

Environmental Protection Awareness and Practices of University College of MAIWP International (UCMI) Students

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Abstract

Environmental issues are a problem that should be given serious attention by the community including college students. Environmental problems cannot be solved exclusively through scientific, technical and legal approaches. The direct participation and involvement of the wider community including college students, as part of the stakeholders, are very necessary. Generally, the community in Malaysia has a satisfactory level of environmental awareness, but the level of environmental protection practices is still low. Therefore, it is the interest of this paper to explore whether college students also have a high level of awareness and a low level of practices towards environmental protection. This paper discusses self-reported levels of awareness and practices towards environmental protection as well as the relationship between the level of awareness and practices among the first-year students of the Faculty of Health Sciences, University College of MAIWP International (UCMI). The data were obtained through a quantitative survey method. The questionnaires were distributed online using Google Form to 287 college students and 100 of them responded. A frequency analysis was conducted on the collected data to obtain frequency (n and %) and mean values, and a correlation analysis between the college students' level of awareness and practices towards environmental protection was conducted to obtain correlation coefficient (r) and significant (p) values. The findings illustrated that the college students reported that they were highly aware of environmental protection, and their level of environmental protection practices was also high. However, the positive correlation coefficient between their environmental protection awareness and practices was weak although it was statistically significant.

Keywords

Environmental Protection, Environmental Awareness, Environmental Practice, Environment, Community

1. Introduction

Environmental problems, such as solid waste, energy waste and pollution, do not only occur at the global level, but also in an environment closer to the daily life of the community. Issues, such as solid waste and energy waste, can contribute to major problems and become more complex if not addressed appropriately. Scientific, technical and legal approaches are not exclusive to solving environmental problems. Therefore, the participation and involvement of the wider community, including college students, are very crucial. As part of the stakeholders, the community should be directly involved in environmental protection activities (Rahman, 2009). Hence, their environmental protection awareness and practices are crucial. Cui, Hoje, and Velasquez (2015) regarded environmental awareness as the emotional attitudes towards the environment and environmental value. Such emotional attitudes lead students emotionally and conceptually to respect and be concerned about the environment, and further correctly treat the environment. Referring to Cui, Hoje, and Velasquez (2015), environmental protection awareness and practices in this study adopted the dimension of the emotional attitudes towards the environment (environmental protection awareness, i.e. on policies, acts, regulations, the role of all parties in environmental protection, the concept of environmental protection and the types of environmental protection behaviors), which then lead to correctly treat the environment (environmental protection practice, i.e. activities of protecting the environment).

Generally, community participation and involvement in environmental issues are known by various terms, such as “community-based approaches”, “community-based initiatives”, “community-based environmental management”, “joint ventures”, “grass-roots ecosystem management”, “partnership”, “community-based environmental protection” and “public environmentalism” (Rahman, 2005). Public awareness towards environmental conservation involves three stages, namely perception, behaviour and coordination. Perceptions towards the environment affect human attitudes and this attitude is known as environmental ethics (Rahman, 2009). According to Chelliah (1990), environmental ethics is a principle of truth or good behaviour, good perception and appropriate response to the content of ecological studies, especially life and the environment. It helps humans focusing on ecological and environmental activities.

According to Razak and Noor (2021), community refers to a group of people who live and work together in the same place. In the context of this study, students in an educational institution meet the definition of “campus community” because these students live in the same campus environment. According to Tai

and Azman (2011), in general, they have an awareness of environmental issues, but the level of environmental protection practices is very low. Knapp (1999) and Callicot (2000) believe that the best way to overcome environmental problems is to change the public attitude and their daily practices from focusing on self-interest (anthropocentric) to focusing on environment (ecocentric). Environmental attitudes and understandings refer to individual beliefs, emotions and behaviours toward the environment. Knapp (1999) pointed out one of the reasons that contributes to the widespread environmental destruction is that the most societies have an anthropocentric understanding. Thus, ecocentric understanding can have a positive impact on community attitudes and practices.

