

# **Education and Human Resources: Retaining Future Human Resources' Behaviours to Nature Through Environmental Education**

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*Human beings face environmental problems. Consistent endeavors have to be done through shifting young generation's ecological behaviours through environmental education as children's environmental values and attitude might be affected by their surrounding society. The purpose of this study was to explore students' knowledge, attitudes and actions towards environmental education of a school claiming as a-green school. The data were collected through semi-structured interviews and documents. We systematized our analysis and discussion around participants' perspectives and contexts in which students' knowledge and behavioural changes towards environmental lifestyles and strategies they faced occurred. The analysis of the data revealed that key themes related to development of caring schools and culture environment policy, development of activity based participatory, management and or development of school instruments, environmental education in schools, the ways of environmental education is integrated, and the effect of environmental education on knowledge and behavioural changes of students. Policy implications and future environmental education research are also discussed.*

*Keywords: attitude, behavioral changes, environmental education*

## **INTRODUCTION**

Changing young generation's ecological behaviours is important because environmental conditions badly have decreased from year to year caused by human activities to meet their needs. As a result, human faces environmental degradation and problems. Climate change, the decline of ecosystems, the depletion of the ozone layer, rapid population growth, forest degradation, increasing urbanization, acid rain, declining biodiversity species and natural habitats, as well as pollution are among of the issues. To anticipate such issues, some efforts have to be done to reduce or stop the environmental degradation and problems through a sustainable development strategy that can be integrated with the educational system at all levels, lines, and other types of education as education is the key agent of change in the context of implementation (Sofwan et al., 2021; Yaakob et al., 2019).

Regarding the United Nations' Education for Sustainable Development, Indonesia has not specified an explicit commitment to the Environmental Education (EE) program to teach the next generation about sustainable practices. However, in elementary and secondary schools, the EE is rooted in the subjects such as Science and geography. Also, the national education dedicates to all aspects of national development, especially the development of human resources corresponding to the demands of development in the context of globalization. Additionally, some classes at specific schools describe themselves as "sustainable" in either syllabi or course descriptions and each of these schools has a long-standing reputation as a green school.

The importance of environmental education has become concerns by some authors such as Stepp, Bennett, and Bryan (1969) who defined, "Environmental education is aimed at producing a citizenry that is knowledgeable concerning the biophysical environment and its associated problems, aware of how to help solve these problems, and motivated to work towards their solution (p. 30). Additionally, international definition was adopted by the United Nations Educational, Scientific, and Cultural Organization (UNESCO, 1975, p. x), "The goal of environmental education is to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions of current problems and the prevention of new one." According to Clayton and Myers (2009), three main aspects involve in environmental education goals, namely cognition, affect, and behaviour. In terms of the cognitive aspect, it includes knowledge of ecology and awareness of environmental problems. For the affective aspect, it includes motivation to change, emotional attachment, and feeling that "one can make a difference and commitment to continue one's effort" (Clayton & Myers 2009, p. 182). In terms of behaviour aspects, it includes green consumerism, pro-environmental policy support, citizenship behaviours, activism, land management choices, collective actions and so forth.

In relation with the the United Nations' education for sustainable development and the importance of Environmental Education as Clayton and Myers (2009) discussed above, however, in Indonesian context, Environmental Education has not become an integral part of school curriculum. This situation may lead children not to grow up as socially and environmentally responsible citizens although children's environmental values and attitude might be affected by their surrounding society, especially by the closest family members. However, one of the junior high schools in Jambi city which will be the focus of this study has claimed as a *-go-green school*. In order to see the broader view of how environmental education works in this school, in particular, what effect environmental education through a *-go-green school* has on students by looking at their knowledge, attitude and actions towards environmental lifestyle? The purpose of this study was to explore students' knowledge, attitudes and actions towards environmental lifestyle as part of *Adiwiyata* program. In this study, one major research question served as a focus for our research: What effects environmental education through *Adiwiyata* program or a *-go-green school* do the students have by looking at their knowledge and behavioural changes towards environmental lifestyles?

