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EXPLORING GREEN ECONOMY AWARENESS AMONG TVET INSTITUTION STUDENTS

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Abstract:

In response to pressing environmental challenges, raising awareness of the green economy among students is critical for sustainable development. This study investigates the level of green economy awareness among students in a TVET institution in Borneo, Malaysia. Using a quantitative descriptive research design, data were collected from 309 students using a structured questionnaire. The analysis revealed a moderate level of awareness of green economy principles and sustainable practices. While students showed enthusiasm for activities such as recycling and reusing materials, participation in broader sustainability initiatives was limited. The study highlights the need for improved educational strategies and institutional support to foster a deeper understanding and active engagement in green economy practices among students. The findings suggest that a significant contribution to the development of environmentally aware future professionals can be made by integrating green economy concepts into the curriculum and extracurricular activities.

Keywords:

Green Economy, TVET, Awareness

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Introduction

In an era marked by environmental challenges and a pressing need for sustainable solutions, the role of education in shaping the perceptions and behaviours of the younger generation has become increasingly pivotal. Among the various initiatives aimed at fostering a sustainable future, the introduction of green economy concepts to students emerges as a key driver of change (Murga-Menoyo, 2014 & Beynaghi et al., 2016). As our planet grapples with issues like climate change, resource depletion, and pollution, the urgency to increase environmental awareness and eco-friendly practices in the minds of the youth cannot be overstated.

The term "green economy" encapsulates a holistic approach to economic activities that prioritize environmental sustainability alongside social well-being (Morgera & Savaresi, 2013). It involves reshaping industries, policies, and individual behaviours to minimize ecological impact and enhance resilience to environmental challenges. Recognizing the potential impact that students can have as future decision-makers, innovators, and consumers, integrating green economy principles into their educational experience is a strategic and forward-thinking endeavour (Almusaed, Yitmen & Almssad, 2023).

However, despite the increasing significance of this shift, a noticeable deficiency exists in the awareness of green economy principles, practices, and benefits among students. This lack of awareness poses a significant obstacle to fostering a well-informed generation and actively engaging in sustainable practices (Martínez-Peláez et al., 2023). Understanding and addressing the factors contributing to insufficient awareness among students is crucial for promoting environmental consciousness and ensuring their meaningful participation in building a more sustainable future. Therefore, this study seeks to investigate the current level of awareness of the green economy among students and promote a greener mindset among the student population.

Literature Review

The statement highlights the important theme of the role of education and upbringing in enhancing environmental awareness and its influence on consumer purchasing decisions. Wibowo (2011) and Utami, Susilo & Wibowo (2020) indicate that environmental knowledge and awareness can significantly impact consumer behaviour.

Effective education on environmental issues within both educational institutions and families can shape a better understanding among consumers regarding the environmental impact of products (Alam, 2022). Through this approach, consumers are more likely to choose environmentally friendly products when making purchases. This suggests that both the business world and the government can play a crucial role in increasing environmental awareness through educational campaigns and training programs (Fryxell & Lo, 2003).

By understanding the relationship between environmental knowledge, consumer awareness, and purchasing decisions, it can be acknowledged that collaborative efforts between the education sector, businesses, and the government have great potential to create a more environmentally conscious society. Educational campaigns can provide clear and relevant information about the environmental impacts of products and services, while training programs can reinforce this understanding and provide practical skills to consumers for making more sustainable choices (Dwivedi et al., 2023). For example, businesses can take the initiative to create more environmentally friendly products, while the government can support campaigns

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and training programs aimed at increasing environmental awareness among the public. Thus, collaboration among various sectors can lay a solid foundation for creating a more environmentally responsible society.

However, it is important to note that education is not merely about increasing knowledge but also involves attitudes and behaviours (Kumah et al., 2022). Therefore, educational strategies need to be designed to create a deep understanding of the importance of good environmental practices and to foster strong environmental awareness among consumers (Mardalis, Suryaningsih & Rachman, 2021). Although environmental awareness can have a positive impact on guiding the purchasing decisions of consumer societies, it still needs to overcome certain challenges. One of the main challenges is greenwashing, which refers to the practice of companies claiming to be environmentally friendly without taking real actions to support such claims.

Sophisticated consumers are becoming more critical of these claims, which can lead to a loss of trust in companies that do not follow the environmentally friendly practices they claim. Additionally, businesses also face challenges in ensuring that their products and services are genuinely environmentally friendly. This includes specific measures in the supply chain, production processes, and the use of environmentally friendly materials. Sustainability and corporate social responsibility (CSR) have become key factors in maintaining business integrity and meeting the increasing expectations of consumers (Tamvada, 2020).

