

Exploring Sustainable Development in Jamaican Education: Trends, Insights and Future Implication

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Abstract: *This research study examines sustainable development trends within Jamaica's education sector focusing on educators' and students' perceptions of sustainable practices. Utilising a mixed-methods approach, data were collected from 20 educators and 40 students across Kingston, St. Andrew, and St. Catherine. The instruments used for this study including questionnaires, focus group discussions and interviews to gather quantitative and qualitative data, over a three month-period. The findings provided valuable insights into the current trends prevailing in sustainable development, which are integration into curriculum, experiential learning approaches, teacher training and professional development, interdisciplinary collaboration, and community engagement. Additionally, 82% of the students and 100% of the educators shared that they believed that sustainable practices in education is very important inside and outside the classroom. Findings revealed that while awareness of sustainable development is generally positive, significant gaps exist in educators' preparedness to these concepts. The study underscores the need for enhanced professional development and more integrated sustainability initiatives within the curriculum to better equip both educators and students for future challenges.*

Keywords: Sustainable development, Education, Trends, Insights

1. Introduction and Literature Review

The global landscape of education is continually evolving, and the imperative sustainable development within the education sector has never been more critical as educational institutions adapt to meet the needs of current and future generations. Sustainable development is driven by the urgent need to address environmental degradation, social inequalities, and economic instability [1]. As the world faces these challenges like climate change, resource depletion, and social unrest, the concept of sustainable development has emerged as a guiding framework for creating more balanced and resilient future. These global priorities have led to the integration of sustainability principles across various sectors, including education, which plays pivotal role in shaping the knowledge, skills, and values needed to drive sustainable change. By embedding sustainability into educational systems, institutions can equip learners with the tools necessary to contribute to a more sustainable world. Educational institutions are uniquely positioned to influence the next generation's attitudes and behaviours toward sustainability. As centres of learning, they have the responsibility to not only impart knowledge but also to cultivate critical thinking, ethical reasoning, and a sense of global citizenship among students. By integrating sustainable practices into their operations, curricula, and campus culture, educational institutions can model and promote sustainable behaviours, encouraging students to adopt these practices in their personal and professional lives. Furthermore, by embedding sustainability into education, institutions can help students understand the interconnectedness of environmental, social, and economic issues, preparing them to address complex global challenges with innovative and ethical solutions. Moreover, the convergence of sustainability and education creates a powerful platform for addressing some of the most pressing challenges of our time. Education for sustainable development (ESD) emphasises the importance of equipping learners with the knowledge, skills, and values necessary to contribute to sustainable solutions [1]. Through this approach, educational institutions can empower students

to critically analyse and respond to environmental issues such as climate change and biodiversity loss, as well as social challenges like inequality and poverty. By fostering an understanding of the economic implications of unsustainable practices, education can also promote the development of more sustainable economic systems. The intersection of these fields thus offers a pathway to a more just and resilient future. As such, it is important to keep abreast of current trends and insights in sustainable development within the education sector which is vital for informing the creation of relevant and effective policies, practices, and curricula. As the landscape of education and sustainability evolves, it is crucial for educators, policymakers, and institutions to stay informed about emerging best practices, innovative teaching methods, and the latest research in this field. Through understanding these trends, educational institutions can develop curricula that are not only aligned with global sustainability goals but also responsive to the specific needs of their students and communities. Many studies from institutions and/ or entities such as the University of Melbourne, UNESCO and NEPA has emphasised the importance of integrating sustainability principles across educational curricula at all levels, from primary to tertiary education. This integration ensures that students develop a holistic understanding of sustainability and its implications for various disciplines [1, 2, 3]. Also, based on research, experiential learning approaches such as project-based learning, outdoor education, and community engagement were found to be very effective in promoting sustainable development. These approaches allow students Presently in Jamaica, there has mostly been environment education for sustainable development through NEPA which focuses on environmental awareness of culture, climate and their effects as well as resources needed to satisfy the need for shelter, clothing and food [2]. This initiative has started at the primary school level in subjects such as social studies which has progressed into the high schools [2]. It has also been emphasised that there is need for comprehensive teacher training programmes that equip educators with the knowledge, skills, and resources to incorporate sustainability into their teaching practices [1, 2, 3].

