PUPILS PERCEPTION TOWARDS THE IMPLEMENTATION OF ENVIRONMENTAL EDUCATION ACROSS CURRICULUM IN MALAYSIA PRIMARY SCHOOL

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Abstract. Education is an important element in enhancing pupils' awareness on the environment. This is because education plays an important role in shaping and transforming society. In Malaysia, environmental education (EE) across curriculum has long been established. However, to date there is no specific assessment done to determine the successful implementation of these elements. Thus, the perception of pupils is needed to identify the needs of the implementer of the suitability and significance of EE across the curriculum on the pupils' environmental awareness. This study aims to identify the grade 6 pupils’ perception toward the implementation of environmental education across curriculum in Malaysia primary school. The results showed that the pupils' perception of the environment was overall high and the location of the school does not significantly affect the pupils' perceptions of the environment. The majority of students defines the concept of the environment as objects. In addition, the percentage of pupils who give the concept of environmental rationally is also high. The perceptions of pupils on the need to protect the environment illustrate the majority agree on the benefits of future generations. The environmental concepts are presented somewhat rational and show the relationship between the environment and human beings. In conclusion, students' perceptions of the environment are positive and can determine it rationally and know the nature of natural disasters is a result of human action.

1. INTRODUCTION
Education is required to sow and instilled environmental knowledge and values through the learning and teaching process in both classroom and outdoors so students can positively react to the environment. This situation led to education being adopted as one of the most appropriate mediums to apply the values of the environment is not overwhelming as almost all the people go through it. Since the
Intergovernmental Conference on Environmental Education in USSR in 1977, education has been accepted and appointed as the most appropriate medium in the effort to regulate the environment and sustainable development, environmental education and education for sustainability is the most effective way of dealing with environmental issues [1, 2]. This means that the school has been entrusted to deliver not only useful academic knowledge, but also the knowledge of a very important environment for humanity to survive. Moroye schools are also a key way to address environmental issues. Next, it can build a more perfect human life by raising awareness of the environment [3]. However, over the past decade, the scope of EE has traditionally been found to be limited in influencing the attitudes needed to reduce environmental pollution [4].

EE was debated issue internationally since the Stockholm Human and Environmental Conferences held in 1972. Figure 1 shows a series of international environmental issues discussions that are always looking for solutions to address the increasingly tenuous environmental quality.

![Figure 1: International EE discussions [5-7]](image)

In line with that, in 1972, Malaysia began participating in environmental talks at the United Nations Conference on Human Environment when environmental issues arose as a global concern [8]. The role of education was seen as the most important agent at the Summit of Earth in Rio de Janeiro in 1992. The most important thing discussed in the conference was on Sustainable Development until there was Chapter 36 in Agenda 21 and among its resolutions had set out the dissemination of information on sustainable development through EE program. This is in line with the primary task of education, to distribute legitimate knowledge to the community [9]. The knowledge gained through the education process can produce knowledgeable human capital and the potential to advance the nation from various aspects. This is because human capital development of a country is very important to drive the development of a civilization [10].

Learning process is a continuous process that will usually cause a change in human behaviour in a positive direction. In other words, education is a highly influential agent in shaping human identity and mold to manage the environment and shaping the future. Meanwhile, EE is also an important element in improving the quality of the environment by nurturing and instilling awareness about the importance of environmental preservation and conservation. As a result, the preservation and conservation of nature and natural resources can contribute to the improvement of the quality of life [11].

Perception of the environment refers to an individual's perception or view of the environment and its surroundings. Therefore, different individual perceptions are usually different because each one views something from a different point of view. Human perception of the environment is influenced by various factors, whether external or internal. One's existing experience can also affect human perception to create a new situation. This is because the formation of perceptions, attitudes and relationships with the environment is a key goal in childhood and facilitates a variety of positive environmental experiences.
from one child to another [12]. Children begin to make a perception of the world at a very young age as early as they get formal education. Preliminary perception is formed through observation and personal experience in the local environment and media coverage of global issues [13]. Likewise, perceptions of environmental issues need to be emphasized because through perceptions will drive towards the behaviour or actual actions of individuals.