Despite the challenges, there are also significant opportunities in implementing environmental awareness. As consumers become more concerned about environmental issues, businesses could meet the growing market demand with products and services consistent with environmental values (Fukuda & Ouchida, 2020). Focusing on environmentally friendly innovation, increased transparency, and sustainable business practices can help companies gain consumer trust and strengthen their position in the market. Overall, this discussion highlights the importance of education, transparency, and sustainability in implementing environmental awareness in business and encouraging consumers to make more environmentally friendly purchasing decisions. This report also underscores the challenges and opportunities faced by the business world in meeting the expectations of increasingly environmentally conscious consumers (Carroll, 2021).

Methodology

This study uses a quantitative approach to investigate the level of awareness of the green economy among students of a TVET institution. The question has been adapted from previous study Bashirun et al. (2016). Using a descriptive design, the research was conducted in one of the TVET institution in Borneo, Malaysia. A total of 309 respondents were answered using convenience sampling. The data were collected using a questionnaire through a Google form. SPSS was used for quantitative data analysis. A reliability test was conducted, and necessary adjustments were made based on feedback to ensure validity. Participants gave informed consent, and all data were anonymized to ensure confidentiality. A limitation of this study is that it was conducted only in Borneo, Malaysia, which may limit the applicability of the findings to other geographical regions.

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Results and Discussion

Reliability Test

To administer a questionnaire, it must be reliable. Table 1 shows a reliability test simulated using IBM SPSS Cronbach's Alpha with 55 items indicate 0.987. In this case, Cronbach's alpha coefficient = 0.987 > 0.70, so the scale had good internal consistency and reliability. Case processing summary (valid = 253, excluded cases = 56, and total = 309) is illustrated in Table 2.

Table 1: Reliability Statistics

Cronbach's Alpha	N of Items
.987	55

Table 2: Case Processing Summary

		N	%
Cases	Valid	253	81.9
	Excluded[a]	56	18.1
	Total	309	100.0

a. Listwise deletion based on all variables in the procedure.

Descriptive Analysis

The demographics of the 309 respondents are segregated into 215 for female and 87 for male students from TVET institution in Borneo, Malaysia (see Table 3). Most respondents are aged between 18-20 years, followed by 43 for age between 21-25 years, 19 for age under 18 years and 3 for age between 26-30 years. The first-year students dominate 48% of this study and only 5% of fourth year students (extended semester) response to the survey. 29% of students took part in the survey having majors in engineering i.e. civil engineering, electrical engineering, and mechanical engineering and the rest are non-engineering students and most of them are on campus. The student with environmental studies is excluded from the study since it will contribute to a biased outcome. Almost 65% of respondents from this institution are seemly involved in extracurricular activities and clubs.

Table 3: Respondents Demographic Profile

	Frequency	Percent	Valid Percent	Cumulative Percent
Gender				
Female	215	69.6	69.6	71.8
Male	87	28.2	28.2	100.0
Age				
18 - 20	243	78.6	78.6	79.0
21 - 25	43	13.9	13.9	92.9
26-30	3	1.0	1.0	93.9
Under 18	19	6.1	6.1	100.0
Year of study				
First year student	148	47.9	47.9	48.2
Fourth year student	15	4.9	4.9	53.1

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Second year student	91	29.4	29.4	82.5
Third year student	54	17.5	17.5	100.0
Department of study				
Department of Civil Engineering	43	13.9	13.9	14.2
Department of Electrical Engineering	20	6.5	6.5	20.7
Department of Mathematics, Science and Computer	4	1.3	1.3	22.0
Department of Commerce	184	59.5	59.5	81.6
Department of Information & Communication Technology	30	9.7	9.7	91.3
Department of Mechanical Engineering	27	8.7	8.7	100.0
Residential				
Off-campus	16	5.2	5.2	6.5
On campus	289	93.5	93.5	100.0
Ethnicity				
Bidayuh	18	5.8	5.8	6.1
Chinese	17	5.5	5.5	11.7
Iban	91	29.4	29.4	41.1
India	7	2.3	2.3	43.4
Lain-lain	15	4.9	4.9	48.2
Malay	79	25.6	25.6	73.8
Melanau	60	19.4	19.4	93.2
Orang Ulu	21	6.8	6.8	100.0
Are you involved in Extracurricular Activities or Clubs?				
No	111	35.9	35.9	36.9
Yes	195	63.1	63.1	100.0
Total	309	100.0	100.0	

Awareness of The Green Economy

Based on Table 4, the frequency of respondents in green activities indicate an average mean of 4.26. Based on the results, 4.25 agreed that green activity gives a positive outcome to a healthy life. In addition, 4.29 prefer a clean environment with less 0.01 like to see the green environment is sustained. In addition, more than 4.00 respondents agreed that the green economy gives advantages in reducing pollution, overcoming global warming, and keeping environmentally safe. However, a green economy is time consuming. For involvement in green activity, most of the students are enthusiastic and agreed that reusing stuff, recycling paper, walking, and using their own container are the best options for a green economy. Least of them are interested in activities like cleaning roads or beaches, as well as attending green conferences. The main reason students are involved with the activities aforementioned above is to keep the environment clean.

