

## Green Behavior: The Intention and Implementation of 3Rs Behavior among UiTM Pahang Students

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### ABSTRACT

*This paper aims to study the willingness and behavior of UiTM Pahang Students in implementing reduce, reuse and recycle activities. Variables associated with the 3Rs behavior will be used to measure the extent of declared recycling, reuse and reduction behavioral intention and implementation. Data received from this study will be tabulated and analyzed using frequency, percentage and mean. At the end of the discussion, recommendations will be suggested in setting actions aim to encourage the recycle, reuse and reduce behaviors among UiTM Pahang Students.*

**Keyword:** Green Behaviour, Waste Management Intention and Environment.

### Introduction

In line with its tagline which is the Natural Heritage Campus, Universiti Teknologi Mara Pahang is surrounded by the priceless flora and fauna, making it the best place to gain knowledge for students. In sustaining its tagline, one of the approaches that can be implemented by UiTM Pahang is to practice green behavior specifically the reducing, reusing and recycling (3Rs) activities among its students. These three behaviors, taken together, are crucial in helping UiTM Pahang to promote campus sustainability.

According to Barr et.al (2001), recycling, reusing and reduction are basically different behaviors in which reduction is undertaken least often, reusing is undertaken more regular and recycling is undertaken either 'always' or 'never' by the majority of people. Recycling refers to finding new method of using discarded material and it can be used to overcome some of the environmental problem (Haron et.al, 2005). However it is considered more beneficial to the environment if the amount of waste produced can be reduced by using the use of product rather than recycling the products. This is because unlike recycling, reusing product does not have to undergo a secondary manufacturing process (Mccollough, 2011).

Prior research indicates that green behavior in general has shown a positive response among communities in a university. A survey conducted at a university in Taiwan also showed that students strongly supported recycling programs because they believed that recycling can reduce the burden of the environment and natural resources to prolong life (Wong, 2001). The finding revealed that most students appeared to be concerned with and aware of the environmental and resource sustainability problems. In addition, a study carried out in a university in New Zealand found that as many as 87% of students said that they have the attitude of segregating waste materials in house for recycling (Kelly et.al, 2005). The result indicated that the students well supported the recycling activity and posses positive recycling attitudes and behavior. Another study conducted in the Philippines on selected public and private universities showed that 96.5% of the respondents specified that they were concerned with their environment and thus geared them to be involved and participated in efforts that help to protect the environment (Su, 2008). In a study of China university students, it was found that the students were strongly protective towards the environment and demonstrated environmentally responsible behavior (He at.al, 2011). In other words, the campus students expressed a strong willingness to become more environmental friendly and portrayed more pro-environmental attitudes.

The above empirical findings prove that various studies focusing on university students' environmental behavior have been carried out in other countries but not in Malaysia. This study therefore, was conducted to determine the green behavior among Malaysian university students, specifically the UiTM Pahang students.

The objectives of this research are:

- a) To identify the behavioral intention and implementation of 3R activities among UiTM Pahang students.
- b) To determine the students' level of environmental attitude and knowledge.

## Methodology

### *Respondent sample*

The target population of the survey is students of Universiti Teknologi Mara, Pahang Branch. The survey adopted a stratified quota sampling procedure to select the respondent samples. Students were stratified according to their discipline (business, science, engineering, accounting, agriculture, sport recreation and computer science) and gender (male and female). The number of samples in each faculty or school was proportional to the number of students enrolled. A total of 358 students completed the questionnaire. The respondent sample, representing about 3.5% of the students in UiTM Pahang, was 40.5% male and 59.5% female.

### *The Questionnaire*

A survey instrument utilizing a combination of 5-point scale and multiple choice questions were used as the main tool for data collection. The questionnaire included questions to elicit students' a) behavioral intention on reducing, reusing and recycling activities, b) implementation of the 3Rs, c) environmental attitude and d) environmental knowledge. 380 questionnaires were personally administered to the students. However only 358 were returned to us.