Perception is a person's view or response to something like a student's perception of environmental issues. Perception is a dependent variable that will change according to the influence of the environment, friends, attitudes, knowledge, parents and other related factors. In this study, the perception is chosen as one of the variables because through the perspective of an individual it will lead him to act either to bring about positive or otherwise positive effects on the environment.

2. METHODOLOGY
A total of 81 respondents was involved in this study using a qualitative approach through partial structured interviews conducted in selected schools. Meanwhile, 685 respondents were involved using a quantitative approach. The respondents' choice in this method was conducted randomly by the school according to the three levels of student achievement in academic, namely excellent, medium and weak in Kulai, Johor, Malaysia. Triangulation is done to determine the validity of the decisions obtained from both approaches and to strengthen the results of the study. Qualitative methods can be used to identify and obtain additional information that can support and reinforce the findings of quantitative methods. According to Azizi et al., this method provides clear confidence in the validity, decision and fact [14].

This interview was conducted in full compliance with the protocols of the interviews provided.

Interviews were analyzed manually by making transcriptions right after the completion of each interview session. The transcription is prepared based on the questions posed. Then, the analysis of the transcription is done by looking at the suitability of a particular theme to the answers given by the respondents in accordance with the process suggested by Bogdan and Biklen [15]. Even though there is software that can be used for analysis process but researchers prefer the manual way because computer software is not able to replace the process of interpreting the significance of data requires the identification of meaningful categories and determine the relationship between each of these categories. Meanwhile, the quantitative data was analyzed used t-test, percentage and mean.

3. Instrument
The research instrument applied in this study was a set of questionnaires and interview protocols. Among the information obtained through the questionnaire are demographic and 15 statements aimed at measuring pupils' perceptions of the environment. The items are in the form of a statement and students are asked to choose according to the 5 points Likert scale which is very disagreeable (STS), disagree (TS), uncertainly (TP), agree (S) and strongly agree (SS). The Likert scale was chosen in this study because the scale was easily administered, analyzed, more consistent and had high reliability. The given perceptual items are more geared towards the students' existing experiences. This allows the pupil to give perceptions of what is seen, experienced and what has been done before.

Then, the instrument was developed to three lecturers who are experts in this field of study for validation. The validation of the experts in the field studied is necessary to determine the accuracy and validity of the set of questionnaires that have been prepared [16]. Evaluation of instruments submitted to experts in this field takes between one to two months to be returned to the researcher. After review by experts, some questions and answers have been purified such as terms and sentences to facilitate student understanding.

Pilot study should be carried out before the developed instrument is used on the actual sample so that the reliability of the instrument can be ascertained. This step should be implemented to ensure the reliability of the research instrument can be performed on other respondents. Chua stated usually about 30 people who have the same characteristics as the respondents of the study are sufficient [17]. An important pilot study was undertaken to give a preliminary picture of the probability of the results of the study to be obtained in the actual study and the reliability of the instrument can be ascertained. However,
the results of the study were not able to ensure the success of the actual study but can help in identifying the feasibility or the realities of the actual studies to be carried out.

For this purpose, pilot studies were conducted in a primary school in Kulai district, which was not involved in the actual study. The researchers themselves administered this study with the help of teachers in the school. Before respondents answered the questionnaire, the researchers first explained the background and the purpose of the study. The administrative procedures of this pilot study are also explained so that respondents can respond well. The findings of the pilot study were analyzed to obtain the reliability of the instrument. The results of the pilot study show that the Cronbach $\alpha$ coefficient is 0.787 ($n = 31$). Therefore, the researcher still maintains the number of items (15 items) for this part because the reliability value obtained is quite high.

The interview protocol consists of 10 questions relating to the environment, including several questions relating to waste management. The questions relate to the pupils’ view of the environment, the pupils' efforts in environmental preservation, the application of pure environmental values and the adequacy of environmental knowledge delivered by the grade 6 science teacher. Interviews were conducted on a group of 3 people at a time. The time for each interview session lasts between 14 and 18 minutes. The interview session was recorded with the sound recording device. In this context, the questions presented have been reviewed by three experts and experienced lecturers in this field of study. The purpose of the student interview protocol is to obtain an in-depth feedback on the questions raised. This section was also implemented to complement and support the results of this study.

