

# Exploring the Influence of Sustainability Education and Campaigns on Sustainability Awareness among Malaysian University Students

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## ABSTRACT

This conceptual paper investigates the impact of university initiatives on sustainability awareness among public university students in Malaysia. While sustainability has become a central concern globally, research suggests that awareness among Malaysian university students remains relatively low. One major contributing factor is the insufficient integration of sustainability principles into academic curricula. As a result, students often develop only a superficial understanding of environmental, social, and economic issues, limiting their ability to make informed decisions and adopt sustainable practices. In addition, the lack of structured opportunities for experiential learning, such as hands-on projects, sustainability internships, campus-based campaigns, and collaborative initiatives, further constrains students' engagement with sustainability concepts. Many Malaysian campuses also lack comprehensive recycling programs, energy-efficient facilities, and visible sustainability policies, which diminishes the prominence of sustainable behavior in students' daily routines and academic priorities. Consequently, sustainability often remains a peripheral concern rather than a core value embedded in students' professional and personal development. This paper examines the relationships between sustainability education, campus sustainability projects, institutional sustainability policies, and students' sustainability awareness. Sustainability education, often integrated into formal courses and supplemented by workshops and awareness campaigns, equips students with the knowledge, skills, and values necessary to understand and act on sustainability challenges. Complementarily, campus sustainability projects and well-designed campaigns provide practical platforms for students to translate theoretical knowledge into action, fostering environmentally responsible behaviors. Institutional support, through clear sustainability policies and resource allocation, further enhances the effectiveness of these initiatives. By adopting a more integrated, comprehensive, and resource-supported approach, Malaysian universities can significantly strengthen sustainability awareness among students. Such efforts not only contribute to the development of environmentally conscious graduates but also empower students to actively participate in achieving broader sustainable development goals. Ultimately, this research seeks to bridge the existing gap in the literature by highlighting the pivotal role of university-led initiatives in cultivating sustainability awareness and promoting responsible, long-term sustainable practices among public university students in Malaysia.

**Keywords:** Sustainability awareness, sustainability education, sustainability campaign, university students.

## INTRODUCTION

Among the increasing global environmental concerns, university have a crucial role in cultivating sustainability awareness among the younger generation. Universities have the dual responsibility of educating students and influencing their attitudes and actions towards a sustainable future. This duty has become more significant due to the urgent requirement for people who possess expertise and take initiative in tackling issues such as climate change, resource depletion, and environmental deterioration. Lozano et al. (2013) emphasize that universities play a crucial role in promoting sustainability awareness. Therefore, it is important to comprehend and improve the efficiency of sustainability education and activities in these institution.

Universities have a distinct advantage in incorporating sustainability into their educational programs, research endeavors, and campus activities. This allows students to gain both academic understanding and hands-on experience in the field of sustainability. The incorporation of sustainability into higher education in Malaysia has been rapidly advancing due to national regulations and universities' recognition as influential catalysts for change (Zulkifli et al., 2022). However, it is still necessary to assess the extent to which these programs effectively result in heightened awareness and involvement in sustainability among students. A thorough understanding of the factors that affect how students think about and feel about sustainability can help educators make better lessons and changes to how things are done on campus, which will make sustainability education more effective overall (Abdullah & Osman, 2019). This introduction establishes the context for examining the crucial connection between university sustainability programs and student awareness, with the objective of promoting a sustainable mindset among future generations.

## **Problem Statement**

Sustainability awareness among university students in Malaysia remains a critical area of concern, with recent studies highlighting significant gaps in both knowledge and active engagement. A 2023 survey at the University of Malaysia Sabah (UMS) revealed that while students demonstrated familiarity with sustainability concepts such as "Eco-Campus," "Earth Hour," and "Green Energy" there was a notable lack of awareness regarding the Sustainable Development Goals (SDGs). Approximately 70% of students were unaware of the SDGs, indicating a substantial gap in comprehensive sustainability education (Chou & Vun, 2025).

Further research underscores the need for enhanced sustainability education. A study conducted at University Malaysia Perlis (UniMAP) examined students' perceptions, awareness, and opinions about environmental issues. The findings indicated that while students acknowledged the importance of environmental protection, their practical knowledge and involvement in sustainability initiatives were limited. (Makhtar et al., 2021).