## LITERATURE REVIEW

### **Environmental Education as a Local Content: The Essence of Adiwiyata**

There has been a mutual agreement between the Minister of Environment and Minister of National Education coincided with the celebration of Indonesian Environment Week on June 3 in 2005. In 2006, the Ministry of Environment launched a program named '*Adiwiyata*' and developed guidelines in the form of Material Outlines on Environmental Education for elementary, secondary and high school level. Recently, in 2007 the issue of the regulation No. 25 Year 2007 of West Java Governor on guidelines for curriculum of local content on Environmental education. It is in line with the publication of Handbook of Materials for Environment for elementary and secondary education. Currently in Sukabumi, including in Jambi it is already almost the entire schools make environmental education as the local content subject. *Adiwiyata* program is one of the programs of Ministry of Environment in order to encourage the creation of knowledge and awareness of school community in environmental protection. In this program, it is expected to each school/ community to get involved in school activities towards a healthy environment and avoid negative

environmental impacts. In terms of implementation, the Ministry of Environment is collaboration with stakeholders rolling Adiwiyata program. The Ministry of Environment outlines that the word of *Adiwiyata* comes from *Sanskerta* words “adi” and “*wiyata*”. “Adi” means big, grand, good, ideal or perfect. While “*Wiyata*” means the place where one gets knowledge, norms and ethics in social life. More specifically, *Adiwiyata* means a nice and ideal which can be obtained all science and norms and ethics and can be the basis for the creation of the welfare of human lives and leads to the ideals of sustainable development. In learning processes, adiwiyata means learning environment and if it is associated with integrated and thematic textbooks, it becomes *adiwiyata*-based that essentially contains materials based on the learning environment.

### **The Regulation of Minister of Environmental on the Implementation Guidelines of Adiwiyata Program**

The Minister of Environment outlines the regulation No. 02 of 2009 on Guidelines for Adiwiyata Program. However, it cannot answer the constraints faced by the region, especially for schools that implement Adiwiyata program. This is mainly related to difficulties in the preparation of documentation and policies and curriculum development, evaluation systems, and document a physical assessment. Of the constraints mentioned above, it is considered necessary to do improvement of Adiwiyata Program Implementation Manual 2012 and the system of awards remaining refers to the policies of the Ministry of Environment that has been established. Therefore interested schools are expected to follow Adiwiyata program not feel burdened, because it has become the duty of the school to meet the National Education Standards as it comes and Regulation of the Minister of National Education No.19 of 2005. *Adiwiyata* program aims to create good conditions for the school as a place of learning and awareness of school community, so that in the future the school community can share responsibility in efforts to save the environment and sustainable development. The main activity of Adiwiyata Program is to realize institutional in which care and cultured environment for primary and secondary schools in Indonesia. The implementation of Adiwiyata program began in 2006 with a pilot phase for schools on education elementary, junior high, and high school / vocational in Java.

*Adiwiyata* is not only the physical appearance of the school green / leafy, but also the realization of schools having programs and educational activities leading to awareness and knowledge of the environment. Participatory educational program packed full, believing in the power of the group, activating and balancing feeling, acting, and thinking, so that each individual can feel the majesty initiation value. In the concept, the group is encouraged to share vision by understanding the meaning (definition), discover and appreciate what already exists (discovery), find out what should exist (dream), structure what there is (design) and take care to be there (destiny), so that the results will go beyond what is wanted and is very synergistic with the context of the realities existing in school life. In order to realize *Adiwiyata* program, then there are four steps to carry out described as follows:

1. ***Policy on caring and cultured environmental school development.*** To realize caring and cultured environment, it would require some school policies supporting the implementation of environmental education activities by all citizens of the school in accordance with the basic principles; participatory and sustainable. The development of school policies include; the vision and mission of caring and cultured environment school, school policies in developing educational learning environment, policy on building of human resources capacity (educators and non-educators) in the field of environmental education, school policies in an effort to save natural resources, school policies supporting o create the school environment clean and healthy, school policies for the allocation and the use of funds for activities related to environmental issues.
2. ***Environment Based Curriculum Development.*** Delivery of environmental materials to students can be carried out through an integrated curriculum or monolithic. Material development, learning models and varied learning methods, conducted to provide insight to students about environmental issues associated with local issues of environment. Furthermore, the development of curriculum can be carried out by development of cross-subject learning

model, excavation and material development and environmental problems existing in the surrounding communities, development of methods based learning environment and culture, development of curricular activities to enhance the students' knowledge and awareness about the environment.

3. **Activity-Based Participatory Development.** To realize caring and cultured environment school, the school community should be involved in various activities of the learning environment. Additionally, the school is also expected to involve the local community in a variety of activities that benefit both communities and the environment. Such activities include; creating extra-curricular activities/ curricular in the environmental field-based participatory in school, following the environmental action activities conducted by outsiders, and following the activities of environmental action undertaken by outsiders.
4. **The management and or development of school instruments.** In realizing caring and cultured environment school, it needs to be supported by facilities and infrastructure reflecting environmental management efforts. Concussive school environment is indispensable in order to create the quality of learning process. The provision of knowledge and awareness about the formation of clean and healthy life behaviour is considered very effective when carried out on the students early. Expected outside the school environment, it is able to apply clean and healthy as when they are at school. Therefore, cultured environmental schools as one of the vehicles increased knowledge and abilities of students has an important role in contributing to the changes occurred in the family. How to appreciate clean water, to understand the importance of greening, to utilize proper sanitation facilities as well as to manage waste into fertilizer integral in improving the behaviour of clean and healthy. As the smallest component in society changes that occurred in the family, it will make an impact on society. In addition, processing of the school environment can be carried out by enhancing the knowledge and abilities of students in the management of water, waste, energy and pages that exist around the school.