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Professional development opportunities and resources are crucial for empowering teachers to effectively integrate sustainability across the curriculum. Engaging students in sustainability initiatives within and beyond the classroom is essential for promoting active citizenship and environmental stewardship. As such Jamaican educational institutions has taken initiatives such as student-led projects, clubs, and extracurricular activities to help foster a culture of sustainability within the educational institutions. For example, presently schools have been provided with containers to collect plastic bottles which has been developed as a competition as well as taking other recyclable materials to make things to benefit the institutions or as a project [2]. Additionally, effective assessment tools and methodologies are need to measure students' understanding of sustainability concepts and their ability to apply them in real-world scenarios. Research highlights the importance of developing authentic assessment tasks that assess critical thinking, problem-solving, and decision-making skills related to sustainability [1, 2, 3]. This knowledge can guide the development of policies that support the integration of sustainability into all aspects of education, from classroom instruction to campus operations. Moreover, collaboration between educational institutions, government agencies, NGOs, and local communities is critical for advancing sustainable development in education [1, 2, 3]. Partnerships facilitate resource-sharing, knowledge exchange, and collective action to address complex sustainability challenges. With this in mind, this study aimed to investigate and highlight innovative approaches and best practices in integrating sustainability into educational frameworks, with the goal of fostering a more resilient and equitable future. By examining how sustainability is currently being incorporated into education, the study will identify effective strategies for embedding sustainable practices into curricula, teaching methods, and institutional policies. Consequently, the following research questions were examined:

- 1) What are the prevailing trends in sustainable development within the education sector of Jamaica?
- 2) How do educators and students perceive the importance of sustainable practices in shaping the future of education in Jamaica?

1.1. Definition of Terms

- a) **Sustainable Development** – this is a holistic approach to development that seeks to meet the needs of the present without compromising the ability of future generations to meet their own needs [1, 2, 3]. It encompasses three main pillars: economic growth, social inclusion, and environmental protection.
- b) **Sustainable Development Goals (SDGs)** – this is defined as a set of 17 global goals established by the United Nations in 2015 as part of the 2030 Agenda for Sustainable Development [1]. These goals are designed to address global challenges, including poverty, inequality, climate change, environmental degradation, peace, and justice, with Goal 4 focusing specifically on quality education.
- c) **Sustainable Practices** – this is defined as the actions, strategies, and processes that aim to maintain or improve the quality of life for current and future generations by minimizing negative environmental impacts, promoting

social equity, and ensuring economic viability [1]. These involve the responsible management of resources, reducing waste, conserving energy, and fostering practices that support long-term ecological balance. In the context of education, sustainable practices can include the incorporation of environmental education into the curriculum, using energy-efficient technologies in schools, promoting inclusive and equitable learning environments, and encouraging behaviours that support sustainability in both the classroom and wider community.

- d) **Education for Sustainable Development (ESD)** – this is an educational approach that aims to empower learners with the knowledge, skills, values, and attitudes necessary to contribute to sustainable development [1]. ESD promotes critical thinking, problem-solving, and participatory teaching and learning methods that motivate and empower learners to take action for sustainable development
- e) **Sustainability in Education** – this is defined as the integration of sustainable practices into all aspects of education, including curriculum design, teaching methods, and community engagement [1]. It involves creating learning environments that promote environmental stewardship, social responsibility and economic viability.
- f) **Trends in Sustainable Development in Education** – this is defined as current patterns, practices, and innovations in education that reflect a shift towards sustainability. These trends may include the incorporation of environmental education into curricula, the adoption of green technologies in schools, and the promotion of social equity and inclusion in educational policies and practices.

2. Methodology

2.1 Study Design

This study was developed using a mixed methods survey design approach.

2.2 Participants

The research was done with twenty (20) educators and forty (40) students across diverse institutions such as high school, colleges, and universities. These participants were from educational institutions across Kingston, St. Andrew, and St. Catherine.

2.3 Instruments and Data Analysis

The instruments used throughout the study were: questionnaires, interviews, and focus group discussions. The data collected was analysed using coding and thematic analysis, quantitative analysis, and descriptive statistics.

3. Results

The results of this study are organised, presented and discussed according to the research questions.

3.1 Results Based on Research Question 1

What are the prevailing trends in sustainable development within the education sector of Jamaica?

The findings indicated that the majority of students and educators in Jamaica's education sector have a foundational understanding of sustainable development. It is revealed that the students and educators have a generally positive outlook on the awareness of sustainable development. The fact that only 9% of the students as seen in **Figure 1** and 20% of the educators as seen in **Figure 2** reported being completely unfamiliar with sustainable development in education suggests that the majority are at least somewhat engaged with the topic. This level of awareness is encouraging as it indicates that sustainability is becoming increasingly integrated into the educational consciousness in Jamaica. However, the gap between students and educators in terms of familiarity – where a higher percentage of educators (20%) compared to students (9%) are completely unfamiliar with sustainable development – highlights an area that requires attention. Educators are key facilitators of knowledge and play a crucial role in embedding sustainable practices and principles into the curriculum and daily learning experiences. The findings suggest that while awareness exists, there is a need for targeted professional development and training to deepen educators' understanding and ability to teach sustainability effectively.