In measuring the intention of the students in the 3Rs activities, 20 items (5 reduce, 5 reuse and 10 recycling) which were suggested by Barr (2001) have been used in our questionnaire. Respondents were asked on their extent of willingness to practice the 3Rs activities. 3Rs implementation was measured by rephrasing and reordering the behavioral intention items where respondents were asked how often they practiced reduce, reuse and recycle.

In terms of environmental attitude, the New Ecological Paradigm (NEP) scale devised by Dunlap et.al (2000) was used to measure the environmental concern of the students. The NEP scale consists of 15 items and respondents were asked to indicate the strength of agreement or disagreement with each statement or item. Respondents' knowledge in environmental facts was examined through responses to 10 multiple choice questions. Each respondent received a point for the correct answer and the correct total score was determined for each person. Higher total point indicated higher levels of environmental knowledge.

The reliability of the instrument was assessed by Cronbach's alpha. The reliability coefficient for 3Rs behavioral intention, actual 3Rs behavior and environmental attitudes were acceptable (table 1).

Table 1: Internal Consistency of the Survey

	Cronbach's alpha
Behavioral intention	.905
Actual Behavior	.930
Environmental attitudes	.768

## Results

### *3Rs Behavioral Intention*

The respondents' behavioral intention on reducing, reusing and recycling activities was gathered. Their willingness to implement the 3Rs are shown in tables 2,3 and 4.

Table 2: Behavioral Intention in Reducing Waste

Extent of Willingness	Percentage
Very Willing	3.6
Willing	51.7
Neither Willing nor Unwilling	39.1
Unwilling	5.3
Very Unwilling	0.3

Table 3: Behavioral Intention in Reusing

Extent of Willingness	Percentage
Very Willing	13.1
Willing	56.7
Neither Willing nor Unwilling	27.4
Unwilling	2.5
Very Unwilling	0.3

Table 4: Behavioral Intention in Recycling

Extent of Willingness	Percentage
Very Willing	17.3
Willing	46.6
Neither Willing nor Unwilling	30.4
Unwilling	5.0
Very Unwilling	0.6

Figure in table 2, 3 and 4 clearly show that there is some evidence of a more pronounced intention towards the behavior to undertake 3Rs among the students. The mean of behavioral intention level for reducing (3.52), reusing (3.77) and recycle (3.72) also implies that the students are willing to implement the 3Rs. In regard to comparison of gender, more female respondents are willing to practice the 3Rs compared to male. It appears that majority of respondents who are willing to reduce waste are students from the Applied Science (Science) Faculty, while most students in Business Faculty are not willing to reduce the waste they produced. In addition, majority of the respondents in Applied Science (Wood Technology) are willing to undertake the reusing activity and it is reported that most respondents from Sport Recreation Faculty are not willing to reuse. In recycling activity, majority of the students who are willing to implement this activity is from the Mathematics and Computer Science Faculty and least number of students to implement recycling is from the Business Management Faculty.

### **3Rs Actual Behavior**

In terms of actual behavior to 3Rs activities, tables 5, 6 and 7 show the attitude of the students towards the reduction, reuse and recycling waste. Interestingly, there is a discrepancy between the behavioral intention and the actual behavior of 3Rs in which even though majority of the respondents are willing to carry out the reducing, reusing and recycling, in actual implementation, they undertake the activities less frequently.

Table 5: Actual Behavior in Reduction

Frequency	Percentage
Always	3.9
Usually	23.2
Sometimes	50.3
Rarely	20.7
Never	2.0

Table 6: Actual Behavior in Reusing

Frequency	Percentage
Always	0.0
Usually	6.7
Sometimes	31.6
Rarely	46.1
Never	15.6

Table 7: Actual Behavior in Recycling

Frequency	Percentage
Always	7.0
Usually	32.7
Sometimes	34.0
Rarely	19.6
Never	6.7

Clearly, majority of the respondents occasionally implement waste reduction and recycling activities. Unlike reduction and recycling, most of the students rarely practice reusing of waste. The survey also reveals that more male students implement the green behaviors compared to female. Another interesting finding is the difference between the willingness of the Business Management students and their actual implementation of reducing and recycling activities in which they are unwilling to undertake the environmental behaviors but declared a more frequent basis on embarking those two green behaviors.

