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Abstract

Nowadays, natural resources are increasingly barren due to the greedy attitude of humans toward natural resources. So, the concept of green technology was realized to help in the preservation of the surrounding nature as well as comprehensive sustainable development. Objective: This study was conducted to identify the factors that influence the practice of green technology among UniSZA students. Methodology: A cross-sectional survey was conducted and a total of 300 respondents participated in this study. Using a quantitative approach, the data has been collected using questionnaires and analyzed descriptively and inferentially. Result and Discussion: The results of the study found that the level of awareness and attitude was at a high level while the practice of green technology was at a medium level. The results also showed there was a relationship between awareness and attitude toward green technology practices. Conclusion: This study contributes to various parties always emphasizing the preservation of the environment in daily life. Awareness of green technology also needs to be emphasized continuously so that it can influence one's behavior toward the preservation of the environment.

Keywords: Awareness, Attitude, Practice, Green Technology

Introduction

Currently, Malaysia is one of the countries having environmental pollution problems that are getting worse. It is something that needs to be taken seriously as it can negatively affect not only daily activities but also paralyze the country economically. This problem can be reduced through awareness, attitude, and practice of green technology. Society, especially the youth, needs to be aware of the importance of green technology which helps in reducing environmental pollution and conserving the environment for future generations. In conjunction with that, the existence of the green technology concept is believed to be able to ensure the sustainability of the environment is preserved.

Nowadays, green technology is considered essential because it can minimize and reduce the negative implications of anthropogenic activities. Green technology is a relatively new technology that is currently being introduced and practiced (Iskandar, 2015). This technology is environmentally friendly and safe to use especially in national development. Even the latest approach by many countries is mostly geared towards innovative concepts of future development.

The definition of green technology is very diverse. It can be related to one's awareness, attitude, and practice in their daily routine. The increase in the Malaysian population also contributes to environmental pollution due to the increasing usage of vehicles, electricity, and urbanization which can directly influence the environment. Green technology can be considered as an effort to drive a sustainable economy in the field of services, industries, and others. The efforts of various parties are also important to encourage the use of green technology in daily life. According to Vadeveloo et al., (2021), the government has introduced many programs for energy resources in Malaysia, such as 'Renewable Energy' (RE) and the Green City Concept (GCC).

Mior (2018); Azmi & Radzuan (2021) reported the level of environmental awareness among Malaysians is still very low. This is because of ignorance towards the surrounding situation, especially related to the environment. Hence, the application of green technology in daily life is highly encouraged and a wise alternative to effectively reduce environmental problems such as global warming, greenhouse gas emissions, pollution, and others.

Given that environmental issues among the younger generation are seen to increase, coupled with a lack of awareness and a low attitude, the need to produce a younger generation with high environmental awareness, is seen as something very important, especially among students. These educated students will be the heirs of the country in future development, hence the awareness of green technology must be given immediately.

This study focused on the students of Universiti Sultan Zainal Abidin (UniSZA) who are considered to be the younger generation who will lead the country in the future. They need to be given exposure to the importance of sustainable development, especially in the practice of green technology. Littering everywhere is synonymous among Malaysians including students. This practice is also a contributing factor to environmental problems.

Methodology

This study was carried out using a quantitative approach with a cross-sectional research design that involved a survey instrument where the distribution of questionnaires was conducted. A total of 300 respondents among the students of Universiti Sultan Zainal Abidin, Terengganu were selected. They were selected because students should be directly involved in environmental sustainability efforts since they also experience the effects of the energy crisis, climate change, and environmental pollution. Furthermore, the knowledge of sustainability practices of this age group potentially influences and instills their sense of responsibility to practice sustainable development in the future. The questionnaire consists of 4 parts where Part A: Demographic Profile of the Respondent; Part B: Awareness of Green Technology (8 items); Section C: Attitudes Toward Green Technology (5 items); and Section D: Green Technology Practices (8 items). Parts B and C use a five-point Likert Scale which is '1=Strongly

Disagree'; '2=Disagree'; '3=Slightly Agree'; '4=Agree'; and '5=Strongly Agree'. While part D uses a five-point Likert Frequency Scale which is '1= Never'; '2= Rarely'; '3= Sometimes'; '4= Often'; and '5= Always'. This questionnaire had been adapted from Tan's (2019) study and had been changed according to the suitability of the study.