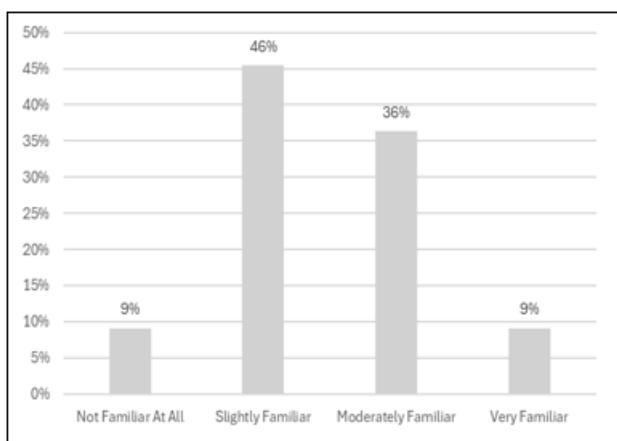


Figure 1: Students familiarity with the concepts of sustainable development in education

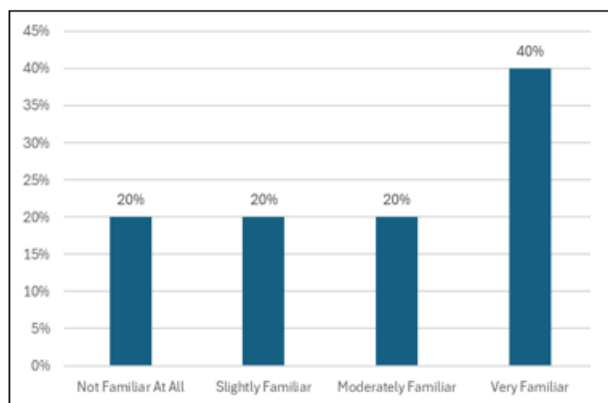


Figure 2: Educators familiarity with the concepts of sustainable development in education

Additionally, the data underscores the importance of continuous efforts to enhance sustainable education, not just

by introducing basic concepts but by providing more comprehensive and immersive learning experiences. This could involve practical applications, interdisciplinary approaches, and the integration of sustainability across various subjects. By addressing the gaps in educators' familiarity with sustainable development, Jamaica's education system can strengthen its commitment to the UNESCO sustainability goals and Jamaica's own sustainability initiatives, ensuring that all educators are well-prepared to inspire and guide students toward a more sustainable future.

Moreover, based on the collected data, several trends and indicators have emerged that illustrate how sustainability is being integrated into educational practices across the country. The integration of sustainability into the curriculum was found to be a significant trend within Jamaican education (see **Table 1**). This includes the incorporation of sustainability-focused projects, the integration of case studies related to sustainability, and the inclusion of current events that highlight sustainable practices. These curricular changes are designed to engage students with real-world sustainability challenges and to encourage them to think critically about solutions. Experiential learning has become a key component of sustainable education in Jamaica. Approximately 38% of the students shared in the interview and on the questionnaire that they have been participating in hands-on activities such as cleaning mangroves, beach clean-ups, recycling plastic bottles, and practicing energy conservation. These activities not only promote environmental stewardship but also enhance students' understanding of the importance of sustainability in their daily lives. The study also revealed that the same 38% of the students has seen a shift towards professional development activities including sustainability-focused training at the teachers colleges. Courses such as environmental studies and special education are being emphasised, along with educational workshops, webinars, and local food and agricultural programmes (see **Table 1**). This trend highlights the importance of equipping teachers with the knowledge and skills necessary to effectively integrate sustainability into their teaching practices [4]. Moreover, students have engaged with sustainability through various practical experiences, including field trips related to environmental conservation and exposure to sustainable energy projects like solar energy. These experiences have helped to solidify their understanding of sustainability and its relevance to their education and future.

The findings highlight a significant and promising shift toward interdisciplinary collaboration in the Jamaican education sector, particularly in the context of sustainability. The study revealed the unanimous response (100%) from the educators and a substantial portion (38%) of the students [from the teachers' colleges] reflects a growing recognition of the importance of breaking down traditional subject boundaries to address the multifaceted nature of sustainability challenges.