### *Environmental Attitudes*

In determining whether the students possess pro-environmental or least pro-environmental attitudes, they were asked to state their agreement ranging from 1 (strongly disagree with the statement) to 5 (strongly agree with the statement) on 15 statements. The mean score for each of the statement is presented in table 8. The mean score for the students' environmental attitude was identified to classify their environmental attitudes. A median split was done on the mean environmental attitudes score. Students with mean scores above 3.87 were classified as high on environmental attitudes while students with scores below 3.87 were classified as low on environmental attitudes. Based on the analysis, 52.2% of the respondents have high environmental attitudes while 47.8% respondents have low environmental attitudes. Female students are more pro-environmental compared to male. Students from Applied Science (Wood Technology) Faculty, Sport Recreational Faculty, Business Management Faculty, Plantation and Agrotechnology Faculty and Mathematics and Science Computer Faculty are more pro-environmental compared to students from other faculties.

Table 8: The Mean Values of Items used to Measure Environmental Attitudes

No	Statement	Mean	Standard deviation
1	We are approaching the limit of the number of people the Earth can support.	3.59	0.84
2	Humans have the right to modify the natural environment to suit their needs.	3.36	1.16
3	When humans interfere with nature it often produces disastrous consequences.	4.19	0.84
4	Human ingenuity will insure that we do not make the Earth unlivable.	3.54	0.96
5	Humans are severely abusing the earth.	3.76	0.98
6	The earth has plenty of natural resources if we just learn how to develop them.	4.47	0.68
7	Plants and animals have as much right as humans to exist.	4.26	0.78
8	The balance of nature is strong enough to cope with the impacts of modern industrial nations.	3.89	0.95
9	Despite our special abilities, humans are still subject to the laws of nature.	4.18	0.75
10	The so-called "ecological crisis" facing humankind has been greatly exaggerated.	3.65	0.79
11	The earth is like a spaceship with very limited room and resources.	3.56	1.08
12	Humans were meant to rule over the rest of nature.	3.41	1.19
13	The balance of nature is very delicate and easily upset.	3.45	1.05
14	Humans will eventually learn enough about how nature works to be able to control it.	3.99	0.76
15	If things continue on their present course, we will soon experience a major environmental catastrophe.	4.42	0.78

### *Environmental Knowledge*

The respondents' average percentage of correct total score environmental knowledge test is 54.89 with only 28.5% of the respondents obtained a total score of more than 70%. The environmental knowledge of these respondents are considered low if mean correct percentages higher than 70% are taken to indicate high knowledge (Makki, Abd et.al, 2003). Low factual knowledge on environment might be associated primarily with the limitation of teaching materials and approaches to environment educational settings (He et al, 2011). Male students have higher environmental knowledge compared to women. It is interesting to note that majority of students from Accounting Faculty have high environmental knowledge while most of respondents from Mathematics and Computer Science Faculty have low environmental knowledge.

Table 9: Environmental Knowledge Total Score

Total Score	Percentage
< 70 %	71.5
≥70%	28.5

### **Conclusion and Recommendation**

Generally, UiTM Pahang students are willing to practice the 3Rs activities even though in actual behavior, they occasionally implement these activities. Besides that, they also have attitudes that strongly protective of the environment. Nevertheless, they have low level of environmental knowledge. In short term, to encourage the students to frequently demonstrate environmentally responsible behavior and enhance their knowledge level on environment facts, it is recommended that UiTM Pahang to embark the following actions:

- a) Produce activities for waste reduction in the campus
- b) Encourage students to separate wastes produced
- c) Encourage students to participate in short term projects about recycling and reducing activities

d) Encourage students to visit recycling centers and municipal landfills

In sustaining the campus sustainability in a long-term, it is suggested that UiTM Pahang should adopt the proposed sustainable campus model (Alshuwaikhat & Abubakar, 2009) as shown in figure 1.

