

ENVIRONMENTAL AWARENESS THROUGH ENVIRONMENTAL SELF-APPLICATION STUDY (KAKAS)

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Abstract

Environmental knowledge alone does not guarantee a positive behaviour towards the environment in the absence of awareness and appreciation for the environment. The question is, how to raise environmental awareness? Thus, this study aims to instil environmental awareness through Environmental Self-Application Study (KAKAS). The study was conducted on 27 graduate students who are school teachers. The participants conducted KAKAS activities throughout one semester. KAKAS was run through six steps, namely 1) Identifying wasteful practices in everyday life, 2) Planning self-study that can solve the problem in step 1, 3) Conducting independent scientific and systematic research according to their creativity, 4) Data collected ≥ 3 times with proofs 5) Sharing of independent research through poster presentations, 6) Summarizing the results of the impact study of environmental sustainability in everyday life. Each of the study participants were asked to reflect on the activities that has been done throughout the semester. The study found that KAKAS activities has been able to: 1) increase participants' environmental awareness through the awareness on waste, 2) impress the participants for these activities could contribute to the environment, 3) increase concerns for the environment, 4) increase responsibility towards the environment, 5) instil awareness of the needs for conserving natural resources, 6) each individual is able to give contribution to the environment, 7) environmental care as a sign of gratitude to the Creator. KAKAS brings implications on environmental awareness which in turn can lead to the appreciation and positive action on the environment. This is important to be instilled in teachers because they are role models to students. Hopefully, this awareness can be delivered to their students throughout their studies.

Key Words: *environmental awareness, reflection, teachers' awareness, self-study*

Introduction

The environment is the physical surrounding that is closely related to human life. Human dependence on the environment covers various aspects of life, including basic needs and to meet the needs and requirements of life. A clean and healthy environment can literally guarantee the quality of human life. Now, a lot of natural resources tend to extinct due to the rapid extinction of human civilization. Although the fact that Environmental Education Curriculum has been implemented at the school level for 27 years, but the students' environmental awareness and behaviour is still at a moderate level (Santha, 2008).

The awareness of the importance of preserving and conserving the environment is fundamental to the care and love for the environment. It was found that the level of environmental awareness of the public is still at a low level compared to developed countries such as Japan, Denmark and Germany (Department of Environment, 1997). Meanwhile, a lot of environmental problems are caused by human actions (Garner & Stern, 2002). The attitude of the public on environmental issues is very worrying. Most of the public thinks that taking care the environment is the responsibility of the government and certain related persons. The public will be more aware of environmental issues in certain situations and when they are directly affected by environmental problems, but to solve the problem of awareness is minimal (Aston & Norjan, 2003). Thus, problems related to the environment has always been disputed due to the unconcerned attitude of society towards the issue. Hence, there is a need to consider how awareness of the environment need to be instilled and practiced in order to bring about a change in community behaviour that make the environment as a healthy place to live.

Teachers are role models to change the behaviour of students. Supposedly, teachers can set an example of awareness and appreciation for the pupils. However, TiwiKamidin (2006) found that there is poor correlation between environmental knowledge and attitude towards the environment among trainee teachers in teacher training colleges. This shows that there has not exist a method that made a significant impact on the level of awareness and practice of teachers. Teaching and Learning Strategies at various levels of education should be modified and improved so that teachers are not only exposed to knowledge about the environment. This is because the exposures about environmental knowledge may affect only a little on the attitude towards the environment (TiwiKamidin, 2006, Norfadillah et al., 2011).

The role of universities is to educate future leaders. Therefore, the issue of sustainability should be emphasized at universities to ensure the sustainability of future communities (Ryan et al., 2010). This also includes educators who are a student at a university. Positive environment for environmental awareness must be created. To create this environment in schools, the teachers have a big role and a leader to students. Why teachers?

Teachers are role models to the students. Not only have that, teachers could provide a source of inspiration, motivation and encouragement for students to undertake environmental activities. Thus, not only the disclosure of environmental knowledge, but more important is the awareness and positive behaviour towards environmental conservation. Thus, this study aims to instil environmental awareness among educators through activities of Environmental Self-Application Study (KAKAS). Next is to get their reflections after performing this activity at a given time.

Environmental Education

Environmental education is one of the objectives of Education for Sustainable Development (ESD) aimed at imparting knowledge and skills for lifelong learning in solving environmental issues at international level (Cigdemoglu et al., 2008). Through education, we hope that the attitude and engagement of individuals for the sake of the environment can be changed to finally be able to contribute to the prosperity of the

global environment. Given the widespread development without sustainable value, then the question is how far is the knowledge, awareness and involvement of the students to the preservation of the nature? To what extent is education a key to a successful platform to educate and instil environmental awareness?