STEM (Science, Technology, Engineering, and Mathematics) projects, in particular, are emerging as a platform for this interdisciplinary approach. By involving both the science and mathematics departments in collaborative initiatives, educators are creating opportunities for students to see how

different disciplines interconnect and contribute to solving real-world problems. This not only enhances students' understanding of sustainability but also equips them with the critical thinking and problem-solving skills necessary to address complex environmental, social, and economic issues. The integration of interdisciplinary activities into lesson development is a crucial step forward in fostering a more holistic educational experience. By engaging in projects that require the application of knowledge from multiple fields, students are encouraged to move beyond siloed thinking that often characterizes traditional education. Instead, they learn to approach sustainability challenges from a systems perspective, recognising the interdependencies between various aspects of society and the environment.

Moreover, this trend of interdisciplinary collaboration aligns with global educational goals, such as those outlined by UNESCO, which emphasise the need for education systems to prepare students for the complexities of the modern world. By fostering collaboration across or between different subject areas, Jamaican educators are helping to develop a generation of students who are not only knowledgeable but also capable of working across disciplines to create innovative solutions for a sustainable future.

Table 1: Prevailing trends in sustainable development within the education sector of Jamaica

Trends	Indicators
Integration into curriculum	Sustainability-focused projects, integration of case studies, integration of current events
Experiential learning approaches	Cleaning of mangroves, beach clean-ups, recycling plastic bottles, energy conservation
Teacher training and professional development	Courses such as environmental studies, philosophy of education, and special education are taught, educational workshops and webinars, local food and agricultural programmes
Interdisciplinary collaboration	STEM initiatives joining science and mathematics department, lesson development inclusive of interdisciplinary activities
Community engagement	Community workshops and seminars, parent and community advisory committees, local media engagement

3.2 Results Based on Research Question 2

How do educators and students perceive the importance of sustainable practices in shaping the future of education in Jamaica?

The study's findings indicated a strong consensus among both students and educators regarding the importance of sustainable practices in shaping the future of education in Jamaica. Students' perceptions of sustainability are largely positive, with 55% perceiving sustainable practices are very important and 27% as extremely important in shaping the future of education in Jamaica (see **Figure 3**). This demonstrates that a majority of students not only recognise but also deeply value the role of sustainability in the educational landscape. These perceptions suggest that students are increasingly aware of the long-term benefits of integrating sustainability into education, understanding its potential to address pressing environmental and societal challenges in Jamaica. Similarly, educators exhibit a strong commitment to sustainability, with 60% considering it very

important and 40% extremely important (see **Figure 4**). This alignment between students and educators highlights a shared belief in the critical role that sustainable practices play in preparing future generations for the challenges they will face. Educators' emphasis on sustainability is further evidenced by the integration of these themes into various aspects of the curriculum. For example, courses such as those found in environmental studies, special needs education, and health and family life (HFLE) are incorporating sustainability as a core element, reflecting the importance placed on these practices in shaping the educational experience.

