2013 June;48:29–38.
 14. Shiel C, Filho WL, Do Paço A, Brandli L, Brandli L. Evaluating Universities Engagement in Capacity Building for Sustainable Development in Local Communities. *Evaluation and Program Planning*. 2016 Feb;54:123-134.
 15. Wescott G. Partnerships for capacity building: community, governments and universities working together. *Ocean & Coastal Management*. 2002;45(9-10):549-571.
 16. Jati HF, Darsono SNAC, Hermawan DT, Yudhi WAS, Rahman FF. Awareness and Knowledge Assessment of Sustainable Development Goals Among University Students. *Jurnal Ekonomi & Studi Pembangunan*. 2019 Oct;20(2):163-175.
 17. Sterling S, Maxey L, Luna H Foreword by Sara Parkin OBE H. *The Sustainable University Progress and prospects*. 1st ed. London: Routledge; 2013.
 18. Veiga Ávila L, Beuron TA, Brandli LL, Damke LI, Pereira RS, Klein LL. Barriers to innovation and sustainability in universities: an international comparison. *International Journal of Sustainability in Higher Education*. 2019 Sep;20(5):805–821.
 19. UI GreenMetric. UI GreenMetric World University Rankings 2024 [Internet]. 2024 [cited 2025 May 17]. UI GreenMetric World University Rankings 2024
 20. THE. University Impact Rankings 2024 [Internet]. 2024 [cited 2025 May 17]. <https://www.timeshighereducation.com/impactrankings>
 21. IPB. Sustainability Report 2023: Achieving Sustainability; 2024.
 22. Putra H, Hidayat FR, Sutoyo S, Qayim I, Utami AD, Slamet AS. Managing Green Space to Achieve Sustainability of Infrastructure at IPB University. *Journal of Sustainability Perspectives*. 2024 Oct;4(1):39–51.
 23. Leal S, Nascimento J, Piki A, Tekerek A, Güzel A, Loureiro A, et al. Exploring sustainable development perceptions among higher education students: An empirical study on

- knowledge, attitudes, and behaviours. *Cleaner and Responsible Consumption*. 2024 Sep;14:1-12.
24. Abo-Khalil AG. Integrating sustainability into higher education challenges and opportunities for universities worldwide. *Heliyon*. 2024 May;10(9):1-13.
 25. Cachero C, Grao-Gil O, Pérez-delHoyo R, Ordóñez-García MC, Andújar-Montoya MD, Lillo-Ródenas MÁ, Torres R. Perception of the Sustainable Development Goals among university students: A multidisciplinary perspective. *Journal of Cleaner Production*. 2023 Dec;429:1-13.
 26. Malik A, Abrar D, Khan NA, Alhussami AM. Sustainable development goals: students' perception on quality education, gender equality, and sustainability. *Discover Sustainability*. 2025 May;6(1):410.
 27. Chellappa V, Rohatgi T. Students' perceptions towards sustainability in interior design education. *International Journal of Technology and Design Education*. 2025 Feb:1–15.
 28. Maoela MA, Chapungu L, Nhamo G. Students' awareness, knowledge and attitudes towards the sustainable development goals at the University of South Africa. *International Journal of Sustainability in Higher Education*. 2024 Dec;25(9):455–473.
 29. Chou J, Vun LW. Knowledge and Awareness on Sustainable Development Among University Students. *European Journal of Development Studies*. 2025 Jan;5(1):21–27.
 30. Msengi I, Doe R, Wilson T, Fowler D, Wigginton C, Olorunyomi S, et al. Assessment of knowledge and awareness of “sustainability” initiatives among college students. *Renewable Energy and Environmental Sustainability*. 2019;4:6.
 31. Bonilla-Jurado D, Zumba E, Lucio-Quintana A, Yerbabuena-Torres C, Ramírez-Casco A, Guevara C. Advancing University Education: Exploring the Benefits of Education for Sustainable Development. *Sustainability*. 2024 Sep;16(17):1-27.
 32. Erguvan ID. What difference does one course make? Assessing the impact of content-based instruction on students' sustainability literacy. *Humanities and Social Sciences Communications*. 2024 May;11:1-11.
 33. Uzorka A, Akiyode O, Isa SM. Strategies for engaging students in sustainability initiatives and fostering a sense of ownership and responsibility towards sustainable development. *Discover Sustainability*. 2024 Oct;5:320.
 34. Creswell JW, Creswell JD. *Research Design: Qualitative, Quantitative, and Mixed Methods Approaches*. 5th ed. Thousand Oaks, California: SAGE Publication, Inc; 2018.
 35. Leal Filho W, Shiel C, Paço A, Mifsud M, Ávila LV, Brandli LL, et al. Sustainable Development Goals and sustainability teaching at universities: Falling behind or getting ahead of the pack? *Journal of Cleaner Production*. 2019 Sep;232:285–294.
 36. Ary D, Jacobs LC, Sorensen CK, Razavieh A. *Introduction to Research in Education*. 8th ed. Belmont, CA, USA: Wadsworth, Cengage Learning; 2010.

37. Sugiyono. *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: Alfabeta; 2013.
38. Sammalisto K, Sundström A, Von Haartman R, Holm T, Yao Z. Learning about sustainability-what influences students' self-perceived sustainability actions after undergraduate education? *Sustainability (Switzerland)*. 2016 May;8(6):1-16.
39. Leal Filho W, Tripathi SK, Andrade Guerra JBSOD, Giné-Garriga R, Orlovic Lovren V, Willats J. Using the sustainable development goals towards a better understanding of sustainability challenges. *International Journal of Sustainable Development and World Ecology*. 2019;26(2):179–190.
40. Trevethan R. Deconstructing and Assessing Knowledge and Awareness in Public Health Research. *Front Public Health*. 2017 Aug;5:1-6.
41. El-Jardali F, Ataya N, Fadlallah R. Changing roles of universities in the era of SDGs: Rising up to the global challenge through institutionalising partnerships with governments and communities. *Health Research Policy and Systems*. 2018 May;16:1-5.
42. Saaida M. Global Catalysts: Empowering Universities for Social Change in Developing Countries. *Edukasiana: Jurnal Inovasi Pendidikan*. 2023 Sep;2(4):318–341.
43. Almazic L. Universities as Catalysts for Social Transformation in Developing Countries. *History of Universities*. 2024 Oct:1-5.
44. Basheer N, Ahmed V, Bahroun Z, Anane C. Sustainability assessment in higher education institutions: exploring indicators, stakeholder perceptions, and implementation challenges. *Discover Sustainability*. 2025 April;6:252.
45. Lozano R, Ceulemans K, Alonso-Almeida M, Huisingh D, Lozano FJ, Waas T, et al. A review of commitment and implementation of sustainable development in higher education: Results from a worldwide survey. *Journal of Cleaner Production*. 2015 Dec;108 Part A:1–18.



©2024. The Author(s). This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution-Share Alike 4.0 (CC BY-SA) International License (<http://creativecommons.org/licenses/by-sa/4.0>)