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Knowledge on Recycling among Orang Asli Primary School Children in Sekolah Kebangsaan Penderas, Kuala Krau, Pahang

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Abstract

Introduction: Recycling activities are the process of collecting, sorting and reprocessing certain materials which considered as waste into a new product. **Objective:** The aim of this study was to assess the knowledge of the *Orang Asli* school children before and after the running of a promotional and educational program on recycling through questionnaires. **Method:** A questionnaire-based study was conducted to assess the knowledge of the *Orang Asli* school children on recycling. **Result:** Overall, respondents have had some knowledge about recycling before joining this program. An increase in knowledge were evident after they sat for the program. Most of them acquired the knowledge through mass media. Broadcast media were important avenues to obtain information on recycling. Respondents were more knowledgeable to recycle items that were visually available to them. **Conclusion:** Parents, school authorities and society at large has the responsibility to educate children at the earliest possible age on the importance of recycling.

Keywords: Orang Asli, School Children, Recycling, Educational Programme, Responsibility.

Introduction

“Recycle” is one of the main component in the ‘Reduce, Reuse and Recycle’ waste hierarchy. Recycling activities are the process of collecting, sorting and reprocessing certain materials which considered as waste into a new product. The concept of recycling process is the waste materials are the treatment or processing of discarded objects to produce the new product of the same materials (Sharifah et al., 2005). The Ministry of Housing and Local Government (2005), summarized the benefits of recycling in Malaysia as follow, recycling reduces waste which in turn reduces the need for landfills and dumpsites; recycling reduces pollution and saves energy; recycling is cheaper in the

long run compared with maintaining landfills and other systems; recycling creates up to five times more jobs than waste disposal alone; and recycling improves cleanliness and quality of life.

Currently, 17,000 tonnes of municipal solid wastes are generated in Peninsular Malaysia daily. This is estimated to increase to more than 30,000 tonnes in the year 2020. From that, almost 95% of the collected wastes are taken to about 120 treatment disposal facilities that are distributed throughout the Peninsula (Ministry of Housing and Local Government, 2005). Hence, the Malaysian government has set the long term target of recycling about 22% of the waste generated by 2020 (Consumers' Association of Penang, 2001). At the same time, the Ministry of Housing and Local Government launched a recycling program in 1993 as an initiative to overcome the problem of waste management. The recycling campaign was a program which embedded a three-component practice, namely 'Reduce, Reuse and Recycle' (3R's). Recycling has been approved as the alternative way in reducing the amount of waste that needs to be disposed of. It can be seen as one of the efforts to cope with this issue. A well – structured recycling program can help to reduce the waste as well as the disposal and treatment cost (Koli and Mahamuni, 2005). However, public participation especially from students in recycling is still very low despite rigorous campaigns conducted by the government. The current recycling rate in Malaysia is only 17.5% for the year 2017 (The Star Online, 2017). This rate was far behind compared to other countries, such as Germany, which has reached 56% (World Economic Forum, 2017).

The most important way to resolve this issue is to encourage people especially the younger teenagers such as school students to do recycling activities. However, according to Nair (2010), many school students are not aware of the economic benefits of recycling although schools have conducted many recycling programs. They are also unaware of the importance of recycling as a measure to save natural resources. Therefore, this study is very significant and crucial in order to know the level of knowledge of primary school students in recycling activities. Hence, the aim of this study was to assess the knowledge of the *Orang Asli* school children before and after the running of a promotional and educational program on recycling through questionnaires.

This study was conducted as there has been less study has done to assess the knowledge of recycling among *Orang Asli* school children in this country. This effort would make a good baseline data for those interested in continuing this type of study to *Orang Asli* communities elsewhere. Knowledge is a precondition for environmental awareness to ignite in individual especially in students' ability to understand and evaluate the impact of a society on the ecosystem (Gambro et al., 1996). Specific knowledge can further strengthen their attitudes and their environment-friendly practice including recycling activities. Knowledge also will impact students self-learning, managing behavior, situation awareness and decision making. Thus, knowledge about recycling can make students aware about the impact on increase of waste to the environment and how important to practice recycling in their life.

Methods

Study location

This study was conducted at Sekolah Kebangsaan Penderas (JHEOA), located approximately 15 kilometers from the town of Kuala Krau in Pahang. Majority of the students are *Orang Asli* children living either in the vicinity of the school or up to 10 kms away in other villages. This school has a dormitory for which the children can stay during school days.