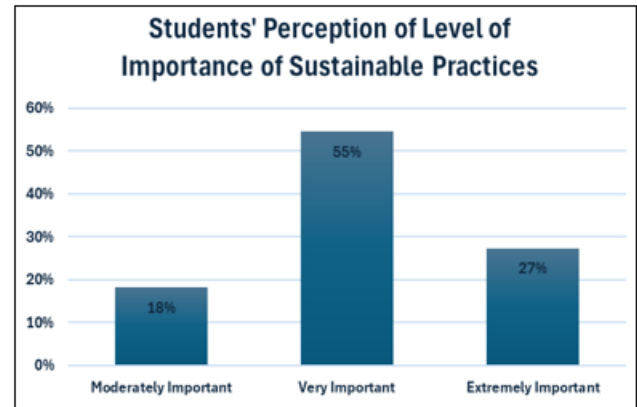


Figure 3: Students' Perception of Level of Importance of Sustainable Practices

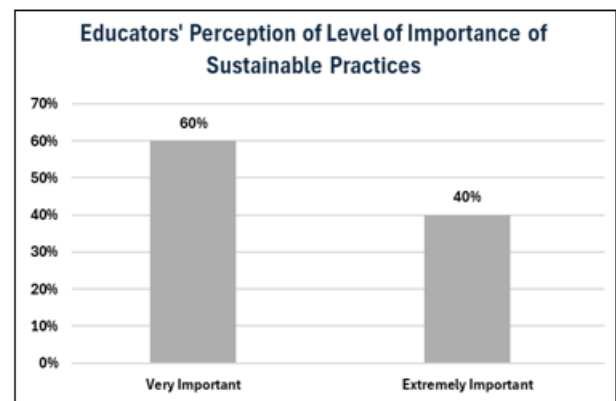


Figure 4: Educators' Perception of Level of Importance of Sustainable Practices

The study revealed that a significant portion of students in the educational institutions under investigation demonstrated a commitment to making environmentally sustainable choices. Specifically, 46.2% of students reported that they frequently make decisions that are guided by principles of environmental sustainability (see **Figure 5**). This indicated a high level of awareness and conscientiousness among nearly half of the students who participated in the study regarding the impact of their actions on the environment. Additionally, 38.5% of the students shared that they moderately often make such choices, suggesting that a considerable number of students are somewhat consistent in their environmentally-friendly behaviours. However, 15.4% of the students indicated that they only occasionally consider environmental sustainability when making decisions, highlighting a potential area for improvement. This variation in behaviour underscores the need for continued education and awareness campaigns to encourage more consistent sustainable practices among all students. The findings also shed light on how students

perceive the importance of their educational institution’s efforts to promote and incorporate sustainability into its operations and curriculum. A majority of students, 53.8%, believed that it is very important for their institution to actively engage in sustainability initiatives. This sentiment is further reinforced by the 23.10% of them who considered it extremely important, demonstrating a strong demand among students for their institution to prioritise sustainability. Conversely, a smaller percentage of students, 15.4%, view these efforts as moderately important, and 7.7% perceive them as only slightly important. The fact that a majority of students, recognise the importance of sustainability efforts by their institutions suggests that there is a solid foundation of support for further integrating sustainable practices into the educational environment. However, the presence of students who rate the importance as moderate or slight indicates that there may still be a need to communicate the significance of sustainability more effectively, ensuring that all students understand its relevance and value in both their education and broader societal context.

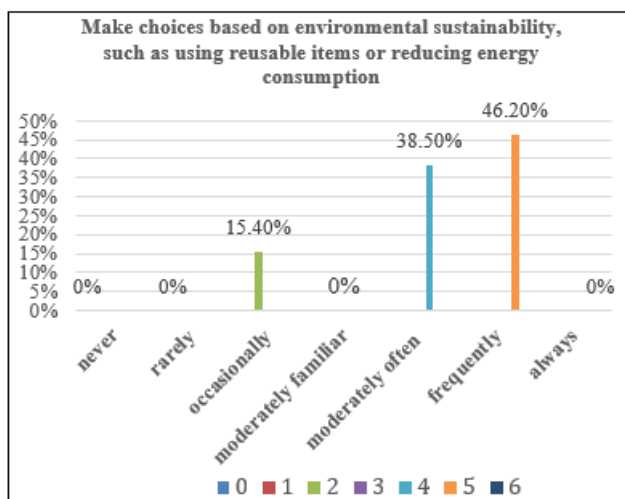


Figure 5: The extent to which students’ make choices based on environmental sustainability

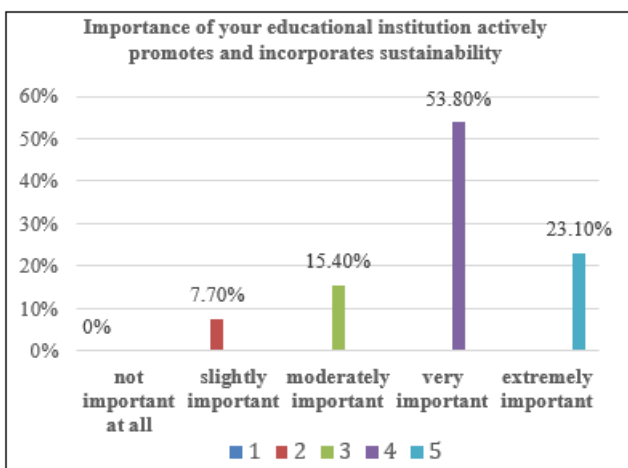


Figure 6: The level of importance students’ educational institution actively promotes and incorporates sustainability

The alignment between student and educator perceptions suggests a fertile ground for further embedding sustainability into the educational system. The integration of sustainability themes into coursework not only enriches the educational content but also equips students with the knowledge and skills

necessary to contribute to a more sustainable future. By fostering a shared understanding and commitment to sustainability, the educational system in Jamaica is better positioned to cultivate a generation of informed and responsible citizens who are capable of making significant contributions to the country’s sustainable development goals. This widespread recognition of sustainability among both students and educators underscores the potential for education to play a pivotal role in Jamaica’s broader efforts toward environmental, social, and economic sustainability.