## METHOD

In this research, a qualitative design with a case study approach was used to explore students' knowledge, attitude and actions towards environmental lifestyle as part of a –go-green school. We chose the design because a case study allowed us to explore bounded systems (cases) with in-depth data collection involving multiple sources of information (e.g. interview and observation). Qualitative research is carried out in natural setting without manipulating the data and kind of educational research which the researcher focuses on the views of participants; ask general questions and the participants' experience; and provide rich narrative descriptions (Creswell, 2007) and case study research involves the study of an issue explored through one or more cases within a bound system (Erlina et al., 2019; Fajaryani et al., 2021; Hidayat et al., 2021)). For Creswell (2007), the bounded system can be restricted by time and place and the case can be a program, an activity, or individuals. In this study, the case was students' knowledge, attitude and actions towards environmental lifestyle whose school has claimed itself as a –go-green school. Particularly, this study was conducted in order to gain more in-depth information concerning what effects environmental education through a –go-green school has on students by looking at their knowledge, attitude and actions towards environmental lifestyle at one junior high school in Jambi City. The site for this research was at one junior high school in Jambi City which has claimed itself as a –go-green school. Access obtained from the head of the school. The names of people who were involved in this study were concealed through the use of pseudonyms in order to protect the rights of participants.

Before interviews sessions started, we asked for permission from the headmaster/the head of *Adiwiyata* program of the Junior High School. We gave the formal letter and they signed an informed consent form which explained the purpose of the research, research procedures, and the rights of the participants, the methods of results dissemination, and any direct and indirect benefits that they received for participation.

The purposive sampling was the method of choice for most qualitative research. Patton (1990) stated, “purposeful sampling is used to describe the process in develop inclusion criteria to be used in selecting participant of the research and site because individuals or cases are selected that provide the information needed to address the purpose of the research” (p. 243). In this study, a purposeful sampling with a convenience case strategy was used. Creswell (2007) wrote, “Convenience cases, which represent sites or individuals from which researcher can access and easily collect data” (p. 126). In this study, we purposefully planned to recruit all the last years’ students and all teachers and to get access to them; networking with the school was used. The convenience case strategy was appropriate for collecting data in order to achieve the purpose of this study as all participants are representative at the research site. The sample was potential to give more in-depth information concerning what effect environmental education through a *-go-green school* has on them by looking at their knowledge, attitude and actions towards environmental lifestyle.

The primary data for our study collected through documents and a semi-structured interview, which was conducted individually with each student and teacher based on their availability and at a location of the teacher’s choice with all participants. Additionally, we had face-to-face interviews for every participant for more than once. It was depend on the participants’ time and willingness. We digitally recorded their accounts and responses to interview questions via a digital voice recorder. Additionally, to support the interview data, we also used a demographic background survey to obtain participants’ backgrounds including age, gender, and others.

The main source of data in this research was interviews. A total of 7 interviews sessions were conducted. In conducting the interviews, we used interview protocols. The interviews were located in the head of *Adiwiyata* program’s room, teacher’s room and Health Centre Unit at one of the Junior High School in Jambi. For the analysis of the data, the demographic data and documents were analysed descriptively while the observations, focus group discussions, and interviews data were transcribed individually (Harja et al., 2021; Mukminin et al., 2017). All the transcripts among participants were analysed and compared to search similarities and differences. The transcripts were reread line-by-line in order to find regularities and emerging themes and subthemes among the data.

To protect the rights of human participants, the names of participants were masked through the use of pseudonyms. Also participants’ decision to take part in this study was entirely voluntary as they were provided with an informed consent form. In qualitative research, the trustworthiness features consist of authenticity and credibility. Validity does not carry the same connotation as it does in quantitative research, nor is it a companion of reliability. Validity is seen as strength and it is used to suggest determining whether the findings are accurate from the standpoint of the researcher, the participant, or the readers of an account (Mukminin & McMahon, 2013). To establish the “trustworthiness,” we completed the following procedures. First, we conducted the long interviews minutes depending on the questions and the condition. We transcribed the interview and after transcribing the data, all the transcripts were checked by other researchers. Afterwards, we gave it back to the participants that had been interviewed to make sure that they were original as a system of checks and balances on data interpretation.