Many studies related to the public's environmental awareness had been conducted including on students of higher education institutions. Findings from previous studies reveal that environmental knowledge, attitudes and awareness among students of higher education institutions in Malaysia are at a good level (Tai & Azman, 2011). This is in accordance with Ridener's (1997) opinion which expressed that most students already have a high environmental awareness. However, in terms of environmentally friendly practices, previous studies found that the involvement level of students was moderate and low. This scenario was proven through a study conducted by Mahadi and Yusof (2003) regarding the level of environmental awareness among university students. They discovered that the level of environmental awareness among Universiti Kebangsaan Malaysia students is high, but the willingness of students to get involved in overcoming environmental problems is too minimal. Therefore, an educational medium that involves learning and problem-solving process should be fully utilized to mobilize students to engage in environmental protection activities, such as the preservation and conservation of the environment (Dato *et al.*, 2020). Early exposure to students is seen as the best way to produce future generations who are literate about the importance of environmental protection and will indirectly implement environmental protection practices (Jimaain *et al.*, 2012).

Environmental protection awareness and practices require knowledge, understanding, change of attitude and participation in actions (Silva *et al.*, 2018). The involvement of college students in environmental protection activities is able to provide domino effects as it will improve the environmentally friendly landscapes in the college, home, neighborhood, public areas, and other locations where they interact.

A study by Punzalan (2020) found that Filipino senior high school students had a good level of environmental awareness but a poor extent of environmental practice. However, Rogayan and Nebrida (2019), who studied science students in a public secondary school in Zambales, Philippines, found that there is a moderate correlation between students' awareness of environmental concepts and issues and their practices to solve environmental problems and possess a high degree of commitment.

According to Ahmad (2012), public awareness of environmental protection in

developing countries such as Malaysia is comparable to developed countries such as Japan and the United States. However, is this level of environmental protection awareness being translated into environmental protection practices at an equal level by college students? Thus, the objectives of this study are: 1) To identify the self-reported level of awareness regarding environmental protection among college students; 2) To identify the self-reported level of practices regarding environmental protection among college students; and 3) To analyze the relationship between the self-reported level of awareness and the self-reported level of practices regarding environmental protection among the college students. Thus, this paper discusses the self-reported levels of environmental protection awareness and environmental protection practices among the first-year students of the Faculty of Health Sciences, University College of MAIWP International (UCMI). In addition, this paper also explores the relationship between their self-reported environmental protection awareness and environmental protection practices.

2. Methodology

This study adopted a cross-sectional research design where data were collected at one point in time, and was carried out using a quantitative survey method with a simple random sampling technique to collect data. A quantitative survey method was used as the researchers of this study posed the same set of questions/items, in a written format (i.e. in the form of a questionnaire as the research instrument), to a sample of the college students. The selection criteria for participants (sampling frame) were: 1) First-year students in semester 1 session 2022/2023 of the Faculty of Health Sciences, University College of MAIWP International (UCMI); 2) Male and female; 3) Aged 18 and above; 3) All ethnic groups; and 4) Hold a qualification level of diploma and above. The process of data collection involved the administration of the questionnaire via Microsoft Form application during semester 1 session 2022/2023. The Microsoft Form link of the questionnaire was disseminated through the college students' email and WhatsApp platforms obtained from the Faculty of Health Sciences database. Hence, all the 287 first-year students of the Faculty of Health Sciences, University College of MAIWP International (UCMI) received the questionnaire, and 100 of them responded.

According to Meng (2013), simple random sampling is a basic type of sampling which is often used as a sampling technique itself or as a building block for more complex sampling method. The sampling set selection was also done randomly considering that each selected sample has the similar characteristic as the subject in the population (Thompson, 2012).

In terms of sample size determination, according to Fox (2023) and Piroška (2023), the minimum sample size to get any kind of meaningful result is 100. If the population size is smaller than the minimum sample size suggested, then it is necessary to sampling the entire population. The population size of the first-year

students of Faculty of Health Sciences, University College of MAIWP International (UCMI) was 287 students altogether. Thus, a total of 100 respondents were set to participate in the questionnaire for this study and the response rate was 34.8 percent which is acceptable for representativeness as stated by Lindemann (2021) where the permissible response rate in a study is between 5 to 30 percent.