Respondents

Based on the information given by the Department of Aboriginal Development (JAKOA), the Senoi people inhabit the slopes of the Main Range, which covers the interior of Perak, Kelantan and Pahang states in Peninsular Malaysia. There are six indigenous tribes in the Senoi people lineage, which are Che Wong, Mahmeri, Jahut, Semog Beri, Semai and Temiar (JAKOA, 2016).

The study area chosen was Penderas Village, near the town of Kuala Krau, Pahang. This village is inhabited by the Jahut people from the Senoi lineage. They also inhabit areas in Kerda-Paya Paleng, Paya Mengkuang, Kuala Krau, and Jerantut (Sungai Kiol and Kekwel). This indigenous people work as hunter-gatherers in the forest, collecting *rotan* and *damar* to be sold to interested parties, as well as hunting and game, and planting hillside rice, maize and cassava.

The Penderas Primary School (JHEOA) is located in the Penderas village area, and is one of the schools dedicated for the *Orang Asli*. Other schools similar in design are the Kudong Primary School in Segamat, Pulat Primary School and Pos Brooke Primary School in Kelantan. Penderas Primary School is placed under the management of the Temerloh education office and the teachers' activity centre is located in Kuala Krau (MoE, 2016).

This study only enrolled *Orang Asli* children aged 11-years-old as they have better understanding on issues such as recycling compared to those younger than themselves. It was demonstrated in the majority of studies that older age is more likely to recycle (Singhirunnusorn et al., 2012). The study did not enroll standard six students as they were getting ready to sit for the UPSR examination. To conduct the research, approval was obtained from the Ministry of Education, Department of Aboriginal Development (JAKOA) and the school administration. Before the questionnaires were distributed, the students were being briefed on the purpose of the research.

Study Instrument: Questionnaire

A questionnaire on knowledge on recycling were used to gather information from the respondents. A questionnaire was developed based on information gathered from a previous study by Seow and Indera Syahrul (2010), The Society Attitude Towards Recycling Program: A Case Study in Batu Pahat, Johor and the study by Jamilah et al. (2011) on Knowledge, Attitude and Practices of Malaysian Society regarding Environmental Issues. The questionnaire was modified to suit this research in order to gather the related information from the respondents. Respondents were asked to fill in the answers before and after attending a program on recycling organized by the researchers. The data obtained were entered into Excel 2013 for analysis.

Results and Discussions

Question 1: Do you know about the 3R campaign (Reduce, Reuse, Recycle)?

During the pre-program questionnaire, when asked “do you know about the 3R campaign (Reduce, Reuse, Recycle)?”, only 64% of respondents knew about the 3R campaign, but after attending the program, there was an increase in their awareness up to 77% (Figure 1).

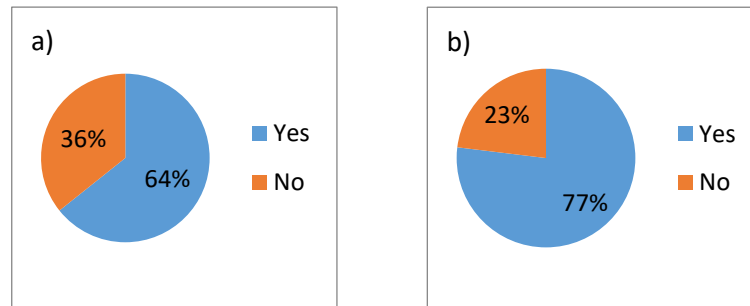


Figure 1. Knowledge on 3R for (a) before and (b) after the 3R program

Question 2: Recycling is a component of 3R

The whole group of respondents (100%) knew about the recycling component of 3R after attending the program, an increase of 14% from an initial finding of 86% (Figure 2).

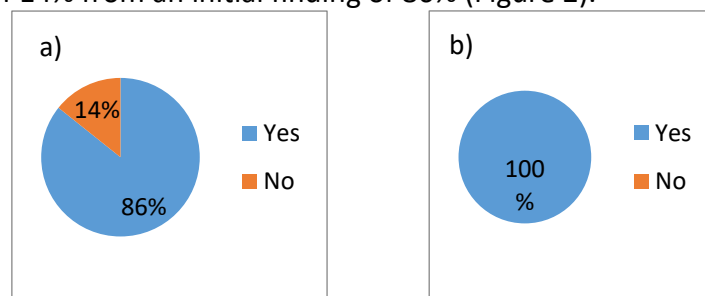


Figure 2. Recycling is a component of 3R for (a) before and (b) after the 3R program.

Question 3: Do you know that 3R activities is a way to reduce the amount of rubbish at the dumping site?

For this particular question, there was a decrease in respondents answering “Yes” with a percentage less than the initial questionnaire (86% to 85%) (Figure 3).