These studies suggest that Malaysian universities face challenges in integrating sustainability into curricula and providing opportunities for practical engagement. To address these issues, it is essential to develop comprehensive sustainability education programs and campus initiatives that promote active student participation and foster a culture of sustainability.

## **Urgency To Conduct Study**

The urgency to conduct this study stems from the persistent low levels of sustainability awareness among university students in Malaysia, despite the global emphasis on sustainable development and the country's commitment to the Sustainable Development Goals (SDGs). Recent evidence shows that many students possess limited knowledge of sustainability concepts, including environmental conservation, social equity, and economic responsibility, and lack practical engagement in sustainable behaviors (Chou & Vun, 2025; Makhtar et al., 2021). This gap not only limits students' ability to contribute meaningfully to sustainable development but also undermines Malaysia's broader national objectives for sustainable growth.

Malaysia has made formal commitments to sustainable development through national policies such as the 12th Malaysia Plan (2021–2025), which emphasizes sustainable development, green technology adoption, and environmental conservation, and the Shared Prosperity Vision 2030, which integrates economic, social, and environmental sustainability to achieve equitable and inclusive growth (Economic Planning Unit, 2021). Additionally, the National Policy on the Environment highlights the need for education and public awareness to promote responsible environmental practices. However, without urgent action to integrate sustainability into higher education curricula and campus initiatives, these policies risk being ineffective due to a lack of awareness and participation among the future workforce.

Conducting this study is crucial to identify the current levels of sustainability awareness among university students, evaluate the effectiveness of existing sustainability initiatives, and provide evidence-based recommendations for policy makers and higher education institutions. By addressing this gap, universities can better align their educational programs with national sustainability objectives, empower students to engage in

sustainable practices, and contribute to Malaysia's progress toward the SDGs. Ultimately, this study is timely and necessary to ensure that sustainability becomes a core value among Malaysian university students rather than a peripheral concern.

## **Research Objectives**

### **Research Objective 1:**

To explore the relationship between sustainability education and sustainability awareness among university students in Malaysia .

### **Research Objective 2:**

To explore the relationship between sustainability campaign and sustainability awareness among university students in Malaysia .

## **Research Questions**

### **Research Question 1:**

What is the potential relationship between sustainability education and sustainability awareness among university students in Malaysia ?

### **Research Question 2:**

What is the potential relationship between sustainability campaign and sustainability awareness among university students in Malaysia ?

## **LITERATURE REVIEW**

### **Overview of Sustainability Awareness among young generation in Malaysia**

The young generation in Malaysia represents a critical demographic in shaping the country's sustainable future, as they will play a central role in addressing environmental, social, and economic challenges. However, research indicates that sustainability awareness among Malaysian youth remains relatively low and uneven across different contexts. While many young people acknowledge the importance of sustainability, their understanding is often limited to general environmental concerns such as recycling or energy conservation, with less awareness of broader dimensions such as social equity, climate change adaptation, and sustainable economic practices (Abdullah et al., 2018; Hassan et al., 2020).

Several factors contribute to this gap. The integration of sustainability into the formal education system has been gradual and inconsistent, leading to a lack of comprehensive knowledge and critical thinking about sustainability issues (Hussain et al., 2019). Moreover, limited exposure to hands-on sustainability initiatives such as campus projects, community engagement programs, and industry collaborations restricts the ability of young people to translate theoretical knowledge into practical action. Digital and social media platforms have become primary sources of sustainability information for Malaysian youth; however, the fragmented and sometimes superficial nature of this content can hinder deeper engagement with sustainability principles (Lee et al., 2021).

Despite these challenges, positive developments are emerging. Universities, NGOs, and government bodies have introduced various initiatives to raise sustainability awareness, such as the Sustainable Development Goals (SDG) campaigns, campus recycling programs, and youth-led climate action movements. Surveys suggest that younger Malaysians are increasingly open to adopting sustainable lifestyles, particularly in areas such as waste

reduction, energy efficiency, and eco-friendly consumption (Rahman et al., 2022). Nonetheless, the gap between awareness and practice remains a concern, highlighting the need for more structured education, practical engagement opportunities, and supportive policy frameworks to ensure that Malaysia's young generation becomes active agents of sustainable development.