The questionnaire items used in this study were adapted from Asis, Marinsah, and Ramlie (2021). The questionnaire was focusing on aspects of self-reported environmental protection awareness and environmental protection practices. The questionnaire was structured into three sections with 23 items, i.e. Section A consists of demographic items; Section B contains items related to self-reported awareness level of students towards environmental protection; and Section C were items regarding self-reported environmental protection practices. The answers in all three sections—Section A, Section B and Section C require respondents to choose their answers based on the five-point Likert scale, where 5 = “strongly agree”, 4 = “agree”, 3 = “not sure”, 2 = “disagree” and 1 = “strongly disagree”.

The questionnaire aims to identify and measure the students’ self-reported level of awareness regarding matters related to environmental protection, i.e. policies, acts, regulations, the role of all parties in environmental protection, the concept of environmental protection and the types of environmental protection behaviors. For environmental protection practices, students were required to answer items related to activities of protecting the environment. The obtained data were analyzed using descriptive analysis methods. Descriptive statistics were used to describe the profile of respondents and to answer the first and second research objectives. The analysis techniques used include frequency, mean and correlation. The interpretation of the mean score is based on Chua (2006) as shown in Table 1 below.

Pearson’s correlation was used to measure the statistical relationship between two variables (Goodwin & Leech, 2010). This statistic typically describes the strength and direction of linear relationship between two continuous variables with range of values -1.0 (a perfect negative correlation) to $+1.0$ (a perfect positive correlation). For this study, the correlations were used to examine the relationship between the self-reported environmental protection awareness and environmental protection practices among the college students.

3. Results and Discussions

This section presents results and discussions regarding demographic characteristics

Table 1. Mean score interpretation scale.

Scale	Level of interpretation
<2.0	Low
2.0 - 3.0	Moderate
>3.0	High

Source: Chua (2006).

of respondents, self-reported level of environmental protection awareness, self-reported level of environmental protection practices, and correlation between the self-reported level of environmental protection awareness and the self-reported level of environmental protection practices.

3.1. Demographic Characteristics of Respondents

Table 2 presents the demographic characteristics of the respondents. There were 63 female students and 37 male students participated in this study. The students age group of 21 to 23 years old dominated in this study with a total of 46 respondents, followed by the students age group of 18 to 20 years old with a total of 39 respondents and the students age group of 24 years old and above with only 15 respondents. Majority of the respondents were Malay with a total of 66 respondents followed by Chinese with a total of 15 respondents which is the second highest, Indians recorded a total of 11 respondents while the indigenous of Sabah and Sarawak recorded seven respondents. For the level of education, the majority (56 respondents) were with a diploma, followed by 36 respondents with undergraduate degree, seven respondents with master's degree and one respondent with doctorate degree.

Table 2. Demographic characteristics of respondents.

Demographic characteristics		N & %
Gender	Male	37
	Female	63
Total		100
Age group	18 - 20	39
	21 - 23	46
	24 and above	15
Total		100
Ethnicity	Malay	66
	Chinese	15
	Indian	11
	Indigenous of Sabah & Sarawak	7
	Not stated	1
Total		100
Education level	Diploma	56
	Undergraduate	36
	Master	7
	Doctorate	1
Total		100

3.2. Level of Environmental Protection Awareness

Environmental protection awareness level in a person plays an important role in order to preserve and conserve the environmental quality. Environmental protection awareness is closely related to the knowledge level of a person about the environment. Among the environmental protection awareness are through government policies, legislation, international cooperation, 5R's concept, the role of stakeholders and so on.

Table 3 demonstrates that the respondents reported that they had a high awareness that environmental protection alternative depends on government policies as well as education with mean values of 4.01 and 4.49, respectively. This finding supported by the three broad goals of environmental education (UNESCO, 1980), namely:

- To foster clear awareness of, and concern about, economic, social, political and ecological interdependence in urban and rural areas;
- To provide every person with opportunities to acquire the knowledge, values, attitudes, commitment and skills needed to protect and improve the environment; and
- To create new patterns of behavior of individuals, groups and society as a whole towards the environment.