In Malaysia, education for sustainable development has been planned since the 7th Malaysia Plan, in which environmental education should be included in formal education. In addition, the support and active involvement of various agencies, the private sectors and the public is also needed to achieve environmental awareness and responsibility for environmental care.

Education is the best medium to promote environmental awareness and bring behavioural change. The world conversation strategy said that environmental education has a community measure so as to form an ethical society towards the environment (Palmer, 1998). This education encompasses the lowest level of institution which is the primary level to the highest level which is the tertiary education. Therefore, universities are not left out to educate students about the environmental awareness so that students can practice the love for nature. Tan Pei and Norzaini (2011) found that students of various courses in UKM has a strong commitment to the environment, but the degree of environmental-friendly behaviour is still at a moderate level. Hence, there is a need to improve the content of the course curriculum with diversified topics and activities or projects involving community-based learning in order for experience-based learning to be implemented (Tan Pei & Norzaini, 2011). In addition, activities based on experience and practice have been established in the course Environmental Education and Sustainability in the hope that we can build internal awareness among students.

Population growth demands the development of science and technology. Unfortunately, development and community attitudes that wants rapid development and abandoning the nature has led to negative effects on the environment and influences the physical quality of human life (Jamie et al., 2011). The technology built ignores ethical and moral to the extent of sacrificing nature, which are the fundamental balance of the ecosystem. Hence, there is a lot of damage in this earth. Natural heritage is increasingly extinct as a result of profit and greed of specific groups (MohdFaizal, 2008).

Environmental Awareness and Practices

An increase in environmental awareness is an important element in building the capacity of countries that are on their way to achieve sustainable development (Zurina&Norjan, 2003). In Malaysia, a study on the level of awareness, knowledge and practices on the environment has been carried out starting in the 1980s (Ponniah, 1981, Jayatilaka, 1983, Chang Siew Hung, 1981; ChuahIk Tong, 1989).

Environmental studies conducted in higher education institutions indicate that the level of awareness and environmental practices of students in Malaysia are at a good level (MohdYusof et al., 2003; Ramli, 2003; Zurina&Norjan, 2003; Norlila, 2007). But the next level which is the awareness that leads to the willingness to adopt environmental practices still remains low. Azizan (2008), Nor Fadhillah et al. (2011) and Tan Pei and Norzaini (2011) found that students have a good awareness of the environmental problems but the awareness is not yet transformed into practical.

Wallis and Laurenson (2004) also found that university students have positive thinking towards the environment. This can be proved by the level of their participation in actions to protect or improve the quality of the environment. Despite the contribution to the environment done is slight, in fact this contribution is very important to ensure that the environment is well cared of and preserved, especially if everyone shares the same thinking. However, NorFadillah et al. (2011) found that students are not acquainted with the concept of sustainable development. It was found that the students are aware of their role in environmental management, but the majority of students are less prepared to manage the activities and programs of sustainable development for the university community and the campus.

Awareness through deeds done by the students of course have an impact on their lifestyle and the people around them. According Calicott (2000), a change in attitude and behaviour from anthropocentric to ecocentric should occur continuously in the community because it can minimize damage to the environment. Ecocentric stance is pro-environment attitudes that can change people's lifestyles to ensure that the responsibility to protect the environment can be shouldered together for future generations.

Research Methodology

Research Participants

Participants were graduate students who take the course GR6223 (Environmental and Sustainability Education). A total of 23 students participated in this study; 20 students have experiences teaching in school and the rest are graduate students who do not have teaching experience in school. They are students who have a background in science at the undergraduate level. Students are required to conduct Environmental Self-Application Study (KAKAS) that were conducted throughout the semester.

Environmental Activities (KAKAS)

KAKAS is research-formed activities conducted as daily activities. These activities are carried out through the semester, 14 weeks. KAKAS involves six steps. Figure 1 shows a summary of the steps for environmental self-application (KAKAS).