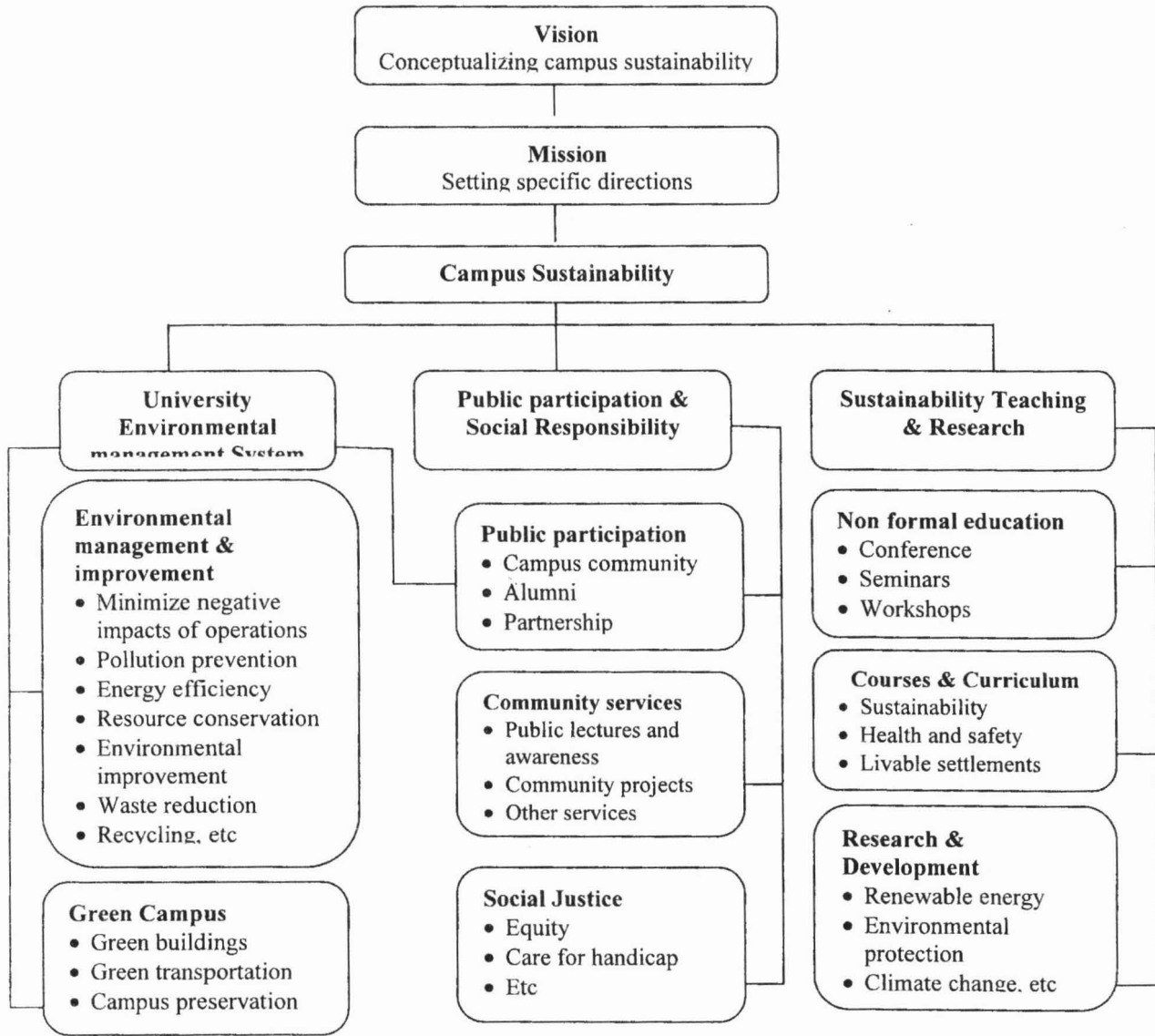


Figure 1: Model of Proposed Approach to achieving Campus Sustainability

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