

Encouraging Awareness among Secondary School Students on Air Pollution in Supporting Environmental Protection

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Abstract

Understanding the vulnerability of our environment and the significance of its protection is known as environmental awareness. Promoting environmental awareness is a simple method to protect the environment and help shape a better future for our generation. The study's aim is to look at secondary school pupils' understanding of the environment. The research used a survey method with multiple-choice questions to examine secondary pupils' environmental awareness. Five secondary schools from Sekolah Menengah Kebangsaan Datuk Sulaiman in Batu Pahat, Johor, were used as a sample for this study. These samples were selected by the researches using simple random sampling technique. There are five questions that students need to answer correctly. The data were collected and analyses using Statistic Package for Science Sciences Software (SPSS V21.0). As a result, it shows a significant difference in frequency and percentage of students gets the correct answer in the post-test. Based on the result its show positive feedback of video-based learning from the students. Hence, education through Information and Communication Technology more effective and interesting than used traditional method.

Keywords: encouraging, awareness, air pollution, environmental protection

1. Introduction

Environment comprises all interactions between people and their surroundings, as well as everything that has an affect on them and everything that they have an impact on. More quickly than we can imagine, the environment is deteriorating (Ukaogo et al., 2020; Pratiwi & Juerges, 2020). The majority of these degradations are brought on by human activity. The pursuit of contemporary lifestyles and an expanding population are two of the main factors contributing to Malaysia's solid waste buildup (Yoke et al., 2019). Rapid urbanization and pursuing of better quality of life has caused Malaysia to shift towards environmental degradation resulting from the series of challenges from environmental issues (Mei et al., 2016; Freije et al., 2017).

Both global and local environmental damage occurs. Ground water contamination and soil erosion are two instances of the regional effects that human activity has on the environment, while the ozone layer's depletion and the increase in greenhouse gas emissions are examples of the harm that has occurred on a worldwide scale (Derraik, 2002; Brook et al., 2010). Climate change gains less attention among Malaysians, for most of them do not realize the causes and negative effects of extreme weather (Mei et al., 2017). To protect, manage and minimize the damage to environment, environmental education is necessary. It develops the required skills and expertise to handle the associated challenges. The power behind the awareness can be categorized into three i.e. basic beliefs of an environmental problem, factual and scientific knowledge, and a commitment to solve environmental problems (Dhanya and Pankajam, 2017; Hammami et al., 2017).

The purpose of the environmental protection study is to transmit knowledge, raise awareness, foster a caring attitude, and provide participants with the necessary skills to address environmental concerns. Environmental education enables us to evaluate the state of the environment and the factors contributing to environmental deterioration (Abowd et al., 1999). All academics, thinkers, scientists, policymakers, and governments on all continents now care about the environment (Dhanya and Pankajam, 2017; Lü et al., 2015). Environmental education enables people to comprehend how their actions affect the planet. Being aware can aid us in identifying methods for maintaining a

clean, green environment (Steg & Vlek, 2009; Wang et al., 2015; Wang et al., 2016). It enhances the capacity to consider the effective management of our resources. Current generations have a responsibility to leave behind an environment that is at least as excellent as it is now for future generations. Therefore, it is essential that every generation of the society make their best effort to contribute to the protection and conservation of the environment. The two most crucial elements for preserving nature and taking care of the environment are people's attitudes and awareness (Mei et al., 2016; Rivas et al., 2018). The young, active, and diverse persons who attend school are students (Lamme, 2003; McKinley et al., 2017). Additionally, environmental education is covered in Malaysian schools' curricula. Consequently, a modest study is carried out to learn about students' attitudes and awareness of the effects of environmental pollution, namely air pollution.

Parents should be urged by schools to educate their children about the environment at home (Sahu & Roy, 2015; Afroz & Ilham, 2020). Allowing the kids to practice small tasks at home, such as picking up their trash and throwing it away, or teaching them to turn off the faucet while brushing their teeth or washing their hands with soap so that water doesn't run down, or turning off the lights after they've finished using them, would be a good idea (Safitri et al., 2021). They'll learn more about environmental challenges as a result of this. Thus, this paper attempts to examine secondary school pupils' understanding of the environment. To gratify that aim, the research used a survey method with multiple-choice questions to examine secondary pupils' environmental awareness.