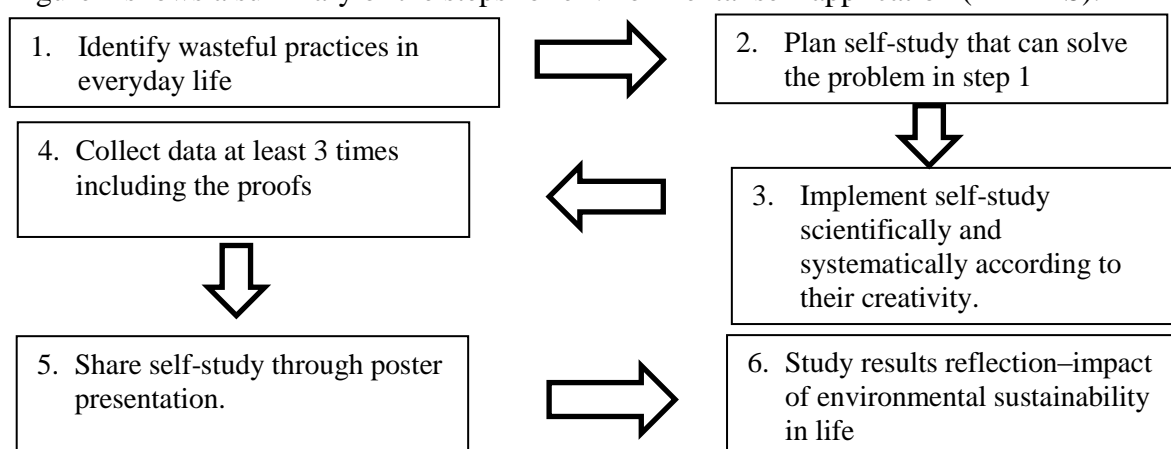


Figure 1: Steps of Environmental Self-Application Study (KAKAS)

In the first step, students have to identify the problem or wasteful practices that occur in their daily lives. Next in the second step, the students have to plan how to overcome the waste by planning a mini study which is a process to resolve the problem to be solved. In the third step, the students have to carry out scientific and systematic study that has been planned. Next, students are required to collect data in various forms according to the context of their studies such as images, numeric data and so on. Repetition of systematic data collection requires at least three times to obtain an accurate value. The fifth step requires students to share experiences related to independent research conducted and finally, writing reflections on this environmental application study (KAKAS). Reflection were conducted through i-folio which is an e-learning space available to students. Next, the data were analysed through constant comparative analysis to form themes.

Results and Discussion

Through reflection activities, students analyse the concepts, evaluate experiences and form opinions. In general, reflection is important as a way to assess themselves and to think critically about their experience and is a key to learning (Nurazidawati et al., 2011).

This activity involves the direct involvement of students in the study. Students explore their own environmental practices and observe, seek information and practice it in everyday life. Next, students make a personal reflection to share what they experienced and effectiveness of the practice in their lives. The results of the analysis, there are seven themes highlighted by the results of their experience in doing the independent research activities related to the environment.

Wastage

Based on the titles of the researches conducted, some problems have been identified by students who often involves wastage in daily activities. Table 1 shows the unnoticed problem of waste adopted by the participants which can contribute to environmental pollution.

Table 1: Individual activities that contribute to wastage

Activity Theme	Sub activity
Learning	Paper, pencil, Brillion paper
Transport	Petrol, hirid, carwash, NGV, air conditioning
Personal hygiene	Shampoo, sanitary napkins
Telephone	Telephone battery
Home management	Iron, organic matter, tissue, cooking oil, polystyrene, air conditioning, dishwashing detergents, soaps, newspapers, led lights, purchase goods online, the use of water in washing dishes

Through these activities, the participants realized the wastage that occurs as indicated by a student;

"I just knew that there has been a lot of wastage especially in homes" (P71617).

The implications of this awareness, an attempt to avoid losses and wastage has been determined to spread to their families. This explanation was made by a student who performs electricity saving at home;

“this self-study has helped me and my family to be more saving in using electricity” (P66467)

Awareness

Awareness is the starting to a change in practice. According to ShafiiHaryati (2012), through conducting field work will indirectly raise awareness among students on the importance of protecting the environment based on their experiences themselves. This is evident from the reflections made by the student. The study found that the majority feels this application raises their awareness of the environment. Students express:

“After I conduct the application study, only then that I realize that my usual activity has given a bad impact on the environment”. (P66308)

“Therefore, with the awareness gained after conducting this application study on kitchen tissues, it is hoped that we all could preserve and conserve the environment. It all begins with ourselves.”(P73821).

“This study also bring awareness that in taking care of the environment, all parties should play their roles and it takes a continuous commitment to ensure that it is effective and sustainable.” (P66467).