## Sustainability Awareness

Multiple studies have explored and defined sustainability awareness, outlining its significance in shaping environmentally responsible behaviors, particularly among university students. This synthesis integrates findings from recent literature to encapsulate the essence of sustainability awareness as articulated in various studies. Recent studies have highlighted varying levels of sustainability awareness among university students. The definition of sustainability awareness are shown in table 1.

Table 1: Definition of Sustainability Awareness

Author (Year)	Definition
Ndomah & Oduntan (2022)	Sustainability awareness is characterized as the enhancement of knowledge and understanding concerning contemporary environmental issues, particularly the principles of environmental sustainability
Nawawi et al.,(2022)	The recognition of the importance of managing municipal solid waste and the impact that individual behaviors have on broader sustainability goals
Debrah et al., (2021)	The authors argue that awareness involves not only knowledge but also active participation in sustainability initiatives, linking awareness directly to motivational factors that drive pro-environmental behavior.
Seong, (2025)	sustainability awareness encompasses a dual understanding of environmental challenges and the self-efficacy required to engage in sustainable practices

## Sustainability Education

Sustainability education encompasses a broad range of learning experiences aimed at equipping individuals with the knowledge, skills, and values necessary to contribute to sustainable development. Recent literature has defined sustainability education in various ways, emphasizing its significance in fostering awareness and actionable competencies among students. This synthesis will present key definitions found in multiple studies to encapsulate the concept of sustainability education.

The definitions of sustainability education is as follows:

Table 2: Definitions of Sustainability education

Author (Year)	Definition of Sustainability Education
UNESCO (2017)	A holistic and transformative education that empowers learners with knowledge, skills, values, and attitudes to act for sustainable development.
Sterling (2010)	A paradigm shift in education that emphasizes resilience, systems thinking, and the capacity to adapt for sustainable futures.
Lasekan et al., (2024)	Sustainability education should involve a comprehensive integration of themes related to the Sustainable Development Goals (SDGs) into educational curricula

## Sustainability campaign

A sustainability campaign in higher education refers to planned initiatives aimed at raising awareness, educating, and encouraging behavioral change among students, staff, and the wider community toward sustainable practices. These campaigns often include activities such as sustainability weeks, awareness workshops, recycling drives, energy-saving programs, and eco-friendly challenges. Their purpose is not only to inform but also to influence behavior, build a culture of sustainability, and align university communities with broader Sustainable Development Goals (SDGs).

## The definitions of sustainability campaign is as follows:

Table 3: Definition of Sustainability Campaign

Author (Year)	Definition of Sustainability Education
Griffin et al. (2022).	describes sustainability campaigns as strategic initiatives designed to raise awareness and instigate behavior change regarding environmental impacts within educational institutions
Bernini et al., 2020)	In the context of tourism, sustainability campaigns as initiatives focused on disseminating information about green initiatives to enhance tourists' awareness before their arrival at destinations
Luckho et al., 2024)	effectively convey sustainability messages, resulting in the public's increased understanding and engagement with sustainability concepts.

Understanding the types of sustainability campaigns is crucial for several reasons, particularly in the context of promoting sustainable practices, enhancing environmental awareness, and managing community engagement. Multiple studies illustrate why this understanding is vital, outlining the implications for effective implementation, evaluation, and long-term success of sustainability initiatives. This synthesis draws upon varied research to highlight the importance of knowing the types of sustainability campaigns. Table 4 provide types of sustainability campaign in various studies.

Table 4: Types of Sustainability Campaign

Type of Sustainability Campaign	Description	Author/Year
Green Campaigns (PR Perspective)	Strategic communication campaigns designed to persuade audiences to embrace sustainable innovations and behaviors through planning, execution, and evaluation.	Hasna et al. (2024)
Green Marketing Campaigns	Campaigns in consumer markets emphasizing transparent eco-friendly messaging, eco-labeling, and trust-building to influence sustainable choices.	Kesa (2025)
Social Marketing Campaigns (HEIs)	University-led initiatives using social marketing approaches to position students as change agents who promote SDGs awareness and actionable behaviors.	Hübscher et al., 2022
Green Campus Initiatives	Campus-wide sustainability awareness programs involving operations (e.g., recycling, energy management) combined with student engagement and environmental education.	Ribeiro et al., 2021
Digital–Sustainability Integration	Campaigns leveraging digital technologies (e.g., dashboards, apps) to enhance sustainability engagement via education, behavior change, and operational transparency.	Zou et al., 2024