4. RESULT AND DISCUSSION
The results of the study will be discussed and refined to determine the respondents' perceptions of the environment. Perception is an important component in determining the attitudes and behaviours of humans towards the environment as these components are mutually influential.

4.1. Respondents background
A total of 81 respondents (26 male, 55 female) was involved in this study using a qualitative approach through partial structured interviews conducted in selected schools. Meanwhile, 685 respondents (309 male, 376 female) were involved using a quantitative approach. Figure 2 shows the number of respondents by gender. All respondents are grade 6 pupils from national school, Chinese school and Tamil school. Respondents in this study are 12 years old and had 6 years experiences studying in primary school. There are 345 respondents from schools situated in an urban area and 340 respondents from school situated in rural area.

The results showed that the respondents' perception of the environment was overall high or positive (76.9%) with a mean score of 3.9225 (mean score = 3.67-5.00). Perceptions of 158 respondents were moderate or neutral (mean score = 2.34-3.66), while no respondents showed low perception (mean score = 1.00-2.33). Table 1 shows the level of perceptions. The results of this study are in line with past studies on children's views on the future, showing deep concern for social and environmental issues [18-20]. A high level of perception of the environment is a positive indicator of respondents or perceptions of respondents to the environment. The similarity of perceptions shows that education about the environment is important so that time and environment change does not change the positive perception of the environment.
This study also intends to examine whether there is a difference between the school location and the respondents' perception of the environment. The analysis of the study using t test to achieve that goal has resulted $t = -1.487$ and $p = .137$ ($p > .05$). The results showed that respondents' perception of rural students was slightly higher (mean = 3.9506) compared to urban respondents (mean = 3.8949). The study concludes that there is a slight difference in perceptions of respondents between rural and urban zone schools, which is slightly better than urban students, but these differences are not significant. The results of this study are supported by the study of Roslee et al. [21]. This means that the position or location of the school does not significantly affect the respondents' perceptions of the environment because of technological sophistication and informational channels at the fingertips. The findings of the previous study show that humans evaluate environmental problems from different angles as there are various factors that affect the perception and assessment of the problem [22, 23]. Rural or urban communities have easy access to the Internet but their use depends on the willingness and desire of the individual.

The respondents' perceptions of high levels of environment can drive the true action of this group positively towards the environment. However, there are other factors that affect the human action of the environment. Research on the data as a whole has found that respondents' perceptions of the environment are at high or positive levels. Alp et al. found that pupils had a higher inclination to translate feelings toward the environment, but did not show such a desire for efforts to act eco-friendly [24]. This is because students do not have enough information about the causes and consequences of their actions on the environment.
4.2. Environmental Concept
The diverse concepts of the environment bring different meanings to the existing experience, knowledge, local culture and environmental influences. In this study for interview approach, seven categories as pioneered by Loughland, Reid and Petocz have been adopted to determine the environmental concept by respondents' views [25]. The category is a place (surrounding area), a place with living things, an object (water, tree), a place where humans and others in the surroundings depend on each other for a living, God's creation, a place that humans are responsible for looking after and a place that supports human survival. Aini et al. also used the same category in their studies of secondary school pupils [26].

The results showed that the majority of respondents (n = 81) define the environment with object concept (38.3%). 39.5% of the respondents gave a rational concept about the environment, namely "A place that humans are responsible for looking after" and "a place that supports human survival". However, two respondents were unable to define them and 41 respondents responded to defining the environment towards the concept of objects (places and objects). The results also found that no respondents associate the environment with "A place where humans and others in the surroundings depend on each other for living". This situation may be caused by the viewpoints or understanding of respondents at this age (12 years old) to the unreached environment, still in the process of understanding or not being exposed by teachers and any parties. Table 2 shows the differences in concepts to the environment by respondents.

| Environment concepts                                          | Number | %    |
|---------------------------------------------------------------|--------|------|
| A place (surrounding area)                                    | 10     | 12.3 |
| A place with living thing                                      | 3      | 3.7  |
| An object (water, tree)                                       | 31     | 38.3 |
| A place where humans and others in the surroundings depend on each other for living | 0      | 0    |
| God's creation                                                 | 3      | 3.7  |
| A place that humans are responsible for looking after         | 25     | 30.9 |
| A place that supports human survival                          | 7      | 8.6  |
| No response                                                    | 2      | 2.5  |
| **Total**                                                     | **81** | **100** |

4.3.  The Need to Protect the Environment
This study also examines pupils' opinions on the need to protect the environment holistically and sustainably as well as the reasons the respondents think so as in Table 3. The reasons given are detailed to summarize pupils' responses to the environment in the context of environmental importance to human beings from all aspects. The findings show that the importance of protecting the environment according to the most frequent respondents' views is "For future generation" is 22.2% as in Table 3. Followed by "Avoid pollution" by 14.8% and "Ensuring health" of 10 people. The reason for avoiding pollution here refers to all types of contamination such as water, air, land and so on.