4. Further Discussion and Implications

The findings reveal a notable gap in educators’ confidence and preparedness to integrate sustainability into their teaching practices (see Figure 7). Only 33.3% of educators feel they are equipped to some extent, with no respondents feeling completely prepared. In contrast, a significant proportion, 41.7%, report that they rarely feel adequately equipped, and 8.3% feel not at all prepared. This suggests a critical need for enhanced professional development and support systems to better equip educators with the necessary skills and knowledge. The neutral stance of 16.7% of educators further highlights the uncertainty and inconsistency in the current training and resources available, which may be insufficient in providing educators with the confidence to effectively teach sustainability concepts.

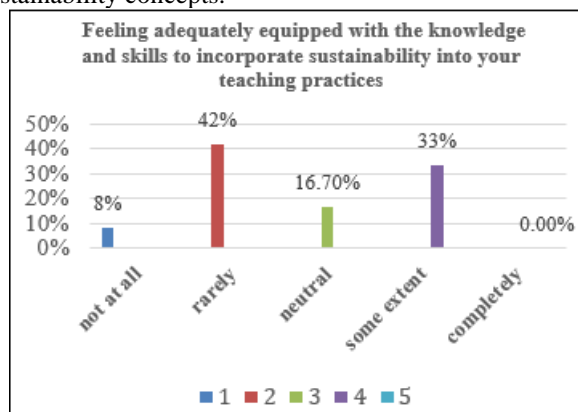


Figure 7: Educators’ rate whether or not they are adequately equipped to incorporate sustainability into their teaching practices

Moreover, in addressing how professional development programmes can better support educators in promoting sustainable practices, the responses highlight several key areas (see Figure 8). The most significant responses emphasise the need for incorporating practical applications (41.7%) and fostering collaborative learning communities (41.7%). This indicates that educators value hands-on, experiential learning opportunities and the ability to learn from and with their peers. Customisation and differentiation (33.3%) also emerged as a priority, suggesting that educators seek professional development tailored to their specific needs and contexts. Continuous learning opportunities (33.3%) and integration with curriculum standards (25%) are also seen as vital, pointing to the importance of ongoing support and alignment with educational objectives. While fewer educators (16.7%) highlighted the need for pedagogical approaches for active learning, this indicates an area that may require more attention in professional development programmes. The relatively low emphasis on access to resource libraries (8.3%)

suggests that while resources are necessary, they are not seen as a primary solution compared to more interactive and community-based approaches.

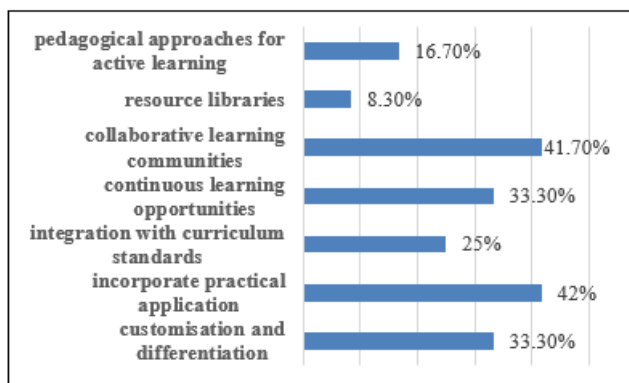


Figure 8: Educators’ belief of professional development programmes that can support them in promoting sustainable practices

On the other hand, the availability of opportunities for students to engage in sustainability initiatives appears to be moderate, with 53.8% of educators rating the opportunities as adequate (see **Figure 9**). However, a significant portion of educators still view these opportunities as limited (15.4%) or very limited (7.7%), indicating room for improvement. Only a small percentage (7.7%) consider the opportunities to be excellent, highlighting a potential area for growth in creating more meaningful and impactful student engagement in sustainability. The findings suggest that while some progress has been made in offering students chances to participate in sustainability projects, there is still a considerable need to expand and enhance these opportunities to ensure more widespread and effective involvement.

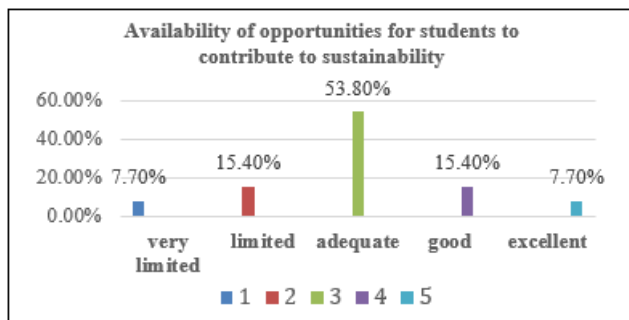


Figure 9: Rating the availability of opportunities for students to contribute to sustainability