Additionally, legislation methods also play a significant role in maintaining the environmental quality. In Malaysia, there are various acts, by-laws, regulations and so on as a tool to ensure that all parties comply with the acts and regulations in sustaining the environment. The results discovered that the Environmental Quality Act 1974 was the most well-known act reported by students with a mean value of 4.23 followed by the Local Government Act 1976 with a mean value of 3.80. This finding coincides with the press release by *Sinar Harian* which explains that the Ministry of Environment and Water (KASA) will streamline the Environmental Quality Act 1974 by imposing heavy penalties such as compounding at a higher rate to ensure the control and compliance with the set standards under the act are more effective while being able to deal with pollution issues that not only affect the quality of nature but also the lives of the society in this country (Othman, 2021).

Furthermore, efforts in environmental protection involve all parties including government, society, industry, and individual. The results clarified that respondents agreed that environmental protection involved the responsibility of society and individuals, i.e. the role of society recorded a mean value of 4.23 and the role of the individual recorded a mean value of 4.21. Yamin (2008) emphasized that every member of the community should have a high awareness in maintaining cleanliness, for instance, not disposing their waste into the drains and drainage system causing a clogged drainage system and environmental problems. However, the respondents reported that they were relatively less aware that environmental protection involved the responsibility of the industry with a mean value of 3.26. This is due to industries are more focused on industry competition and

Table 3. Level of environmental protection awareness.

Items	N & %					Mean
	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	
1. I am aware that environmental protection alternative depends on:						
I. International agreements (COP, SDG, Kyoto Protocol)	0	4	39	35	22	3.75
II. Government policies (Environmental policies)	0	2	15	63	20	4.01
III. Market pressures (ISO 14000 & ISO 45000)	5	9	27	43	16	3.56
IV. Education	0	2	4	37	57	4.49
2. I am aware that there are acts and regulations in improving environmental quality in Malaysia:						
I. <i>Environmental Quality Act (1974)</i>	4	4	7	35	50	4.23
II. <i>Local Government Act (1976)</i>	5	8	17	42	28	3.80
III. <i>Natural Resources and Environment Ordinance (2019)</i> for Sarawak	6	12	34	30	18	3.42
IV. <i>Conservation of Environment Enactment (1996)</i> for Sabah	4	27	27	24	18	3.25
3. I am aware that environmental protection involved the responsibility of all parties including:						
I. Community	3	6	4	36	48	4.23
II. Government	1	6	17	52	24	3.92
III. Myself	0	6	20	21	53	4.21
IV. Industry	7	27	21	23	22	3.26
4. I am aware that 5R's concept is an environmental protection activity:						
I. Refuse	15	12	14	28	31	3.48
II. Reduce	1	4	14	49	32	4.07
III. Reuse	1	5	21	39	34	4.00
IV. Recycle	4	6	9	30	41	4.08
V. Repurpose/Recover	28	13	19	25	15	2.86
5. I am aware that renewable energy (energy generated from natural resource such as sunlight, wind, waves, geothermal) is environmentally friendly alternative sources of energy.	0	1	4	50	45	4.39
6. I am aware that reusing used items is one of the ways of environmental protection.	0	1	1	58	40	4.44
7. I am aware that waste segregation at source is one of the environmental protection practices to reduce waste dumping in landfills.	0	1	13	49	37	4.22
Average of mean						3.88

maximization of profits as compared to environmental responsibility, hence affecting the role of industry on environmental responsibility (Peng *et al.*, 2021).

The concept of 5R's is a relatively new concept to ensure environmental sustainability. This concept involves refuse, reduce, reuse, recycle and recovery. The results of this study discovered that the respondents reported that they were aware that reducing, reusing and recycling (3R's concept) were environmental protection alternatives with mean values of 4.07, 4.00 and 4.08, respectively. This finding supported by the media statement of *Berita Harian* which reported that the total collection of recycled waste in Kampung Baru area has reached two tons since the system of waste separation at source was introduced (Karim, 2018). However, for refuse and repurpose/recover, the respondents reported that they were less aware that these were also environmental protection alternatives with mean values of 3.48 and 2.86, respectively. The results also demonstrated that the reuse activity and waste segregation at source recorded mean values of 4.44 and 4.24, respectively. These findings were strongly related to the practice of 5R's. A previous study by Hussin (2015) stated that by the implementation and normalization of 3R's and the segregation of household solid waste, it is hopeful that the community will consider solid waste as a new resource, i.e. as an alternative to the natural resources in creating a new product, hence indirectly ensuring that natural resources are managed wisely and sustainably for the benefit of future generations as well as the environment.