## **FINDINGS**

### **Participants, the School, and Its Program**

The students involved in the interviews session were invited by the head of *Adiwiyata* program and teachers. All students are in the ninth grade aged between 13-15, and consist of 3 females and 6 males. Most of them are active in extracurricular program, such as scouts, arts, campaign and others. In addition, the teachers involved in this research are the head of *Adiwiyata* program as the vice-principal of the school, two social study teachers, one art and science teacher, and one art teacher. Ms. Maria and Ms. Nur are senior teachers’ ages between 48-55 years old. They have more than twenty years teaching experiences. Ms. Ida and Mr. Bowo are younger; they are between 35-40 years old with less than 10 years teaching experiences.

*Adiwiyata* is a program of the school that embodies insightful and caring environment. It means a good place and ideal which can be obtained all the science and norms and ethics that can be the basis for the

creation of human well-being and toward the ideals of sustainable development. The definition above means ideal conditions and expectations. In fact the conditions in one of Junior High schools in Jambi and other schools, there are still many things that need to be addressed. Program activities, habituation, scheduling, action, are often unstructured, unplanned, non-programmatic and yet budgeted. Environmental education implemented integration in all subjects and extra-curricular activities. This school has a program to realize as *Adiwiyata* school. This school located on the edge of the town's main road, so that traffic is very crowded and congested. This condition can cause air pollution with very harmful to students' health. Viewing from the environment of the society, this school is a densely populated neighbourhood with crowded and cramped yard. The density of population around the school and the lack of attention to environmental conditions, leads to students' understanding of *Adiwiyata* is not really clear. The number of students also needs excellent management to solve this problem. Moreover, facilities provided by school are quite good and even adequate for teaching and learning process with maximal spatial school max. However in this case, the teacher has not been fully guidance in shaping the character of students through the learning process.

The lack of plants and trees around the school is a top priority in shaping students' characters who love and care for the environment at school. Shaping students' characters is also not running optimally due to their lack of concern. Sometimes students are indifferent looking at any trash found around the seat. To realize *Adiwiyata* School, it is appropriate to appear in the school environment with an environmental education. Based on the data reported by the head of *Adiwiyata* program, at first it is very difficult to apply it in school. By entering environmental education in the school program, it is expected for students to be realized. This is to give the students an understanding of love and care for the environment. According to the interview data reported by the head of *Adiwiyata* program, there are four major steps realizing *Adiwiyata* School presented in the following table.

**TABLE 1**  
**FOUR MAJOR STEPS REALIZING ADIWIYATA SCHOOL**

Steps	Subject matter
1. Policies that favour and embodied in the form of vision and mission	Vision contains implementation (taqwa, cultured, superior, and environmental and global) - The vision embodied in the form of a mission related to the environment Plans put in the form of school work plan Schools should commit to provide a minimum of 20% of the budget
2. Making the curriculum of environmental education	Three models: integrated, specialized specific subjects, combinations Curriculum (document 1): curriculum load, vision, mission Curriculum (document 2): syllabus, lesson plan- 5 minutes clean Recommendation- Project learning
3. Participatory activities	- Garbage tickets – <i>sasisapo</i> – <i>sagusapo</i> - Saturday clean - Making fertilizer - A narrow land use - Cooperation (WARSI, Bank 9) - Inviting business industry - Daily picket
4. Setting up the infrastructure	The School committed to allocate 20% of fund to build infrastructure to support the <i>go green school</i>

#### **Development of Caring Schools and Cultured Environment Policy**

To realize caring school and cultured environment, it would require some school policies supporting the implementation of the activities of environmental education by all citizens of the school in accordance with the basic principles of *Adiwiyata*; participatory and sustainable. It is in line with the head of *Adiwiyata* program's statement, he says,

“To realize the *Adiwiyata* School, there are 4 major steps that must be done by the school. The first one is, school policy, is there a school policy that is aligned with ... manifested in the form of vision and mission, that is the first. Even in the guidebooks schools must commit to providing a minimum of 20% of the budget.”

In brief, the development of school policies includes vision and mission of caring school and cultured environment, and school policy for the allocation and the use of funds for activities related to environmental issues.

### **Development of Curriculum Based Environment**

Delivery of material regarding to environment for students can be carried out through an integrated curriculum. Material development, varied learning models and learning methods, conducted to provide insight to students about environmental issues associated with environmental issues (local issues). Responding to the second step, the head of *Adiwiyata* program comments,

“Secondly, curriculum, we must make environmental education good, ... there are three true capital, integrated, then ... one more, specifically for certain subjects, one more combination if not wrong. Then document 2 has a syllabus there, there ... up to the lesson plan huh?”