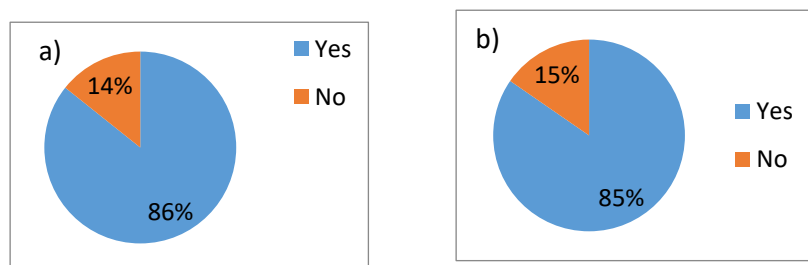


Figure 3. 3R activities as a way to reduce amount of rubbish at dumping sites for (a) before and (b) after the 3R program.

Question 4: Items that are 3R activities

Regarding this question, there was an increase in response for the first two statements; (a) reduce usage of plastic bags when buying at shops and (b) reuse used containers for other usage. Whereas, there was a decrease in the percentage of students opted the third statement (produce new products from used items), and no change for the last statement (separate waste at home before throwing away) (Figure 4).

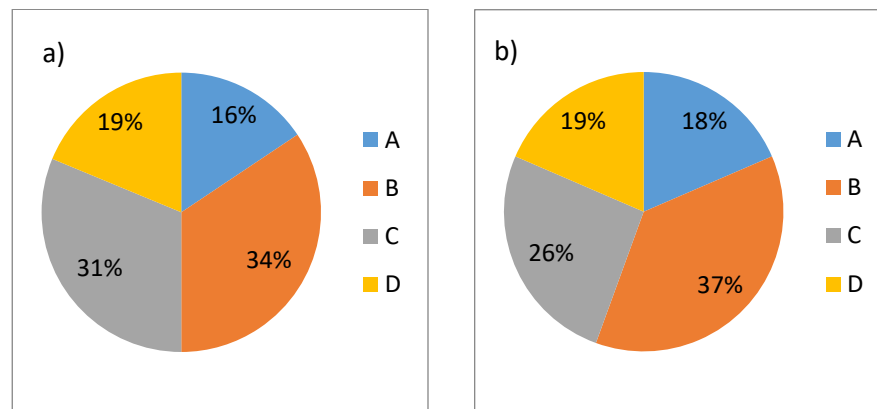


Figure 4. Items that are part of 3R activities (A) reduce usage of plastic bags when buying at shops; (B) reuse used containers for other usage; (C) produce new products from used items; (D) separate waste at home before throwing away for (a) before and (b) after the 3R program.

Question 5: What is the importance of the 3R activities

When asked on the importance of 3R activities, there was an increase in percentages of three activities out of four statements in this question (option B, C and D). The respondents knew that 3R can reduce environmental pollution, can ensure clean environment and can reduce cost of solid waste management, but they were not sure about 3R activities can reduce usage of raw materials (option A) (Figure 5).

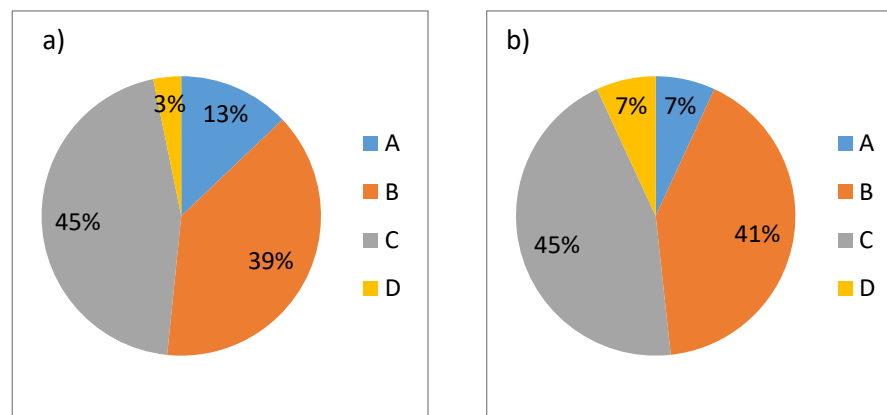


Figure 5. Importance of 3R activities such as (A) can reduce usage of raw materials; (B) can reduce environmental pollution; (C) can ensure clean environment and (D) can reduce cost of solid waste management for (a) before and (b) after 3R program.