Additionally, when it comes to feeling empowered to suggest or implement sustainability practices within the student body, the findings show a mixed response. While 23.1% of students feel empowered to some extent, only 7.7% feel completely empowered (see **Figure 10**). The majority, however, either feel neutral (38.5%), rarely empowered (23.1%), or not empowered at all (7.7%). This lack of empowerment among a significant portion of students could be a barrier to the effective promotion and integration of sustainability within educational institutions. It suggests that while there may be awareness and recognition of the importance of sustainability, students may not feel supported or confident enough to take initiative in this area. Addressing this issue will likely require systemic changes, including stronger institutional support,

clearer pathways for action, and fostering a culture of empowerment where students feel their contributions to sustainability are valued and encouraged.

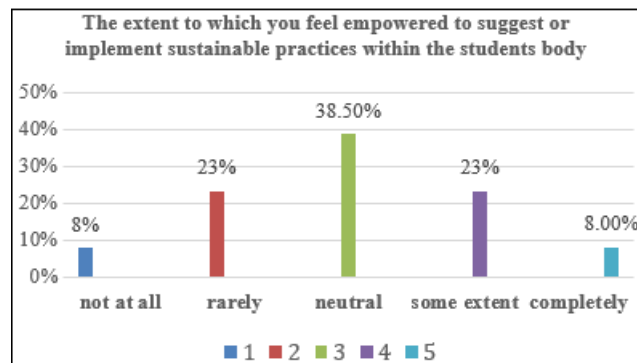


Figure 10: The extent to which students feel empowered to suggest or implement sustainable practices within the students’ body

Overall, the study’s findings shed light on the prevailing trends in sustainable development within the Jamaican education sector, revealing both progress and areas needing further attention. Notably, the integration of sustainability into the curriculum and educational practices is on the rise, evidenced by the incorporation of sustainability-focused projects, experiential learning approaches, and interdisciplinary collaboration. These efforts align with UNESCO’s Sustainable Development Goals (SDGs) for education, particularly SDG 4.7, which emphasises the importance of education for sustainable development [1]. However, the findings also indicate that there is a considerable gap in the preparedness of educators feeling adequately equipped to teach sustainability concepts, it is clear that professional development programmes must be enhanced to provide educators with the necessary tools and confidence. The perceptions of educators and students towards the importance of sustainability in shaping the future of education in Jamaica are largely positive, which is encouraging for the continued integration of sustainable practices into the educational framework. A majority of both educators and students recognise the significance of sustainability, with many viewing it as very important or extremely important for the future of education. This shared recognition underscores the potential for sustainability to be a transformative force within the Jamaican education system, aligning with both UNESCO’s and Jamaica’s sustainability education goals [1, 2]. However, the disparity between this recognition and the actual empowerment and preparedness to implement sustainable practices suggests that more systemic support is needed. Further discussion of the findings highlights key areas for improvement, particularly in terms of professional development for educators and the opportunities available for students to engage in sustainability initiatives. While there is a clear demand for practical, collaborative, and continuous learning opportunities for educators, the current availability of such programmes appears insufficient. Additionally, the limited opportunities for students to actively participate in sustainability projects suggest that educational institutions must do more to create and promote meaningful engagement in sustainability. To bridge these gaps, educational policies and curricula must be refined to better support educators and students, fostering a more empowered and proactive approach to sustainability in education.

Based on the finding and discussions, several key implications arise for the future of sustainable development within Jamaica's education sector:

(a) **Need for Comprehensive Professional Development:**

The findings highlight a significant gap in educators' confidence and preparedness to teach sustainability, suggesting an urgent need for enhanced professional development programmes. These programmes must be tailored to provide practical applications, continuous learning opportunities, and collaborative learning communities. By aligning professional development with UNESCO's SDG 4.7, which emphasises education for sustainable development, Jamaica can equip its educators with the skills and knowledge necessary to integrate sustainability into teaching practices effectively. This will ensure that educators are not only aware of sustainability concepts but are also capable of translating them into meaningful classroom experiences.

(b) **Enhanced Integration of Sustainability into Curriculum:**

The trend of incorporating sustainability into the curriculum is promising, but the findings indicate that this integration is not yet pervasive or consistent across all educational institutions. There is a clear opportunity to strengthen this integration by aligning curriculum development with both UNESCO's and Jamaica's sustainability education goals. By embedding sustainability themes more deeply into coursework and promoting interdisciplinary collaboration, educational institutions can better prepare students to address the complex environmental, social, and economic challenges of the future.