Result and Discussion

Demographic Profile of Respondents

Table 1

Demographic Profile of Respondents

Factors		**Frequency (n)**	**Percentage (%)**
Gender	Male	119	39.7
	Female	181	60.3
Age	19 - 20	119	39.7
	21 - 22	113	37.7
	23 - 24	56	18.7
	25 - 26	12	4.0
Year of Study	Year 1	148	49.3
	Year 2	59	19.7
	Year 3	39	13.0
	Year 4	54	18.0
Faculty	Faculty of Applied Social Science (FSSG)	46	15.3
	Faculty of Language and Communication (FBK)	35	11.7
	Faculty of Law and International Relationships (FUHA)	22	7.3
	Faculty of Computing and Informatics (FIK)	17	5.7
	Faculty of Innovative and Design (FRIT)	20	6.7
	Faculty of Islamic Contemporary Studies (FKI)	51	17.0
	Faculty of Health Science (FSK)	22	7.3
	Faculty of Bussiness and Administration (FPP)	48	16.0
	Faculty of Medicine (FP)	22	7.3
	Faculty of Food Industry and Bio-resources (FBIM)	6	2.0
	Faculty of Pharmacy (FF)	11	3.7

Table 1 shows the distribution of respondents' profiles according to the categories that had been selected. The total number of respondents in this study is 300 who are students from the University of Sultan Zainal Abidin (UniSZA). Based on Table 1, the study showed that the majority of the respondents were females with 60.3% (181) while males were 39.7% (119). The age category of these respondents was between 19 to 26 years old. Out of 300, the highest percentage; 39.7% of these respondents were between 19 to 20 years old, which were 119. The second highest was in the age group of 21 to 22 with a percentage of 37.7% equal to 113 respondents. Next, followed by the age category of 22 to 24 years which was 18.7% with the number of respondents 56 people. The lowest percentage consisted of respondents aged 25

to 26 years which was 4.0% with a total of 12 respondents. The majority of respondents consisted of 1st-year students which were 49.3% (148) followed by 2nd-year students with 19.7% (59), 4th-year students; 18.0% (54), and 3rd-year students; 13.0% (39). The finding showed that the majority of respondents were students of the Faculty of Contemporary Islamic Studies (FKI) which is 17.0% (51). While students from the Faculty of Bio-resources and Food Industry were the least involved as respondents were 2.0% (6).

Frequency and Mean Distribution of Respondents' Awareness of Green Technology

Table 2 showed the distribution of frequency, percentage and mean for the variables of awareness of green technology. The results showed that item 4 "green technology results in better economic development" had the highest mean value of 4.34. The second highest mean value of 4.33 was item 2 "planting trees helps to reduce the greenhouse effect" and item 6 "I need to improve my knowledge regarding green technology". Next, item 7 "I wish to use green technology at my workplace in the future" recorded the lowest mean value of 3.17.

Table 2
Distribution of frequency, percentage and mean for the variables of awareness of green technology

No	Item	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	Min (S.P)
1	I believe green technology is very important.	3 (1.0)	8 (2.7)	22 (7.3)	138 (46.0)	129 (43.0)	4.27 (0.792)
2	Planting trees helps to reduce the greenhouse effect.	2 (0.7)	10 (3.3)	18 (6.0)	126 (42.0)	144 (48.0)	4.33 (0.790)
3	The application of green technology is good for my health.	0 (0)	4 (1.3)	27 (9.0)	150 (50.0)	119 (39.7)	4.28 (0.681)
4	Green technology results in better economic development.	1 (0.3)	3 (1.0)	19 (6.3)	148 (49.3)	129 (43.0)	4.34 (0.672)
5	I know the color of each recycling bin which is blue, brown, and orange.	1 (0.3)	6 (2.0)	30 (10.0)	152 (50.7)	111 (37.0)	4.22 (0.730)
6	I need to improve my knowledge regarding green technology.	1 (0.3)	4 (1.3)	24 (8.0)	137 (45.7)	134 (44.7)	4.33 (0.709)
7	I wish to use green technology in my workplace in the future.	1 (0.3)	4 (1.3)	33 (11.0)	166 (55.3)	96 (32.0)	4.17 (0.696)
8	I believe green technology will improve my quality of life.	2 (0.7)	2 (0.7)	26 (8.7)	149 (49.7)	121 (40.3)	4.28 (0.706)
	Total						**4.278**

Frequency and Mean Distribution of Respondents' Attitudes Towards Green Technology

Table 3 below showed the distribution of frequency, percentage and mean for the variable of attitude toward green technology. The results found that item 2 "I support environmental campaigns" had the highest mean value of 4.43 while item 1 "I love the environment" showed the second highest mean value of 4.33. Next, the lowest mean value of 4.02 was item 3 "I am willing to pay more to buy environmentally friendly products".