The findings illustrated that the college students reported that they were highly aware of environmental protection with the average mean of 3.88. They reported that they realized that community and individual play a huge role in environmental protection. Furthermore, they were also reported that they were aware that there are acts and regulations in maintaining and controlling the quality of the environment in Malaysia. Each stage of environmental education is also important in order to nurturing public's level of environmental protection awareness. The findings are supported by other previous studies such as Yaacob, Nasir, and Petra (2017), Ahmad, Noor, and Ismail (2015), and Hassan, Noordin, and Sulaiman (2010).

3.3. Level of Environmental Protection Practices

Environmental preservation and conservation should be emphasized by all walks of life as creating awareness to protect the environment among the community takes a long period of time. Therefore, the environmental protection practices should be nurtured since one's childhood and continued until one is aware about the importance of environmental protection. Table 4 demonstrates that the practice of turning off the lights or electrical appliances and turning off the water tap tightly recorded mean values of 4.41 and 4.40, respectively. The turning off electrical appliances practice is also supported by Tenaga Nasional Berhad which highlights that one of the effective ways to save energy is unplugging unused appliances as well as prioritizing daylighting by optimizing windows

Table 4. Level of environmental protection practice.

Items	N & %					Mean
	Strongly disagree	Disagree	Not sure	Agree	Strongly agree	
1. I am practicing 5R's concept in my daily life.	0	2	19	61	18	3.95
2. I am using my own grocery bags when shopping.	0	12	12	49	27	3.91
3. I am turning off the lights/electrical appliances when leaving a room.	0	1	2	52	45	4.41
4. I am carpooling when going to campus.	1	10	20	44	25	3.82
5. I am using public transport for daily travels.	1	4	14	5	26	4.01
6. I prefer walking while on campus to help reduce carbon emissions.	0	7	6	60	27	4.07
7. I am bringing my own food and drink containers for takeaways.	3	19	23	34	21	3.51
8. I am ironing larger quantities of clothes at one time.	4	15	28	30	23	3.53
9. I am participating environmental protection program (river-cleaning project, cleaning of residential area).	1	2	35	42	20	3.78
10. I am turning off water tap tightly.	0	0	1	58	41	4.40
Average of mean						3.94

(Majlis Keselamatan Negara, 2020).

Additionally, walking in the campus area to reduce carbon emissions displayed a mean value of 4.07 as agreed by 87 respondents. Moreover, the use of public transport for daily travels recorded a mean value of 4.01 as agreed by 81 respondents. Using public transportation is one of the environmental protection alternatives to reduce carbon gas emissions since public transport has now gone through an innovation process where electric buses and light rail transit use renewable energy.

In addition, 5R's concept practices among the college students indicated a mean value of 3.95 while a total of 76 respondents reported that they used multi-purpose bags as one of the environmental protection practices. Seow (2009) highlighted that a high educational background was the main factor influencing the level of 5R's practices of respondents, and that the educational factor significantly influences the success of recycling programs as a solid waste management method in schools. Mapa (2001) also found that, in Malaysia, the education level of students greatly influences their opinions on recycling issues and programs. Li (2018) also found that environmental education affects students' environmental awareness and practices. Additionally, Sivamoorthy, Nalini, and Kumar (2013) also found that environmental awareness and practice among college students were high with male college students performed more environmental protection practices than female college students.

However, the practice of bringing one's own food and drink containers for takeaways indicated less mean value of 3.51. This finding illustrated that the practice of bringing one's own containers or cups for takeaway food was rela-

tively less adopted by the college students compared to other practices. The press release in *Sinar Harian* highlights that the increase in plastic wastes from food packaging is immensely contributes to environmental pollution continuously (Mohamed, 2023).

Turning off the unused electrical appliances and turning off the water taps tightly were the most common environmental protection practices reportedly performed by majority of respondents. Moreover, the advances in public transport system also provide the public an opportunity to benefit from it. However, carrying their own food containers for takeaways was reportedly still less practiced by the respondents. Overall, they reported that their level of environmental protection practices was high with the average mean of 3.94.