## Relationship between Sustainability Education and Sustainability Awareness among university students.

Sustainability education, frequently conceptualized as Education for Sustainable Development (ESD), assumes a pivotal role in cultivating sustainability awareness among university students. This form of education transcends conventional academic instruction by seamlessly integrating knowledge, competencies, attitudes, and values pertinent to environmental, social, and economic sustainability (UNESCO, 2017; Sterling, 2010).

The influence of sustainability education on enhancing sustainability awareness among university students is supported by a growing body of research illustrating that educational initiatives significantly shape students' understanding and engagement with sustainability issues. This discourse encompasses various methodologies and approaches to instilling awareness, fostering critical skills, and promoting proactive attitudes towards



sustainability in academic environments. This response synthesizes multiple studies to elucidate the relationship between sustainability education and heightened sustainability awareness.

A study by Ha et al. (2019) emphasizes the framework for embedding sustainable consumption into higher education in Vietnam as a means to cultivate an informed generation committed to sustainable practices. They argue that integrating sustainability into the curriculum promotes sustainable consumption behaviors at different educational levels and contexts. They provide evidence that students exposed to sustainability education increasingly recognize the impact of their consumption choices, leading to more sustainable behaviors and attitudes. In another study, Tret'Yakova and Kotomina (2020) assert that integrating sustainability principles within university operations and curricular offerings is essential for fostering awareness among students. They illustrate how a holistic approach to sustainability in academia enhances student awareness and establishes a culture that prioritizes sustainability on campus. Universities that adopt comprehensive sustainable practices are more effective in raising awareness compared to those with limited implementations. Similarly, a study done by Alm et al., (2022) investigate students' awareness and competencies related to sustainable development goals (SDGs), underscoring that fostering understanding of the SDGs significantly equips them with the knowledge needed to engage with sustainability challenges. A study in higher education in UAE by Shishakly et al., (2024) look into the interplay between technology and sustainability education is examined in the work of who demonstrate that incorporating smart technologies into higher education fosters significant student awareness of sustainability initiatives. Their findings reveal that educational institutions that leveraging technology can enhance engagement with sustainability concepts, reinforcing students' understanding of their university's commitment to sustainability practices. Concina and Frate, (2023) examine students' perceptions and beliefs about sustainability, highlighting the importance of curriculum content in shaping awareness. Their systematic review illustrates that programs actively incorporating sustainability themes foster enhanced student understanding and attitude adjustments towards environmental issues.

Embedding sustainability education within specific academic programs is necessary, suggesting that integrating sustainability courses into the accounting curriculum prepares students for future challenges (Wijaya & Putri, 2023). Their work indicates a significant gap in sustainability education across various disciplines, underscoring the need to enhance curriculum relevance to boost student awareness and capability regarding sustainability. The rise of innovative pedagogical techniques is supported by Castellanos and Queiruga-Dios (2021), who advocate for including experiential learning within sustainability education. Their review highlights that engaging students through experiential learning opportunities where they confront real-world sustainability problems significantly contributes to understanding and awareness of sustainability challenges.

These diverse studies collectively illustrate the multifaceted nature of sustainability education and its profound impact on raising awareness among university students. A recurring theme across the literature is the necessity for comprehensive educational frameworks that integrate sustainability into various disciplines, utilize technology effectively, and engage students in experiential learning. This holistic approach not only cultivates awareness of sustainability but also empowers students to actively participate in creating sustainable solutions in their respective fields.

### **Relationship between Sustainability campaign and Sustainability Awareness among university students.**

The impact of sustainability campaigns on sustainability awareness among university students has been extensively studied, demonstrating the efficacy of such initiatives in shaping environmental attitudes and behaviors. A review of the literature indicates that various campaign strategies, including communication techniques, engagement methods, and interdisciplinary approaches, significantly enhance students' awareness of sustainability issues. This synthesis will present findings from multiple studies that illuminate the relationship between sustainability campaigns and awareness at the university level.