2. Research Methodology

This current study was carried out utilizing quantitative survey method to collect ordinal data (Major & Vézina, 2015). This method was chosen because it was very the appropriate in reviewing and identifying the existent knowledge of the awareness on air pollution in supporting environmental protection (Chin et al., 2019). The population involved in the study involved of the secondary school from Sekolah Menengah Kebangsaan Dato' Sulaiman, Batu Pahat, Johor. There have 5 samples of respondents were involved in this study. The instruments were the best medium to use in this study is questionnaire on multiple choice test scheme. The instrument consist of five items of the question were each items consist of four multiple choice answer which is A, B, C and D. Then, the respondent needs to answer the question with the best answer for each item in questionnaire. The questionnaire was randomly distributed among students at Sekolah Menengah Kebangsaan Dato' Sulaiman, Batu Pahat, Johor. The instrument was created from the video of the awareness on air pollution in supporting environmental protection which is uploaded in YouTube. For this study, it divided into two phase which is phase one refer to pre-test and phase two refer to post-test. For the phase one, the questionnaire was distributed to 5 randomly respondents. Respondents need to answers the entire question by using the existent knowledge about this topic. Then, for the second phase the similar respondents watched the 15 minutes video of the basics knowledge about the awareness of air pollution and how to protect our environmental health. After that, the same respondents were answer the same questionnaire regarding to the video they watched and later on the result from the pre-test and post-test were analyses.

3. Result and Discussion

The multiple choices question is divided into 5 differences of questions to cover Environmental Awareness and Environmental Behaviour respectively. Question one and two focuses on the definition of environmental pollution. Question three until four focuses on the side effects of pollution towards human health and environmental. Lastly, question 5 is focus on how to reduce the pollution by our daily life activity.

Question 1 (Definition of air pollution)

Table 1. Question 1

		PRE-TEST		POST TEST	
		Frequency	Percentage (%)	Frequency	Percentage (%)
Valid	Right	2	40	4	80
	Wrong	3	60	1	10
	Total	5	100	5	100

From this result from table 1, the pre-test examination the percentage of the students can answer correctly was a bit low which is 40%. Almost 3 of 5 students cannot answer the question 1 correctly due to the answer was a bit tricky and confusing. Most of them have existence knowledge about the air pollution, but then they cannot answer correctly for this question. After the researches show the tutorial video about the air pollution to the students, finally the percentage of the students answer correctly was increase about 40%. But then still have 1 student unable to understand about the basic knowledge of the air pollution.

Question 2 (pollutant produces during air pollution)

Table 2. Question 2

		PRE-TEST		POST TEST	
		Frequency	Percentage (%)	Frequency	Percentage (%)
Valid	Right	1	20	5	100
	Wrong	4	80	0	0
	Total	5	100	5	100

Table 2 shows the environmental awareness cognitive level among secondary school. This question wants to measure the level of knowledge towards pollutant were produced during air pollution. Air pollution is an alteration of air quality that can be characterized by measurements of chemical, biological or physical pollutants in the air (Lü et al., 2015; Steg and Vlek, 2009).

From the Table 2, it shows that most of the students failed to answer correctly the definition of air pollution before watching the video. This question is created to make students confused due to the answer is most correct and related to each other. The percentage that shows students answer correctly before watching the tutorial video is 20% while the percentage of students answer correctly during post- test was 100 %. There is a huge a significant difference when students saw the video about air pollution which is 80%.

Question 3 (Air pollution effected human health (Anderson & Thundiyil, 2012))

Table 3. Question 3

		PRE-TEST		POST TEST	
		Frequency	Percentage (%)	Frequency	Percentage (%)
Valid	Right	2	40	4	80
	Wrong	3	60	1	20
	Total	5	100	5	100

Table 3 shows the result from the question number 3. For this question want to measure the cognitive level all the samples about the side effect on human health from air pollution. There is a serious and non-serious side effect from air pollution on human health This results is similar to the study of Wong et al. (2008), which focused on the relation between Public health and air pollution in Asia.