(c) **Expanding Opportunities for Student Engagement:**

While there is some progress in providing opportunities for students to engage in sustainability initiatives, the findings suggest that these opportunities are still limited. To foster a more active and engaged student body, schools must create more meaningful and impactful avenues for students to participate in sustainability projects. This could include expanding experiential learning opportunities, such as community-based projects and environmental stewardship programmes, which align with Jamaica's Vision 2030 goals and UNESCO's emphasis on practical sustainability education.

(d) **Empowerment and Support for Sustainable Practices:**

The mixed responses regarding students' and educators' empowerment to suggest or implement sustainable practices indicate a need for stronger institutional support and clearer pathways for action. Educational institutions should focus on fostering a culture of empowerment where both educators and students feel confident and supported in promoting sustainability initiatives, offering incentives for innovative ideas, and ensuring that all members of the school community understand the importance of their contributions to achieving sustainable development goals.

5. Conclusions

The study highlights both progress and challenges in advancing sustainable development within Jamaica's

education sector. As such, the following conclusions were made:

- 1) While educators and students recognised the critical importance of sustainability, there are significant gaps in educators' preparedness and confidence to effectively integrate sustainability into their teaching practices.
- 2) There is a need for enhanced professional development programmes that offer practical, collaborative, and tailored support, aligned with both UNESCO's and Jamaica's sustainability education goals.
- 3) The opportunities for student engagement in sustainability initiatives remain limited, indicating a need for more robust and impactful avenues for student participation.
- 4) Educational institutions must foster a culture of support, empowerment, and continuous learning, ensuring that sustainability becomes an integral and actionable part of the educational experience in Jamaica.

6. Recommendations

Here are a few recommendations based on the findings of this study:

(a) **Strengthen Professional Development for Educators:**

Given the identified gaps in educators' preparedness to integrate sustainability into their teaching practices, it is recommended that the Jamaican education sector invest in comprehensive professional development programmes. These programmes should focus on practical, hands-on experiences and encourage collaborative learning communities where educators can share best practices and resources. Tailoring professional development to meet the specific needs and contexts of educators will ensure that they are better equipped to effectively teach sustainability concepts.

(b) **Enhance Interdisciplinary Collaboration:**

The study revealed a growing trend of interdisciplinary collaboration, particularly in STEM projects, which is crucial for addressing complex sustainability challenges. To further encourage this, educational institutions should formalise and expand interdisciplinary initiatives across all levels of education. Creating structured programmes that integrate subjects like science, technology, engineering, mathematics, and humanities will help students develop a holistic understanding of sustainability and its real-world applications.

(c) **Increase Opportunities for Student Engagement in Sustainability:**

Create more opportunities for students to participate in sustainability initiatives, both within and outside the classroom. Schools and colleges should develop programmes that encourage student-led sustainability projects, internships, and partnerships with local communities and organisations. While some progress has been made in providing students opportunities to engage in sustainability, the study indicates room for improvement. By increasing student involvement, educational institutions can foster a greater sense of ownership and empowerment among students, preparing them to be proactive contributors to sustainable development.

(d) **Develop and Implement a National Sustainability Framework:**

The Jamaican education sector should develop and implement a national sustainability

education framework that aligns with UNESCO's Education for Sustainable Development (ESD) goals and Jamaica's national development plans. This framework should provide clear guidelines and objectives for integrating sustainability into all levels of education from primary to tertiary. A well-defined national framework will ensure a consistent and coherent approach to sustainability education across Jamaica. It will help standardise practices, support curriculum development and provide a roadmap for schools and colleges to follow in their efforts to promote sustainability.

- (e) **Promote Ongoing Research and Evaluation:** Establish mechanisms for ongoing research and evaluation of sustainability education practices within Jamaican institutions. This should include regular assessments of educator preparedness, student engagement, and the effectiveness of interdisciplinary collaborations. Continuous research and evaluation will help identify areas for improvement and ensure that sustainability education remains responsive to evolving challenges and opportunities. By keeping track of progress, Jamaican educational institutions can adapt and refine their approaches to sustainability education, ensuring long-term success.

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7. Limitations

The study's limitations primarily stem from the scope and methodology employed for this study which impacted the breadth and depth of the findings. Firstly, the sample size of educators and students was small [limited], which does not fully represent the diverse perspectives across Jamaica's education sector. This is mostly because persons were a little edgy about this type of research and its nature due to their understanding of sustainable development in education which seems to be mostly tied to technology and climate change. Even though they were given an overview of what the study is truly about, persons still were hesitant to participate. As such, this could affect the generalisability of the results to all educational institutions in the country.

Acknowledgements

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