From the explanation above, developing curriculum based environment, can be realized by slipping with integrated subject, entering to certain subject (a craft), and combining. Furthermore, excavation and material development and environmental problems are packaged in the form of projects, and the development of curricular activities to increase students’ awareness of the environment such as the case of five-minute clean placed to support the development of curriculum based environment.

### **Development of Activity Based Participatory**

To realize caring school and cultured environment, the school community should be involved in various activities of learning environment. In addition, the school is also expected to involve the local community in a variety of activities that benefit in schools, communities and the environment. In this case, the entire school community play an active role to support *Adiwiyata* program as has been expressed by the head of *Adiwiyata* program, he conveys,

“The third is participatory activities. So *Adiwiyata* is a school that involves all schools that *Adiwiyata* is not only the responsibility of the school, but all components, teachers, students, all kinds. So we have a participatory activity, for example the habituation of children starting from the gate, they have to go to junior high school 7; they take tickets, take trash. Well, so the trash seen starting from the school gate is taken, the smell of entering the school is taking out the trash.”

The statement above noticed that one of activities involved supporting *Adiwiyata* program is picking up trash. Moreover, other activities such as creating extra-curricular activities or curricular in the environmental field-based participatory in schools, as well as environmental action are also applied by the school. Additionally, following the action of environmental activities carried out by outsiders and building partnership activities or initiated development of environmental education in school are included and applied by the school as expressed by the head of *Adiwiyata* program.

### **Management and Development of School Instruments**

In realizing caring school and cultured environment, it needs to be supported by facilities and infrastructure that reflect environmental management efforts. Conducive environmental school is indispensable in order to create the quality of learning process. The provision of knowledge and awareness

about the formation of a clean and healthy life behavior is considered very effective in early age of students. It is expected when they are outside the school environment, they are able to apply clean and healthy as well as they are at school. Responding to the fourth step, the head of *Adiwiyata* program states,

“The fourth, it is facilities and infrastructure. So the facilities and infrastructure available must also support this activity. Alhamdulillah, our facilities and infrastructure are not lacking. Well, what's the name, water ... clean water, we have enough.”

However, a problem occurred regarding to facilities delivered by a teacher (Bu Ida), she stated that the school really supports this program even though the facilities are incomplete, she says:

“If the support from the school, I feel very supportive, but indeed this is a new lesson, it means the facilities and infrastructure are also not yet, not too complete, right?”

Further, processing of the school environment can be carried out by enhancing the knowledge and abilities of students in terms of management of water, waste, energy and yard existing around the school. Briefly, cultured environmental school as one of the vehicles increased knowledge and abilities of students have an important role in contributing to the changes occurred in students' life. How to appreciate clean water, understand the importance of greening, utilize proper sanitation facilities as well as manage waste into fertilizer integral in improving clean and healthy behaviour. As the smallest component in society, changes occurred in family will make an impact on society.

### **Environmental Education in Schools**

Environmental education is knowledge, study, and materials to educate junior secondary students to understand and practice directly handling of environmental issues which have been the world's problems. While, the mission of environmental education is to increase sense of caring, to give a new perspective, values, knowledge, skills and processes that could lead to changes in behaviour and practices that support environmental preservation. In accordance with the mission on the implementation of environmental education program, schools should provide an atmosphere to students, with the result that when students are in school, they are always in contact with environmental education. Moreover, environmental education has long been a central part in education and learning in Indonesia, including in one of Junior High Schools in Jambi, though implemented integrated into the school curriculum. Integration of environmental education to the curriculum is the insertion area, topics or issues addressed in the subjects. In addition to integrated on subjects that already exist can only be used for environmental education is one of the local content subjects, while the material can be developed or refer to the domain of environmental education. Environmental education in the process is an environmental system comprising on several components interacting in creating the learning process focused on specific objectives. These components, according Gulo (2012), are; (a) the purpose of learning, (b) teachers, including his experience and knowledge, (c) learners, (d) the material, (e) the method of teaching, (e) the medium of instruction, (f) administrative and financial factors.

In teaching environmental education, a teacher must understand factors that may affect the effectiveness of teaching and learning. The learning process is not regardless of the decision in choosing a teacher or some methods to teach learners. Teaching-learning process as a form of social interaction, has a role in producing personal student with environmentally conscious. Regarding to the effectiveness of learning process, one of determined factors is how teachers deliver material through effective teaching method. So, students are expected not only to know about the purpose of teaching in the classroom, but also understand and embedded in themselves respectively, as determined factor in terms of human beings for the continued environment.