Considering the awareness of the sustainability of the green economy, an average mean of 3.91 respondents understood the characteristics of sustainability cognizance. However, almost all items such as understanding the term sustainability, sustainable development goals (SDGs), and existing environmental problems are still within range 3. Besides, students seem not actively involved with the activity that promotes environmental awareness and sustainability

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in institutions, although 94% of them stay on campus. Taking consideration of campus involvement, most of the respondents agreed that the institution promotes sustainability awareness, and the activities related to the green economy are actively organized.

Table 4: Mean For Awareness of The Green Economy

No	Question	Mean	Std. Deviation
Frequency of Green Activities (Your understanding toward green activities)			
1	Green activity brings healthy daily life	4.25	.849
2	Green means show our love to earth	4.25	.854
3	I like clean environment	4.29	.869
4	It is directly related to our health	4.26	.881
5	I love to see green environment	4.28	.857
6	Our children will live in this environment	4.22	.899
Green Perception (Your perception towards green economy)			
7	Green economy preserving the world environment	4.12	.895
8	Green economy brings healthy to our daily life	4.19	.951
9	Green economy reflects our care for our planet	4.16	.959
10	Green economy involves the shift towards being more environmentally friendly	4.13	.920
11	Green economy will reduce harm to environment which caused by pollution	4.10	.977
12	Green economy keep environment safe	4.16	.936
13	Green economy has the potential to overcome global warming	4.08	.981
14	Green economy will lead to extra tasks and responsibilities in people's lives.	4.09	.969
15	Green economy requires too much time	3.88	1.029
Type of green activities you have been doing			
16	Recycle paper	4.13	.868
17	Resell newspaper	4.01	.915
18	Join earth hour	4.09	.873
19	Use public transport	4.08	.890
20	Reusing stuff	4.18	.865
21	Eat in Cafe	4.06	.930
22	Separate waste	4.01	.888
23	Walk more	4.18	.876
24	Buy organic food	3.98	.920
25	Join tree planting	3.91	.972
26	Use own container	4.15	.898
27	Clean road	3.89	.961
28	Clean beach	3.97	.954
29	Green walk	4.07	.976
30	Attend green conference	3.91	1.029
Your reason for involving in Green Activities			
31	Save energy	4.15	.895
32	Reduce waste	4.21	.887
33	Reduce pollution	4.19	.889

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34	Preserve environment	4.20	.884
35	Like Green Environment	4.25	.893
36	Clean environment	4.25	.883
37	Save earth	4.27	.885
38	Related to health	4.25	.898
39	Daily life	4.16	.864
40	Responsibility	4.25	.893
41	Keep environment clean	4.28	.890
42	Next generation	4.24	.903
43	Useful for future	4.26	.903
Characteristics of sustainability cognizance (Your awareness of the sustainability of the green economy)			
44	Have you ever studied environment science/environmental issues as a subject in your educational background?	4.03	.947
45	Are you aware of the term "sustainability"?	3.94	.916
46	Have you ever heard of sustainable development goals (SDGs)?	3.70	1.064
47	Are you aware of the existing environmental problems?	3.99	.910
48	Have you taken part in any project or activity organized by your campus to promote environmental awareness and sustainability?	3.83	.990
49	As per your opinion which of the following plays an important role in sustainability information awareness among students?	3.96	.904
Characteristics of Institutions' Influence			
50	Do you think you are more environmentally aware because of your institution?	3.94	.883
51	Does your institution promote sustainability awareness?	4.01	.851
52	Does your institution prefer printing less because it saves paper?	3.80	.974
53	Does your institution promote saving electricity?	3.97	.919
54	Did your instructor ever provide you with any article to enhance your environmental awareness and sustainability awareness regardless of the subject he/she is teaching?	3.93	.906
55	Characteristic of Attitude Towards Sustainability.	4.02	.861

Discussion

In Malaysia, the Ministry of Energy, Green Technology and Water is the main authority responsible for implementing any policy change. Throughout the green technology master plan Malaysia 2017 – 2030, there are five strategic thrusts for the development of conducive ecosystems which started from promotion and awareness (Ministry of Energy, Green Technology and Water, 2017). In current education, the component of green technology or green economy has become mandatory especially in technical vocational education and training (TVET), since most courses offered in some countries previously did not contain training in green economy (Jahonga, Ngore & Muramba, 2015).