From the Table 3 itself, we can see the percentage of the students able to answer correctly for post- test increase which is 80%. But then still have 1 student unable to answer correctly for this question. This is due to the multiple choices answer is in synthetic name. Some of the answer is not familiar among the students. Overall, the cognitive level among the students improved after showing the tutorial video.

Question 4 (List three effects of air pollution that harms the environment)

From Table 4, its focuses on the effect of air pollution towards environment health. Groundwater, soil, and the air can all suffer significant environmental harm as a result of air pollution (Sahu & Roy, 2015; Rivas et al., 2018). Additionally, it poses a grave threat to the variety of life. Environmental pollutants have a negative impact on the extinction of animal and plant species, according to studies on the connection between air pollution and reduced species variety (Ukaogo et al., 2020; Pratiwi & Juerges, 2020).

Table 4. Question 4

		PRE-TEST		POST TEST	
		Frequency	Percentage (%)	Frequency	Percentage (%)
Valid	Right	1	20	4	80
	Wrong	4	80	1	20
	Total	5	100	5	100

From the result is self, I was expected most of the students unable to answer the question correctly for the pre-test due to the concept of the air pollution. Normally students will confuse about the side effect of air pollution and climate changes effect. For the pre-test 80% of the students answer wrongly due to low of the knowledge for this issue and finally after the researches show the tutorial video the percentage was increase about 60%. Its show the cognitive level among the students about this issue increase and get improved.

Question 5 (How to reduce air pollution)

Table 5. Question 5

		PRE-TEST		POST TEST	
		Frequency	Percentage (%)	Frequency	Percentage (%)
Valid	Right	3	60	4	80
	Wrong	2	40	1	20
	Total	5	100	5	100

From the table 5, this question scope is on how the green practice among students can reduced the air pollution. There is a lot of green practice we can apply in daily life which is using public transport instead of using personal automobiles (Afroz & Ilham, 2020). Considering the study of Wang et al. (2016), automobiles do more than only add to the amount of ozone at ground level. Burning coal and oil is necessary for the production of gasoline, which raises the level of sulphur dioxides, one of the six main air pollution pollutants.

According to the Anjorin and Amos (2020), refineries are important sources of sulphur dioxides, and more time spent driving a car implies more air pollution for everyone to breathe. For the table itself, its show there is a significant difference between pre-test and post-test examination.

For the pre-test, the percentage of the students understanding on this question is quite high which is 60%. But still have 2 out of 5 students unable to answer this question which is 40%. For the post-test examination is show the percentage of the students' knowledge for this question increase 20%. So, overall, from this result, 4 out of 5 students have a strong knowledge in term of the green practice that they practice in daily life routine. This approach will give children real-world context of why environmental awareness matters, and encourage communities to work together to address environmental concerns.

To sum up, precise, timely information could be a substantial tool to alleviate detrimental impacts of air pollution. Although national guidelines for environmental risk communication, on the basis of crisis and risk communication principles are available, little is perceived how those are operationalized, nor regarding the efficiency of current communication attempts. Nonetheless, a developing literature on environmental health literacy recommends that communication concerning environmental hazards should move beyond individual behaviour education to enable communities to mobilize to decrease the environmental threats.

4. Conclusion

Overall, the current study attempted to analyze the secondary school pupils' understanding of the environment. To that end, the research utilized a survey method with multiple-choice questions to examine secondary pupils' environmental awareness. Based on the results obtained, a total of 10% of pupils have poor awareness of air pollution, 20% have moderate awareness, and 70% have high awareness, according to the research. The cognitive level, incorporating environmentally friendly practices into daily activities, and knowledge of the impacts of air pollution on human and environmental health all contribute to one's level of environmental consciousness. Results of

this research highlighted that although students had a high level of environmental awareness these gains did not turn into active participation and environmental attitudes. Environmental rights and responsibilities should be adopted at school and followed by applied training models aiming environmental attitudes and behaviours.

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