In teaching environmental education, especially in secondary level, there are some teaching methodologies that can be used. Carlson et al. (2011) and Dewey (cited in Kochlar, 1992) wrote that many writers agreed that the best practice for environmental education is by field experience, children should

learning through activities. Learning from experience or learning by doing (Gandhi, Kilpatrick & Dewey in Kochhar, 1992) recommended today and is defined as the process to reach understanding, knowledge, skills, and attitudes through practical and applied activities (Kostova & Atasoy, 2008). The data from this study indicated teaching methods regarding environmental education in the school as follows:

*Direct Practice*, in the words of Meilani (2009), experiential is a way of delivering the subject matter inviting students to actively interact directly with nature in activities to gain an understanding and knowledge directly with nature. In this action, students can experience and appreciate directly the events of nature, participate more actively, and improve the operational way of thinking student.

*Lecture*, the other method used in teaching environmental education is lecture. Lecture is the way of teachers to deliver lessons orally, formal and well planned aimed at clarifying some issues or certain topics to students. It can present extensive material; the teacher can organize the material that needs to be highlighted. However, some weaknesses such material held by learners only limited to the materials mastered by teacher, students tend to be sleepy, and it is not known whether the learners understand or not appear due to this method.

*Discussion*, the third method expressed by a teacher is discussion. It is a way of presenting the lesson in which the students are active in expressing their opinions, knowledge, or experience from material that has been determined. The objective of the method is to solve problems, increase the knowledge of students, and exchange knowledge / opinions; meanwhile it is not a debate tends to compete arguments (Kochhar, 1992; Lakshmi, 2010). It trains students to be able to respect the opinions of others, encourages students actively expressing their opinions, stimulates students more creative nevertheless it is often dominated by a few students, often widespread discussion so that the conclusions / troubleshooting becomes blurred, and sometimes students become emotional and uncontrolled.

*Working Group*, this method taught by conditioning students in a group or groups as a whole and given task to be discussed in group (s). It is the format of teaching and learning with an emphasis on the interaction between other members within a group in order to complete learning tasks together because the teachers required providing learning materials by manipulation are able to involve students to cooperate and collaborate in groups. It actively engages students to find out materials completing their task, encourages cooperation and cohesiveness within the group, and develops students' leadership skill.

*Number Head Together* is a learning model that emphasizes the student activity in the search for, process, and report information from various sources that finally presented in front of the class. NHT was first introduced by Spencer (1993). It provides students with the opportunity to exchange ideas and considers the most appropriate answer. In addition, this method also encourages students to increase their cooperation spirit. In brief, NHT is one type of cooperative learning that emphasizes the special structure designed to influence the pattern of interaction of students and has a goal to improve the academic mastery. This method was developed by Spencer (1993) to engage students in studying the material covered in the lesson and check their understanding of the lesson content as conveyed by a teacher with his true expression.

### **The Ways of Environmental Education Is Integrated**

To achieve the mission of environmental education has been mentioned before; the environmental education should be or together with the programs followed by the student. When we look at the activities of students in school, then the student's activities consist of intra-curricular activities, extra-curricular activities, and activities that take place in school programs. Therefore, environmental education must be in programs on three student activities. However, in this case, the response of teachers regarding the integration of environmental education does not lead to extracurricular activities. They just mention that environmental education is integrated in two activities; in intra-curricular activities and in the school program.

*Environmental Education is integrated* on intra- curricular activities, intra-curricular activities are student learning activities in the classroom, which refers to the curriculum. As a strategy to develop atmospheric environment, it is necessary to integrate environmental education into intra-curricular activities. The integration of environmental education in intra-curricular activities is the integration of environmental education to the curriculum. The mechanism has been described in the stage of integration

of environmental education into the curriculum. Integration of environmental education to the curriculum is the insertion area, topics or issues addressed in the subjects. In addition to integrated on subjects that already exist can only be used for environmental education is one of the local content subjects. Briefly, in terms of intra- curricular activities, three teachers noticed collaboration with other subjects and revision as the ways to integrate environmental education inserted into curriculum.

*Environmental Education is integrated in the school program*, School program here is a program, activity or school rules created in addition to intra- and extra-curricular activities. For example the rules of clean class such daily picket, five minutes clean, ant operating activities before entering the school gate, saving water and electricity, greening schools etc. School program is designed to maintain a school environment as well as practical education for students to improve their environmental stewardship. Expected with the implementation of the program consistently no habituation process for students and are expected along the process can increase the proficiency level and the acceleration of change occur caring attitude of students towards the environment. In brief, in terms of environmental education integrated in the school program, some actions such five minutes clean, picking up trash, and daily picket are applied as to support *Adiwiyata* program in line with environmental education.