Godfrey and Feng (2017) conducted an early study that examined how students view campaigns designed to change behavior and encourage sustainability. They found that effective communication tailored to students' contexts enhanced the relevance of sustainability issues, leading to greater awareness. This research emphasizes that merely presenting scientific information is insufficient thus campaigns need to resonate on a personal level through relatable messaging, thereby fostering an environment where sustainability awareness can thrive.

Further assessing the effectiveness of awareness campaigns, Silva et al.,(2020) investigate a mass media campaign promoting physical activity in Portugal. They found that immediate impacts on awareness led to changes in motivation and suggest that campaigns capturing attention through various media can effectively enhance awareness of sustainable practices. Their findings highlight the importance of follow-up strategies to maintain momentum in awareness-building efforts.

Krsnik et al., (2022) reveal that individuals with higher personal values and relevant knowledge about environmental challenges show greater awareness and support for Sustainable Development Goals (SDGs). This suggests that effective sustainability campaigns that resonate with educational objectives can bolster not just awareness but also advocacy for sustainability among university students. Acknowledging personal values can lead to higher engagement levels, thereby increasing the impact of campaigns. Additionally, Griffin et al., (2022) highlight efforts from institutions like Abu Dhabi Women's College to promote sustainability awareness. Their research elucidates different strategies employed by universities to minimize environmental impacts, noting that raising awareness through systematic campaigns enables effective engagement of students in sustainability issues. This further emphasizes that campaigns must consider local environmental conditions and student demographics to optimize effectiveness. In another investigation, Varni et al. explored the impact of an Instagram campaign designed to influence various factors including knowledge and perceived behavioral control regarding sustainable behaviors among university students. The findings indicate that social media campaigns can significantly enhance awareness; students reported increased knowledge and intention to engage in sustainable practices after interacting with the campaign content. This study demonstrates the potential of targeted social media platforms to effectively disseminate sustainability messages and engage younger audiences. Moving beyond technology, Gherheş et al., (2022) focused specifically on waste management awareness among university students through selective collection campaigns. Their research highlights the importance of targeted awareness campaigns aimed at educating students about waste minimization practices. By employing questionnaires to gather insights into students' perceptions and behaviors, the study emphasizes that structured awareness programs can significantly improve understanding and participation in sustainability practices within university settings. Nawawi et al. examined the role of municipal solid waste management campaigns among university students in Malaysia, finding that frequent awareness efforts positively influence students' attitudes toward waste management. This suggests that regular, structured campaigns focused on specific sustainability issues create a culture of awareness that encourages students to adopt sustainable behaviors regarding waste.

Collectively, these studies contribute to a comprehensive understanding of how sustainability campaigns can robustly influence sustainability awareness among university students. The critical factors determining this effectiveness include personalized campaign messaging, experiential and collaborative learning approaches, media engagement, and integration within educational curricula. Moreover, as the literature shows, the long-term success of such campaigns also relies on reinforcing policies and creating a conducive environment for sustained engagement, ensuring that awareness translates into actionable change.

## Proposed Research Model

As delineated in the preceding section, sustainability education and sustainability campaigns were regarded as independent variables. They were posited to exert influence on the dependent variable, namely sustainability awareness. The relationship between these elements is depicted in Figure 1.

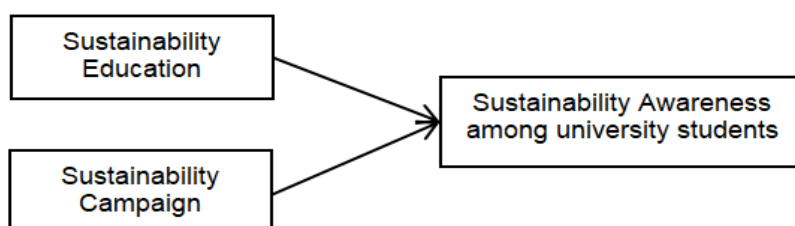


Figure 1: Research Model

Thus, from the aforementioned relationship, the hypothesis for this study can be articulated as follows:

H1: It is posited that sustainability education significantly enhances sustainability awareness among university students in Malaysia.

H2: It is posited that sustainability campaign significantly enhances sustainability awareness among university students in Malaysia.