Table 3
Distribution of frequency, percentage and mean for the variable of attitude toward green technology

No	Item	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	Min (S.P)
1	I love the environment.	2 (0.7)	13 (4.3)	17 (5.7)	120 (40.0)	148 (49.3)	4.33 (0.823)
2	I support environmental campaigns.	1 (0.3)	8 (2.7)	20 (6.7)	104 (34.7)	167 (55.7)	4.43 (0.762)
3	I am willing to pay more to buy environmentally friendly products.	3 (1.0)	14 (4.7)	45 (15.0)	151 (50.3)	87 (29.0)	4.02 (0.848)
4	I will inform the nearest environmental organization/government agency if there is an environmental problem.	0 (0)	18 (6.0)	23 (7.7)	142 (47.3)	117 (39.0)	4.19 (0.819)
5	I use energy resources (water, electricity, solid waste) carefully in my daily life.	1 (0.3)	8 (2.7)	32 (10.7)	156 (52.0)	103 (34.3)	4.17 (0.747)
	Total						**4.228**

Frequency and Mean Distribution of Green Technology Practices Among Respondents
Table 4 showed the frequency, percentage, and mean distribution of green technology practice variables among respondents. The results stated that item 4 "I bring a reusable water bottle" had the highest mean value of 3.77. Next, item 1 " I reuse the unprinted part of the paper for other uses" was the second highest mean value which is 3.60. Meanwhile, the lowest mean value of 3.13 was item 2 "I bring my container when buying food".

Table 4
Distribution of frequency, percentage and mean for the variables of awareness of green technology

No	Item	1 n (%)	2 n (%)	3 n (%)	4 n (%)	5 n (%)	Min (S.P)
1	I reuse the unprinted part of the paper for other uses.	3 (1.0)	52 (17.3)	60 (20.0)	131 (43.7)	54 (18.0)	3.60 (1.005)
2	I bring my container when buying food.	17 (5.7)	81 (27.0)	87 (29.0)	77 (25.7)	38 (12.7)	3.13 (1.117)
3	I use organic materials to reduce the use of chemicals in my daily life.	11 (3.7)	69 (23.0)	102 (34.0)	88 (29.3)	30 (10.0)	3.19 (1.019)
4	I bring a reusable water bottle.	4 (1.3)	47 (15.7)	58 (19.3)	96 (32.0)	95 (31.7)	3.77 (1.099)
5	I buy items that are recyclable or made from recycled materials.	3 (1.0)	62 (20.7)	72 (24.0)	111 (37.0)	52 (17.3)	3.49 (1.036)
6	I stopped buying CFC spray because it destroys the ozone layer.	13 (4.3)	61 (20.3)	100 (33.3)	93 (31.0)	33 (11.0)	3.24 (1.036)
7	I separate the waste into the categories of paper, plastic, bottles, and cans for recycling purposes.	10 (3.3)	65 (21.7)	77 (25.7)	98 (32.7)	50 (16.7)	3.38 (1.098)
8	I practice recycling at home and hostel.	7 (2.3)	56 (18.7)	65 (21.7)	118 (39.3)	54 (18.0)	3.52 (1.061)
	Total						**3.414**

The Level of Awareness, Attitude, and Practice of Green Technology Among Respondents
Based on the findings shown in table 5, the mean for the respondents' awareness was 4.278. Overall, respondents' awareness of green technology is at a high level with a percentage of respondents of 88.3% (256). Table 5 also showed that 11.3% (34) of respondents have a moderate level of awareness and only 0.3% (1) of respondents are at a low level. This proves the majority of students have knowledge related to green technology which has great potential in driving the development of the country and can improve the quality of life of an individual or society. This is likely due to the respondents getting extensive exposure to the concept of green technology either through the campaigns, readings, and others.