### **The Effect of Environmental Education on Knowledge and Behavioural Changes of Students**

The main aim of *Adiwiyata* Program is to create conditions for the school to be a good learning place and awareness of school community, so that in the future, the school community may be partly responsible for the efforts to save the environment and sustainable development. The main activity of this program is to realize institutional school with care and cultured environment for elementary and secondary school levels in Indonesia. *Adiwiyata* program is expected to change the mind-set of young generations (students) to the importance of environmental balance. The concept of environmental balance is then likely to be generated candidates leaders who understand and implement the concept of sustainable development.

School age reflects conditions in the future. To build awareness of environment conservation efforts, it would be better starting from school age. The school community immediately does the real actions so that the environment is more promising ecologically appropriate conditions. Indeed, *Adiwiyata* gives direction to the school playing a role through environmental education for students to prepare future human quality which is able to save and conserve natural resources. Also, *Adiwiyata* program is a program that encourages the creation of knowledge and awareness of school community in environmental conservation efforts toward a healthy environment and avoids negative environmental effect. In addition, *Adiwiyata* program really has an effect on the schools such schools can play an active role in creating an environmental concerned area, create students who are environmentally conscious, play a role in all activities in order to reduce global warming, and it can be a means of channelling direct practice of environmental education. However, not only the school, the students also get an effect from that program such throwing trash in its place, understanding the importance of sifting - through the garbage, and understanding that thrift is not only to be dumped but also it can utilize correctly.

## **DISCUSSION**

The purpose of this study was to explore students' knowledge, attitude and actions towards environmental lifestyle as part of a –go-green school. To do that, research questions were addressed that related to the effect of environmental education through a –go-green school that the students have by looking at their knowledge, attitudes and actions towards environmental lifestyle. This chapter discusses the results of this study, as well as possibilities for future research. In Indonesia, environmental educators, both formal and informal, have been trying to establish environmental education as a discipline to be taught in schools form primary to secondary levels. The need to develop education programs that enable students and citizens to acquire a universal environmental ethic has been recognized both nationally and internationally (Engleson & Yockers, 1994). Indeed, the goal of environmental education in the current school is to help students become environmentally aware, knowledgeable, skilled, and dedicated citizens who are committed to work individually and collectively to defend, improve, and sustain the quality of the

environment on behalf of present and future generations of all living things is very consistent with Engleson and Yockers (1994).

The follow-up interviews were developed to give more insight that allowed for some perspectives. The most impacts were on the students' and teachers' attitudes. Bringing environmental education into the classroom and getting the students outside the classroom had the most perceived impact on everyone's enthusiasm and motivation. The teachers enjoy and appreciate the idea of a new perspective. The perceived impact on motivation came in when the students realized they were being given the opportunity to do something different. Students responded well to getting outside the classroom and doing hands-on projects in an outside environment. Moreover, building character through habituation, various programs applied in this school can be used as a program to build the character of students concerned about the environment. Because it measures the formation of character can do all of the school community and become habituation. Success in the realm of fostering ecologically behaviour is largely determined only in relation to addressing current environmental problems. Behaviour that does not have a well-defined causal link to a defined outcome is rarely discussed. Broader definitions of ecologically responsible behaviour are typically couched in non-specific, outcome-based terms, but what exactly this behaviour actually looks like is never discussed.

The perceived impacts on skills such as thinking and life skills were still rated as being , while not as highly as the impacts on attitudes. The skills such as recycling helped develop their thinking skills. Thinking is able to take concepts out of books and relate them to real life issues that the students are able to identify with. For example, when students studied environmental issues, it made more of an impact on the students to bring it in real life situations that hit close to home. It allows the students to associate environmental problems and solutions with things going on in their backyard. As noted earlier in this paper, encouraging these discrete behaviours, such as recycling when away have value on their own merit, but can be employed as part of a broader plan to develop a deeper environmental coconsciousness across behavioural domains. Individuals who engage in conservation behaviours are more likely to engage in similar behaviors in the future due the principle of justification of effort (Cialdini & Goldstein, 2004). Indeed, as well as the following items, many of which are commonly used to indicate global pro-environmental behaviour in survey based, correlational studies: recycling and making handicraft (products) made of recycled materials, and purchasing organic foods.