Question 6: Stage of understanding about recycling of used items

There was a marked increase for those knowing more (option B) about recycling of used items (43% to 85%) while for those who understood a lot (option A), an increase from 7% to 15% was reported (Figure 6).

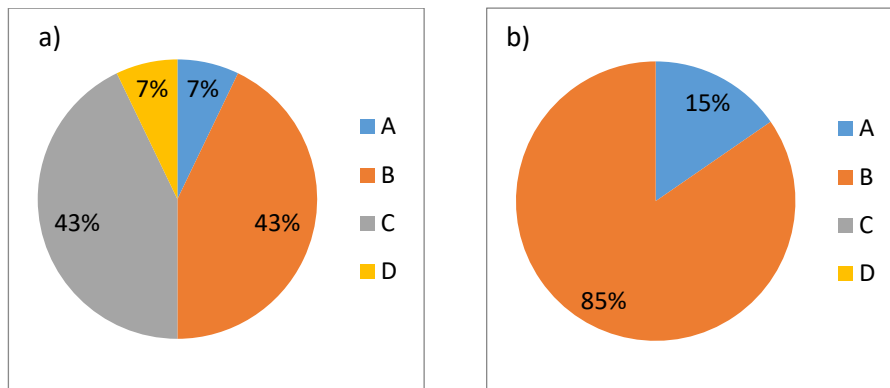


Figure 6. Stage of understanding about recycling of used items (A) a lot; (B) knowing more; (C) a little and (D) do not know for (a) before and (b) after 3R program.

Question 7: Color codes for recycling bins are blue, orange and brown.

After attending the program, all respondents (100%) knew the color codes for recycling bins are blue, orange and brown (Figure 7).

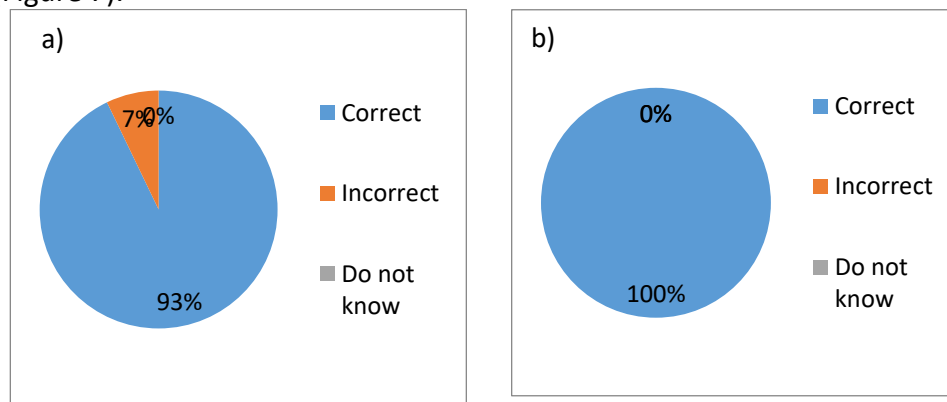


Figure 7. Percentage of correct answer of the color codes of recycling bins for (a) before and (b) after 3R program.

Question 8: What items can be recycled?

Regarding this question, after attending the program, there was an increase in positive response in 3 out of 8 items (paper, glass bottle and polystyrene) while a decrease for the other items (plastic, steel tins, aluminium tins, cloth and not sure) (Table 1).

Table 1. Percentages of items that can be recycled.

Answer	Before (%)	After (%)
A. Plastic	26	25
B. Paper	17	27
C. Steel tins	9	4
D. Aluminium tins	21	17
E. Glass bottles	17	19
F. Not sure	4	0
G. Polystyrene	2	6
H. Cloth	4	2

Question 9: Recycling can bring plenty of benefits to the villagers

The respondents already have prior knowledge to this question, where all of them (100%) answered they knew that recycling can bring plenty of benefits to the villagers.

Question 10: From where did you know about recycling?

There was an increase in percentage when comparing between before and after attending the program in 3 out of 7 items in this question. The increase was from television (39% to 55%), radio (0% to 4%) and friends (4% to 5%). Other items showed a decrease in percentage (Figure 8).