Table 5
Distribution of Mean Score Determination

Variables	Level	n	%	Min
Awareness	Low < 2.33	1	0.3	4.278
	Intermediate 2.34-3.66	34	11.3	
	High >3.67	265	88.3	
Attitude	Low < 2.33	5	1.7	4.228
	Intermediate 2.34-3.66	36	12.0	
	High >3.67	259	86.3	
Practice	Low < 2.33	36	12.0	3.414
	Intermediate 2.34-3.66	152	50.7	
	High >3.67	112	37.3	

Next, the results also showed that the mean attitude of the respondents is 4.228. Overall, the respondent's attitude towards green technology is at a high level with a percentage of respondents of 86.3% (259). In addition, the findings also discovered that 12.0% (36) of respondents have an attitude at a moderate level while 1.7% (5) of respondents still lack an attitude toward the green technology approach. Based on the findings, most students emphasize environmental behavior in life and support environmental campaigns implemented by the government or university. This is because they believe the campaign that has been carried out continuously can increase the awareness of all individuals toward the importance of green technology in everyday life.

In addition, the results found that the mean practice of the respondents is 3.414. Overall, the practice of green technology among the respondents is at a moderate level which is 50.7% (152). In addition, 50.7% (152) of the respondents have a high level of green technology practice and 12.0% (35) respondents have a low level. This justified that most students have awareness and they have a good attitude toward the concept of green technology. However, they still lack green technology practices which are important to ensure the sustainability of the environment. This can be proven by the deterioration of environmental quality which seems to have no end due to individual behavior. Environmental pollutions still happen despite there have been many environmental education and awareness campaigns in various forms of information, reading material, and social media undertaken by various responsible parties. Therefore, a continuous campaign to increase general awareness of green technology and effective management of energy resources needs to be carried out, especially among students to help in conserving the environment. Environmental sustainability practices such as saving water, electricity, and the 3R concept also need to be emphasized to the students so

that they are not only aware of its importance but also practice the acts that can lead to environmental sustainability.

Differences in Awareness, Attitudes, and Practices Towards Green Technology Based on Gender

T-test analysis was conducted to examine the difference in awareness, attitudes, and practices based on males and females as shown in Table 6. The level of awareness for male students was 4.047 while the level of awareness for female students was 4.430. This shows that the level of awareness between male and female students is different because the significant value is smaller than 0.05 (0.019 < 0.05). In conclusion, there is a significant difference in terms of the level of awareness of green technology based on gender. The majority of the female students are more concerned about the environmental aspect compared to the male students. They believe that green technology is very significant in everyday life.

Table 6
Differences in Awareness, Attitudes, and Practices Towards Green Technology Based on

Variables	Gender	Min	Standard deviation	t	p
Awareness	Male	4.047	0.602	5.561	0.019
	Female	4.430	0.440		
Attitude	Male	3.900	0.742	14.909	0.000
	Female	4.443	0.474		
Practice	Male	3.475	0.797	0.006	0.938
	Female	3.374	0.809		

Gender

Next, the level of attitude for the male student group was 3.900, while female students' was 4.443. The results of this finding also showed that there is a significant difference in terms of the level of attitude towards green technology based on gender (0.000<0.05). In addition to having a high awareness, female students also have a satisfactory attitude toward caring for the environment.

Last but not least, the practice level of male students is 3.475, and female students is 3.374. In conclusion, there is no significant difference in terms of the level of green technology practices based on gender (0.938>0.05). Although most female students have awareness and attitude about their role in environmental sustainability, they are less willing to engage in green technology for sustainable development programs.

Correlation Analysis between Levels of Awareness and Attitudes with Green Technology Practices

A correlation test was used to study the relationship between awareness and attitude toward green technology practices. The results found that the level of awareness had a significant relationship with the practice of green technology (Table 7). The correlation coefficient r was 0.285 and p was 0.000. The results of the study showed that there was a weak correlation between the level of awareness and the practice of green technology. Respondent's awareness of green technology is a very important matter and the increase in respondents' knowledge related to green technology will produce a community, especially among university students who are concerned and responsible for the environment.

Table 7
Correlation between awareness and attitude toward green technology practices

		Practice
Awareness	Pearson correlation (r)	0.285**
	Sig. (2-tailed)	0.000
	N	300
Attitude	Pearson correlation (r)	0.275**
	Sig. (2-tailed)	0.000
	N	300

Next, the results of the correlation test showed that there was a significant relationship between the level of attitude and practice of green technology. The correlation coefficient r was 0.275 and p was 0.000. It proved that there was a weak correlation between the level of attitude and green technology practices. It is important to understand the respondents' attitudes on issues related to green technology so that an effective strategy can be used to ensure maximum involvement from all parties. Next, the community's attitude, especially university students, will have a positive impact on the environment and quality of life (Tucker & Izadpanahi, 2017; Crumpei et al., 2014; Soni et al., 2015).

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