The frequency of green activities that highlight students' understanding of green activities shows the highest score of mean reflecting a strong preference for maintaining a clean environment. This highlights that the majority of students generally value cleanliness and recognize its importance in maintaining a green environment in daily life. On the other hand, the lowest means slightly less emphasis on the long-term implications of environmental

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preservation for future generations. This may indicate a gap in connecting current actions with future outcomes. It signals to institutions an initiative to focus on fostering a deep understanding of intergenerational responsibility.

The next investigation is to evaluate the student's green perception of the green economy. The highest mean score indicates that students strongly perceive the green economy as contributing positively to their daily health. It can relate to students understanding that a green economy emphasizes sustainable practices and promotes overall health. For example, students well-known that the need for clean air and water, access to fresh and organic food, reduction in waste and pollution, and promoting of active lifestyle are necessities of life. In contrast, the lowest mean score reflects the perception that the green economy requires too much time. To manage this perception, institutions can integrate green practices into daily routines such as reused stuff, conserving energy, and introducing digital tools in the classroom. Simplifying green practices and making them engaging can change the student's perception of time-consuming when applying green economy in life.

In addition, based on the result of this study, students enjoyed reusing stuff as a green activity in campus life. For example, encourage students to buy second-hand books compared than buy new ones and submit the assessment digitally. It helps prevent the environment by reducing the use of paper. But, green activities like attending green conferences get the lowest mean score at 3.91. It indicated that students lack awareness about the relevance of green conferences for their lives and future careers. Apart from that, the use of time constrain and lack of incentives also have an effect to students not feeling motivate to join the conference. So, to boost the motivational education on the green economy, the institution might give tangible benefits like certificates and rewards to encourage students to join the green conference.

Meanwhile, the reason for students involved in green activities show the highest score in keeping the environment clean. It reflects the strong responsibility toward maintaining a healthy and pleasant environment. This result is related to the frequency of students doing green activities due to they are like a clean environment (4.29). The lowest mean score of 4.15, though still relatively high, shows that saving energy is slightly less prioritized as a reason for participating in green activities. To overcome this result, institutions can promote the importance of energy conservation directly with associated personal actions.

To raise awareness, institutions under the Ministry of Higher Education (MoHE) Malaysia are encouraged to get the certification of Public Sector Conditioning Economic (EKSA). The outcomes of the study determined that students in TVET institutions in Borneo, Malaysia are aware of the green economy and most of them are acquainted with Sustainable Development Goals (SDGs). The outcome is supported by a study conducted by Bashirun et al. (2016) at Universiti Teknologi MARA Bandaraya Melaka, Malaysia. With a total respondent of 200, almost 79% show interest in participating in green activities such as recycling paper and the least 21% in activities like cleaning roads and beaches. Despite efforts, educational institutions are still lagging in promoting sustainability awareness. Interestingly, some of the students play a very integral role in promoting the green economy throughout the final year project. The innovation produced is normally made from a green product and some engineering students can come up with innovations that save energy as well as the electricity coming from green sources.

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Based on this study, institutions' influence contributes to green economy awareness. The study found that the paperless assessment is not fully implemented in the institution. Similarly, most of the institution's activity is only focused on cleaning while initiatives like sustainability talks, seminars, and training are not yet established. Moreover, the existing framework of policies and practices should be revised so the education structure is driven by the growth of the green economy.

Conclusion

This study highlights the current state of awareness of the green economy among students at a TVET institution in Borneo, Malaysia. The findings indicate that there is still a significant gap in terms of comprehensive understanding and active participation in broader sustainability initiatives, although there is a general awareness and positive attitude towards green practices such as recycling and reusing materials. The results suggest that institutional influence plays a crucial role in promoting environmental awareness. The integration of green economy concepts into educational frameworks remains insufficient, despite some progress.

To close this gap, it is essential that educational institutions step up their efforts in the promotion of sustainability through curriculum integration, practical activities, and awareness campaigns. Collaboration between the education sector, business and government can further strengthen this initiative through the provision of clear and relevant information on the environmental impacts of different practices and the provision of practical training programmed.

Through an integrated approach to sustainability education, vocational training institutions can play an important role in preparing students to become active and informed participants in the green economy. As well as contributing to the conservation of the environment, this will equip students with the knowledge and skills necessary to drive sustainable development in their future careers.

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