3.4. Correlation between the Levels of Environmental Protection Awareness and the Levels of Environmental Protection Practices

Pearson's correlation analysis was used to examine the relationship between the self-reported level of environmental protection awareness and the self-reported level of environmental protection practices of the college students. **Table 5** clearly illustrates that there was a positive relationship between the self-reported levels of environmental protection awareness and environmental protection practices among the college students with a Pearson correlation value of 0.364. However, the strength of the relationship between both variables was low. The positive correlation coefficient between the college students' reported environmental protection awareness and practices was weak, which means the higher the level of their reported awareness, the higher the level of their reported practice, but the effect was small. In contrast, the positive correlation coefficient is statistically significant at $p < 0.001$, which means the sample size of 100 has enough statistical power to identify even weak effects between the environmental protection awareness and practices of the college students.

Table 5. Relationship between level of environmental protection awareness and level of environmental protection practice.

		Correlation	
		Level of awareness	Level of practices
Level of awareness	Pearson correlation	1	0.364**
	Sig. (2-tailed)		<0.001
	N	100	100
Level of practices	Pearson correlation	0.364**	1
	Sig. (2-tailed)	<0.001	
	N	100	100

**Correlation is significant at the 0.01 level (2-tailed). Correlation strength: 0.000 - 0.099 no relationship; 0.100 - 0.399 weak; 0.400 - 0.699 moderate; 0.700 & above strong.

Yaacob, Nasir, and Petra (2017) studied the influence of contextual aspects (social, religious, economic and political) on consumption ethical behavior of consumers and found that general environmental concerns by those aspects do not correlate highly with specific environmental behavior. In this study, the college students' level of awareness regarding environmental protection might be high but it was generic in nature, hence it reflects the fact that a general emotional attitude cannot usually be used to predict a specific behavior of environmental practices. Additionally, a weak relation between environmental awareness and practices among students, according to Creech *et al.* (1999), was because of they did not know how to make their awareness "personal" or how to use/translate it into actions.

Ahmad, Noor, and Ismail (2015) highlighted the complexity of the relationship between students' knowledge, attitude and sustainable environment practice. The authors found that internet was reported by students to have a profound effect on them, hence can be utilized to disseminate environmental information. Additionally, educational institutions and family also have critical roles to spread environmental information and encourage environmentally friendly practices. According to Ahmad *et al.* (2011), the relationship between students' knowledge, environmental attitudes and practices as well as effective communication gives a message to the community in increasing their environmental knowledge and awareness in order to manage the environment wisely.

3.5. Summary of Results and Discussions

In summary, the findings illustrated that the self-reported awareness and practice levels of environmental protection among the college students were high. Additionally, there was a positive and significant but weak relationship between the self-reported levels of environmental protection awareness and environmental protection practices among the college students.

The findings of this study were supported by the findings of the most previous studies in that the level of environmental protection awareness among respondents was often high although the level of environmental protection awareness was not necessarily strongly influencing the level of environmental protection practices of respondents (for examples: Ahmad, Noor, & Ismail, 2015; Yaacob, Nasir, & Petra, 2017; Hassan, Noordin, & Sulaiman, 2010). Many factors such as economic, social and political (other than the level of awareness) that may have a stronger influence on the level of environmental practices may be explored by future researchers.

This study only sampled the population of the first-year students of the Faculty of Health Sciences, University College of MAIWP International (UCMI). The research method employed was merely quantitative survey questionnaire. Future studies may expand the sample size, employ diverse research methods including qualitative research to gain a deeper understanding of the underlying factors, and conduct longitudinal studies to track changes in awareness and prac-

tices over time to allow for a more comprehensive analysis.

4. Conclusion

The level of environmental protection awareness and environmental protection practices among the first-year students of the Faculty of Health Sciences, University College of MAIWP International (UCMI) was reported at a high level. However, the positive correlation coefficient between their self-reported environmental protection awareness and practices was weak although it was statistically significant. Therefore, proactive measures, such as full utilization of educational medium, which involves learning and problem-solving processes and engagement in environmental protection activities, should be enforced to make sure a stronger influence of environmental protection awareness on environmental protection practices, such as preservation and conservation of the environment, among students of higher education institutions.

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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