## IMPLICATIONS AND FUTURE DIRECTIONS

Based on the conceptual review of the relationship between sustainability education, sustainability campaign and sustainability awareness, there are several theoretical and practical implications which can be used to guide future directions.

From a theoretical perspective, this study contributes to the growing body of literature on sustainability awareness in higher education by integrating sustainability education and sustainability campaigns as key predictors. The findings emphasize that education, when embedded into curricula, plays a critical role in shaping students' sustainability literacy, attitudes, and behaviors. Moreover, by incorporating sustainability campaigns as an external driver of awareness, the study extends the theoretical discourse by demonstrating that structured engagement initiatives complement formal education in fostering awareness. This dual focus enriches the understanding of how both pedagogical and behavioral interventions interact to enhance sustainability awareness. Furthermore, it provides a foundation for linking educational theories such as Education for Sustainable Development (ESD) and behavior change communication frameworks, offering a more holistic explanation of how awareness develops among students.

On a practical level, the study highlights the urgent need for universities to embed sustainability more comprehensively across disciplines, moving beyond elective or peripheral courses. Institutions should integrate sustainability as a core component of curricula, supported by interactive pedagogical approaches such as project-based learning, service learning, and cross-disciplinary collaborations. Additionally, sustainability campaigns on campuses should be more personalized, innovative, and participatory to bridge the gap between theoretical understanding and practical application. This includes organizing sustainability weeks, recycling drives, energy-saving competitions, and digital awareness campaigns that connect sustainability to students' daily lives. Policymakers and university administrators can also use these findings to design policies that support long-term campus sustainability strategies aligned with the 12th Malaysia Plan and the Malaysian Education Blueprint (Higher Education) 2015–2025, both of which emphasize the importance of environmental sustainability in education.

Delving into future directions, subsequent research should transcend the conceptual model and integrate primary data collection methodologies, such as surveys and interviews with Malaysian university students, to empirically substantiate the proposed relationships and hypotheses. This approach will enhance the reliability and generalizability of the framework. Furthermore, the model can be enriched by incorporating moderating variables, such as student demographics (e.g., gender, age, field of study) and institutional resources (e.g., entrepreneurship centers, sustainability initiatives), to elucidate potential variations in sustainable entrepreneurship intentions.

For broader applicability, future studies are encouraged to conduct comparative analyses across multiple universities, considering both research-intensive and teaching-focused institutions. Integrating case studies of successful Malaysian sustainability campaigns could also provide contextual depth and highlight best practices that resonate with the local educational environment. By addressing these directions, future research will not only validate the conceptual model but also provide practical pathways for enhancing sustainable entrepreneurship intention among Malaysian students.

## CONCLUSIONS

This conceptual paper underscores that sustainability education and sustainability campaigns are essential drivers of sustainability awareness among Malaysian university students. Education for Sustainable Development (ESD)



offers a structured platform to embed knowledge, skills, and values into curricula, but its impact in Malaysia is often constrained by uneven implementation and limited integration across disciplines. Cultural attitudes that prioritize short-term economic gain over long-term sustainability further challenge students' ability to translate classroom knowledge into practice. By aligning ESD more closely with local realities—such as tailoring content to different regions and addressing misconceptions about the costs of sustainable practices—universities can enhance its relevance and effectiveness.

Similarly, sustainability campaigns play a vital role in moving awareness from theory to practice, yet they are not always designed with Malaysia's diverse socio-cultural landscape in mind. Successful initiatives must consider demographic differences, urban–rural divides, and the varying levels of institutional resources across public universities. Campaigns that connect sustainability with Malaysian identity and community values—such as collective responsibility, harmony with nature, and Islamic principles of stewardship—have the potential to resonate more deeply and drive lasting behavioral change.

By addressing these context-specific challenges, the proposed conceptual model moves beyond theoretical discussion to offer a framework for action. It highlights how education and campaigns, when adapted to Malaysia's cultural, institutional, and policy environment, can cultivate a generation of students equipped not only with sustainability awareness but also with the motivation and capacity to become sustainable entrepreneurs. In this way, the model supports national aspirations outlined in the Malaysia Education Blueprint and the National Entrepreneurship Policy, bridging the persistent gap between policy ambitions and actual student practices.

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