The analysis showed that this self-application has raised awareness in students. The practice can directly raise good awareness for the environment among university students (Azizan, 2008). Although individual consciousness is very little, but if large amounts of the community are aware, a major impact will be derived from this activity. A student can feel a huge impact on individual consciousness on the environment;

“...the impact is big if it is practised by all citizens of Malaysia, the effect would be significant when it is practised all over the world” (P71620)

Concern

Concerns to environmental issues is one of the results of internal awareness of the importance of the environment to life. Individuals who are concern for the environment will strive to enhance their knowledge of the environment and seeks to equally contribute to the environment. The results of the reflection shows KAKAS activity makes students more aware of issues that arise relating to the environment. This assertion is supported by a number of opinions from students.

“The experience in conducting this study has made me more concern towards the environment and could help my family in changing the everyday activity so as to be more efficient in handling electrical equipment optimally without causing the bill to rise”.(P71617)

“After going through this task, I became more concern towards the environment.”(P69154)

Responsibility

The study enlightened the students about the responsibilities of individuals in the practice of preserving the environment. Not just to make other people as the load bearer but also contribute to protect the environment. Jamilah et al. (2011) expressed irresponsible attitude and development of the society has led to negative effects on the environment and thus affect the quality of human life. The results of students' reflections after undergoing the self-application, they give a positive response in terms of awareness of their responsibility to protect the environment:

“This application study has opened my mind to think further before doing anything related to the environment. Before this I always do things that are normal to be done without thinking about its consequences on the environment.”(P69152)

“Through the application study that I have conducted, many experiences have been obtained particularly it was a study that I have done to myself about how far I carry the responsibility as a caliph in taking care of the God-created treasure.”(P66445).

“The efforts in preserving the environment needs the cooperation of every individuals and were the responsibility of all Malaysians”. (P66335)

Expanding Knowledge

According to Ibrahim (1995), knowledge naturally depends on different ways of obtaining idea, which are through perception @ notion of imagination, memory, abstract concept of transition and consideration. This is in line with the results of KAKAS activity on the respondents where they acquire new knowledge through the process of searching for information on the initial activities and the sharing of information at the end of the application. The students also have built a reflection of the activities carried out.

“During these activities a lot of useful input I have got. The result of my friends' presentation also impressed me very much. A lot of things that I do not know I get from the presentation. “(P73813).

“There is a lot of new inputs I obtained from the studies that I got from other friends.”(P71627).

"The implementation of the application study has increase my knowledge and information".(P66335)

Results sharing on the fifth step generates admiration of other students because they do not think that many things can be done to contribute to the environment. This is evident when a student give reflection with admiration that the leftovers in the kitchen can be made into ingredients for soap. This sharing appears to have managed to increase the participants' knowledge of science and research on the sustainability of environmental activities.

"Enzyme has impressed me because I really do not know that the kitchen leftovers wastage also has the cleansing ability as a detergent." (P66308)

Practice

Changes in behaviour and practices is the main objective of environmental-based education. Awareness without practice would not change anything. Individuals will continue the existing practices in everyday life without thinking about the consequences of such actions. Results of the reflection evaluation show that KAKAS activity provides positive changes in terms of student practice:

"Without realized, we have wasted a lot of things around us. While we have a lot of knowledge that can be made into a practice in sustaining the environment. This is because the direct impact that I see is that we are not only sustain the environment, but all of this practice brings benefits to the users. It is hoped that we all practice what we have known." (P66338)

Thankfulness

"...the contribution made at least could preserve and conserve the environment best as the token of appreciation towards God." (P69159)

Sharing of Knowledge

Through the sharing of information among students have opened their minds about the importance of living a life that is sustainable in order to protect the environment. Results of reflection analysis shows that students are determined to apply the knowledge gained in their daily lives. These practices are shared with family and closest friends. As an educator, this knowledge should also be presented to each student in order to produce human capital that has love for the environment and be able to manage the environment properly. Determination for the sharing of knowledge is expressed by the participants of the study:

"All of the results of this study are useful for me in the future. I will also share this information with my friends and family." (P66309)

"The application study that has been shared by friends would be practised well and I would try to share it with my family members, friends and even my school students. I believe, as an educator I have an even bigger opportunity to share this useful information, especially when it is related to the future generation and could give direct and indirect impacts to the environment." (P66335)

AF2R chain model is built on the themes that appeared as a result of the students going through KAKAS for 14 weeks. Based on these themes, it can be concluded that the awareness and practice through KAKAS could build a healthy chain of community environment. Model Act, Feel, Routin and Role model (AF2R chain) can generate a society that cares for the environment and responsible for managing environmental resources wisely.