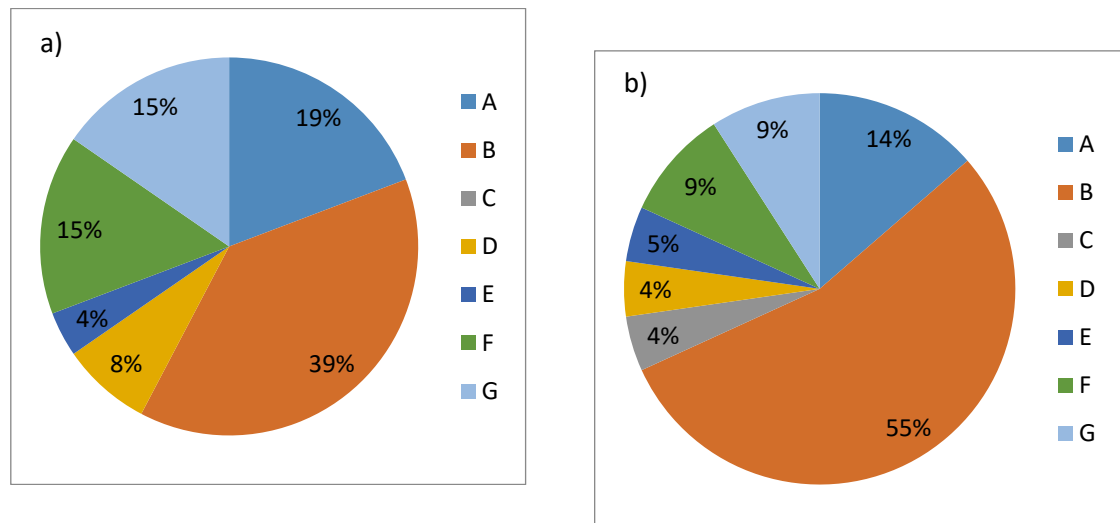


Figure 8. Sources of where the respondents know about recycling (A) Newspapers; (B) Television; (C) Radio; (D) Magazines; (E) Friends; (F) School and (G) Family for (a) before and (b) after 3R program.

It can be seen that respondents have had basic information on the 3R (Reduce, Recycle and Reuse) program. This may be due to exposure at school or from the mass media beforehand.

The program has also increased the knowledge on recycling among respondents. This was evident in areas such as recycling as a component of the 3R question (86% to 100%), reuse container for other

usage (34% to 37%), reduce usage of plastic bags when buying at shops (16% to 18%), 3R activities can help reduce environmental pollution (39% to 41%), 3R activities can help reduce cost of solid waste management (3% to 7%), respondents knowing more about recycling of used items (43% to 85%) respondents who now know a lot more (7% to 15%), color codes for recycling bins (93% to 100%), items to be recycled (paper, glass bottle and polystyrene) and initial information about recycling which came from television (39% to 55%), radio (0% to 4%) and friends (4% to 5%). Other items showed decreases or stagnation.

On the question about items that can be recycled, most of the respondents were exposed to paper as a recyclable item, with glass bottles coming next. After undergoing the program, paper recycling has the most increase in percentage compared to other items such as plastic, aluminium cans and polystyrene. In school, students are more exposed to ways to recycle paper as the main item for them to write on. And in school, there are no avenues for them to buy canned drinks, so the practice in recycling was more based on paper items. Adding to that, polystyrene packaging of all types was banned in the school.

The choice of mass media in gaining knowledge on recycling was varied, and it can be seen from this study that the respondents were more receptive on recycling information shown on television (39% to 55%) and radio (0% to 4%) compared to printed media, for example newspapers (19% to 14%) and magazines (8% to 4%). In short, moving pictures with sound or sound alone may attract them to concentrate more on the information being given.

Conclusions

Knowledge on recycling is vital for youths to adopt the practice of recycling. Without sufficient knowledge (ideas and skills), they cannot perform the recommended tasks in order to practice recycling (Tan et al., 2013). Overall, the *Orang Asli* students who joined as respondents have had some knowledge about recycling and the recycling campaign before joining this program. Most of them acquired the knowledge through mass media. A wider study on this aspect would be recommended to ascertain the attitude and practice among other *Orang Asli* communities especially children. This would give them an avenue to be at par with other non *Orang Asli* communities, in the part of recycling and to one extent, health.

Recommendation

There are lots of ways that we can do to improve recycling program especially in institutions. Participation and awareness among the students need to improve. The crucial step that can be taken is by having environmental education in homes and schools. Parents should expose their children to environmental awareness from an early age. That age is suitable for them to learn how to take care their environment so that they can practice it. School management may also play an important role in order to improve the awareness of students in order to keep the environment safe and clean. Environmental education should be in theory and practice so that students can relate on what they learn to real life. School management should provide more educational materials about recycling. These can be provided in the library or information board. Therefore, students can read and gain more knowledge about recycling (Nur Aisyah and Haliza, 2016).

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Declaration

The authors declare that we are the authors of this article in the order as listed, and we declare that this is an original article and has not been published, and has not been submitted for publication elsewhere.

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