The study concludes that respondents are aware of the importance of protecting the environment for the benefit of future generations and preventing various pollution to ensure human health. However, there is a respondent who cannot express the importance of protecting the environment. Only two respondents stated that the importance of protecting the environment is to "attracting tourist" to Malaysia and this statement is linked to the national economy. Meanwhile, three responded to "comfortable living". The findings show the diversity of respondents' perceptions of the importance of protecting the environment.
### Table 3: The need and the reasons to protect the environment

| The need to protect the environment | Total |
|------------------------------------|-------|
|                                    | Number | %   |
| For future generations             | 18     | 22.2|
| Ensuring health                    | 10     | 12.4|
| Avoid pollution                    | 12     | 14.8|
| Avoid global warming               | 6      | 7.4 |
| Supply oxygen                      | 7      | 8.7 |
| Avoid the extinction of nature     | 6      | 7.4 |
| Attracting tourists                | 2      | 2.5 |
| Comfortable living                 | 3      | 3.7 |
| The environment is important for living | 6 | 7.4 |
| Natural disasters                  | 4      | 4.9 |
| Others                             | 6      | 7.4 |
| No response                        | 1      | 1.2 |
| **Total**                          | 81     | 100 |

4.4. Perception on environmental issues

Respondents' perception to environmental issues, especially those involving feelings are also identified in this study. The results of the analysis show that respondents expressed sadness, disappointment, anger, dislike and others (dissatisfaction and dislikes) on environmental issues that occurred either locally or internally as in Table 4. Respondents are so heart-wrenching that most environmental issues occur as a result of human action.

The findings of the study show that the majority of respondents (44.4%) is saddened by the existence of environmental issues that usually have a negative impact on humans and the environment. Besides sadness, respondents also expressed disappointment (19.8%) against the irresponsible attitude of the environment without thinking that the environment is a common right.

### Table 4: Feelings of respondents on environmental issues and human actions towards the environment

| Feeling     | Number | %   |
|-------------|--------|-----|
| Sadness     | 36     | 44.4|
| Anger       | 22     | 27.2|
| Disappointment | 16    | 19.8|
| Dislike     | 4      | 4.9 |
| Others      | 3      | 3.7 |
| **Total**   | 81     | 100 |

There were some respondents (27.2%) who expressed anger over irresponsible human activities and damaging the environment. 4.9% of respondents expressed dislike as well as 3 respondents have feelings of dissatisfaction and hate towards the actions of those who cause harm to the environment. To get a clearer picture, respondents are also asked to state why they feel such feelings. After conducting research on the data, the study found that the majority of respondents (50.6%) made irresponsible people as their sole cause of concern as in Table 5. Such a review because the environment is the right of everybody, but there is an irresponsible person doing damage, so it is harmful not only to the environment but also to the detriment of humans especially in terms of social, economic and political.
There is no sense of affection for the environment as well as justification for respondents why feelings of sadness, disappointment, anger, dislike and others are caused by those who cause environmental damage. Research on data found that most respondents stated "Do not throw waste everywhere" as a pure effort to conserve the environment (18 respondents). This is in line with the willingness and ability of this group based on the age of about 12 years. Table 6 shows the efforts the pupils have and will do to preserve the environment.

Many of the respondents responded that recycling and collaborative cleaning practices were undertaken for environmental conservation with 14 and 10 respondents respectively. There are also other efforts undertaken by respondents to support and preserve the environment such as planting flowers, treating and advising friends, collecting garbage and throwing them into the garbage bin, saving natural resources and garbage isolation before being discarded. However, a respondent did not state his efforts on the preservation of the environment in this study. Overall, respondents are trying to maintain the environment.