Early models of behaviour in Figure 2 shows that environmental knowledge received should provide a change of attitude and behaviour of individuals towards pro-environment. But knowledge alone cannot lead to a change in attitude if not initiated by action. The individual must make the initial step with an early action and then would be able to repeat such action consistently to provide a change in attitude. This change of attitude will lead to positive behaviour change. Early models of pro-environment behaviour is shown in Figure 2.

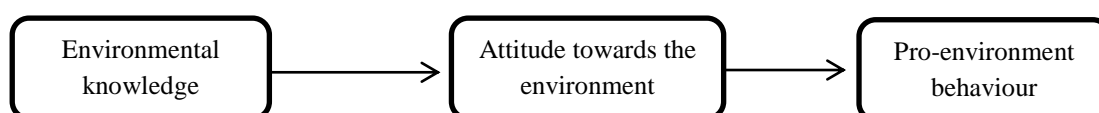


Figure 2: Adaptation of early model of pro-environment behaviour (Kollmuss & Agyeman, 2002)

Action is the next step that needs to be done for a continuous change in attitudes and behaviour. Thus, the construction of AF2R chain model in Figure 3 is an extension of the initial model of pro-environment behaviour by Koomuss and Agyman (2002). AF2R model is a model of continuous action as the results of the reflection analysis of the participants that has experienced changes themselves.

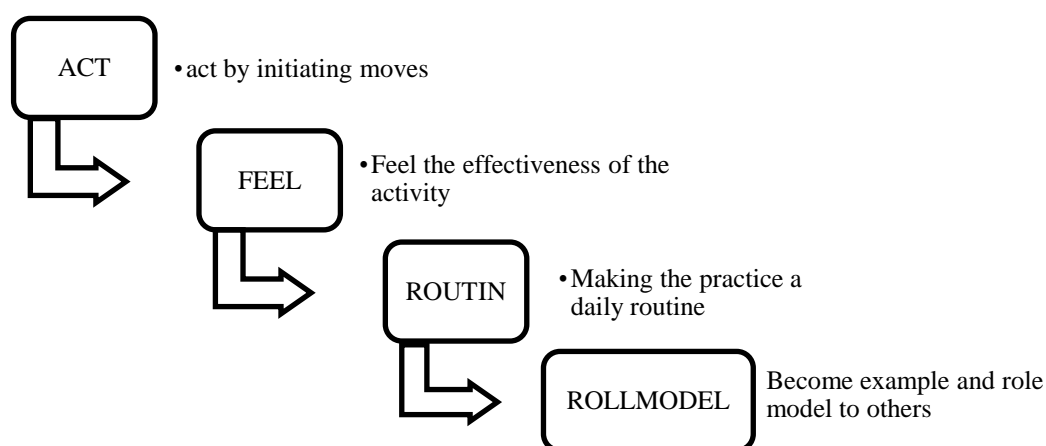


Figure 3: AF2R Chain Model

AF2R chain model showed an objective has to be achieved through action. Action will raise awareness of each individual. When consciousness arises, it will promote to make it as a routine practice in everyday life. With this, indirectly it will

make us an example to others. The chain would be continued to individuals who are around them. With this, this chain would developed into a large group.

Conclusion

Quality of life is not just about material things but also involves all the things that can affect human satisfaction in space and time. Environmental awareness is an important value embedded in each individual in order to produce Malaysian citizens who not only understand, competent, capable, but even have concerns about management and environmental pollution. Individuals who have nurtured and grown with the values of love for the environment will be more aware and sensitive to issues related to the environment. With this, it will become a stronghold of materialistic values and indirectly, the effect of this can serve as an example to guide others to the love of the environment. Education through practice has more positive impact than education based on knowledge alone. Value of the practices to equally contribute to preserving and protecting the environment should be planted in each individual and should be used as a value that needs to be emphasized to produce quality human capital. The citizens are responsible for maintaining and conserving the environment to ensure a comfortable life in the future.

In fact, environmental consciousness can be grown in many ways in our daily life. Students with a teaching background were selected because teachers are the most important channel in the transmission of knowledge to the younger generation at school. A teacher is also a "role model" to the students in school. Teacher behaviours are often a role model for students. Therefore, this study can help the teachers involved to bring positive change in environmental practices to be applied to the young people at all levels of education.

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