4.5. Perception of natural disasters and their impact on human and nature
In this study, respondents’ view of natural disasters was identified to determine the level of respondents’ knowledge to environmental issues in general. The focus of this research is on the occurrence of natural disasters. Overall, all respondents stated that the incidence of natural disasters was caused by human action towards the environment. The reasons mentioned are divided into several aspects as shown in Figure 3.
Figure 3: Respondents’ view on the cause of natural disaster

Figure 3 shows that the "irresponsible" aspects of human beings are the main cause of natural disasters (55 respondents). Commentary from respondents shows that this aspect takes place from the smallest of individual behaviour such as trash throwing to the maximum extent of individual or collective behaviour such as uncontrolled forest exploration. 6 respondents combine irresponsibility and human greed when interacting with the environment. This aspect suggests that people are too profitable without thinking about the disasters they face. Meanwhile, 2 respondents who view that natural disasters occur due to the ongoing development process throughout the country. Unplanned development can end up with natural disasters and not for the benefit of all. 8 respondents stated that "Greed" is human greed as contributors to natural disasters.

For impact on human and nature, the majority of respondents believe that the impact of natural disasters on humans is affecting health (43.2%), leading to death (13.6%). Other effects can be seen in the summary of findings as in Table 7.

Table 7: Impact of natural disasters to humans and nature

| Impact of natural disasters                  | Number | %  |
|---------------------------------------------|--------|----|
| **Impact on humans**                        |        |    |
| Impaired health                             | 35     | 43.2 |
| Loss of property                            | 3      | 3.7 |
| Basic facilities are affected                | 5      | 6.2 |
| Death                                       | 11     | 13.6 |
| Uncomfortable life                          | 7      | 8.6 |
| Impaired health and loss of property         | 6      | 7.4 |
| Impaired health and homelessness             | 3      | 3.7 |
| Death and loss of property                   | 2      | 2.5 |
| Others                                      | 6      | 7.4 |
| Not specified                               | 3      | 3.7 |
| **Impact on nature**                         |        |    |
| Destroyed                                   | 21     | 25.9 |
| The trees are getting decrease              | 4      | 4.9 |
| Extinction                                  | 16     | 19.8 |
| Nature is polluted                          | 29     | 35.8 |
| Others                                      | 5      | 6.2 |
| Not specified                               | 6      | 7.4 |
| **Total**                                   | 81     | 100.0 |
Most respondents (35.8%) think that the impact of natural disasters on nature is contaminated nature. 25.9% of respondents believed that the environment would be destroyed and 19.8% of respondents said that the extinction would occur in the environment. The view of the respondents leads to the destruction of the environment at the end of which is to start the contaminated nature, then cause extinction and ultimately total destruction of nature. There are respondents who view that the effects of natural disasters cause the trees to decrease (4.9%) and others (6.2%), while (7.4%) respondents do not express their views on this issue.

The findings of the perception study show that respondents have various concepts to define the environment. Respondents' perceptions of the importance of protecting the environment show that all parties should work together to create a harmonious and balanced environment without thinking of self-interest for the benefit of future generations. Generally, the environmental awareness of respondents is modest and can be improved and preserved by various parties.

5. CONCLUSION
In conclusion, respondents have various environmental concepts through their perceptions based on experience, knowledge, everyday life and environment. The findings of this perception study show that the environmental concept of respondents is more conceptualized. However, the stated environmental concept was related to the environment and human and rational. In addition, the importance of protecting the environment is more focused on the benefits of future generations and ensuring health. Therefore, the environment needs to be maintained sustainably so that pollution can be avoided. In this context, all parties need to be responsible and cooperate to protect the environment to improve the quality of the environment. Hence, educational institutions such as schools need to play an active role in spreading environmental knowledge to preserve it. Respondents' awareness of the importance of the environment can also be identified through a sense of emotion over environmental issues. Respondents also know that all parties have the right to the environment and should not be manipulated arbitrarily. Incidents of natural disasters will occur if human beings act extravagantly on the environment resulting in a negative impact not only on nature but also to the loss of universal humanity. In general, respondents are aware that the destruction of the environment is due to irresponsible, greed and human action that negates nature's pursuit for self-interest.

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