In terms of methods, the finding based on teachers' perspectives, direct practice (experiential) as one of methods is strongly supported by Carlson et al. (2011) and Dewey (in Kochlar, 1992). They wrote that many writers who agreed that the best practice for environmental education is by field experience, as one of the informal education about the environment, children should learning through activities. Learning from experience or learning by doing (Gandhi, Kilpatrick & Dewey cited in Kochhar, 1992) recommended today and is defined as the process of reaching understanding, knowledge, skills, and attitudes through practical and applied activities (Kostova & Atasoy, 2008). In addition, student perceived toward environmentally influenced their interest in environmentally friendly behaviour (Cheng & Monroe, 2010). It could be seen from four themes found in the findings from the effect of environmental education for the students. Regarding to the setting of outdoor activity such planting in the garden, the finding of this study revealed that the outdoor activities reduced symptoms significantly when compared to the other settings (Kuo & Taylor, 2004). However, Fisman (2005) conducted a study similar to this particular research; however she focused specifically on an urban environmental education program. She wanted to research how the awareness of children on their biophysical environment would be impacted by this type of programming. Fisman (2005) noted that, awareness is a relevant variable to consider when assessing the impact of a place-based environmental education program on elementary school students. She also stated that the word awareness can have broad interpretations and that the researcher must distinguish what they mean when using the word. In constructing this study, we decided to focus on the student's knowledge and behavioural changes on environmental education. As a result, Fisman's (2005) study showed that students living in high socioeconomic neighbourhoods presented with local environmental awareness in comparison to those of lower socioeconomic standings. This situation seems like what we found, students living in high socioeconomic neighbourhoods; they used to tell his assistants in doing things related to hygiene,

particularly in the Area home. For example, such as taking out the trash, they mostly do not really care throwing it in a place that has been provided, or perhaps sorting organic and inorganic waste.

## CONCLUSION

Schools could potentially be the place to build awareness of environment conservation efforts. They have a great social responsibility to form individuals who always favour the environment. More and more caring schools and cultured environment means, in the future, the more nations' children have the responsibility of maintaining environmental conservation. *Adiwiyata* school model is not just a green school, while the important thing is how to change the behaviour of the school community. For example, the usual littering and letting piled everywhere changed fond sort and recycle the garbage. Regular schools let land lay overgrown bushes, became interested in cultivating with production plants, ornamental plants, and herb, which usually extravagant in consumption of natural resources and energy, started to make efficiency by saving resources. Schools with *Adiwiyata* program is expected to create learning situations which seemed to blend with nature. Unless it through the program, the school researched the potential to give rise culture of student oriented. Cultures oriented utilizing nature as a learning resource, the object of research, and interpret it from different angles. Culture is expected to build a framework. They think children of various dimensions through the natural research process. Developing curriculum-based environment becomes an important aspect of encouraging schools *Adiwiyata* models. The mechanism, by integrating environmental material cross subjects and subjects or be a stand-alone local content. SBC developed a decentralized potentially adapting environmental education become a stand-alone subject.

There are several suggested improvement needed by the school (administrators, teachers, the head of *Adiwiyata* program, students, and staff). First, accumulating research regarding the influences of behaviour on attitudes, and regarding the effectiveness of behaviourist approaches in influencing behaviour, suggests that there is a need to reassess the status of achieving behavioural change as an ultimate goal of environmental education and to reconsider the status of attitude development as an environmental education goal. Second, the school is not really successful in influencing parents' behaviour. The theory of social constructivism can provide some explanations for these findings. According to the theory, attitudes are socially constructed, and people need to be involved in their learning processes. Third, in terms of enthusiastic schools / head of *Adiwiyata* program to Implement *Adiwiyata*, in the implementation of this program, it is required a high willingness of the Head of *Adiwiyata* program. The head of *Adiwiyata* program task is to find funding or budget for running *Adiwiyata* program and oversee the passage of the program. The head of *Adiwiyata* program motivates community to run this program then gives awards to community who have successfully run the program, so that people given the award will become more enthusiastic and motivating other people to get the award as well. Fourth, with regard to teachers and head of *Adiwiyata* program training, in order to provide program managers in the field, it is necessary once implemented training for head of *Adiwiyata* program and teachers to equip the knowledge and skills of environmental education in schools. Training teachers and head of *Adiwiyata* programs implemented in three stages, namely the first year to provide training on the concept of environmental education, school environmental programs and activities that should be implemented. In the first year of activities that should be implemented is stage 1 to stage 4. In the second year of training, it focuses on the integration of environmental education into the curriculum, and the third year of training in partnership with the community outside of school.

Fifth, in case of monitoring and evaluation, to find out if the school team managed to reach the target set forth in the action plan or not, it should be monitoring and measuring progress is expected. Continuous monitoring process will help ensure that these activities remain sustainable. The monitoring methods used will depend on your goals and measurement criteria set out in the action plan for each topic. This study can be used as a resource for future research within environmental education field. We would recommend to focus research on younger or older age groups. In this study we found that all my significant results reside within one of secondary schools group and none within the older middle school group. We would also recommend a much larger sample size. Results were limited based on the studies extremely small sample

sizes. Analyses of significance became more difficult with a bigger sample size. One area that could use a closer examination would do a comparative study with varying backgrounds (rural, suburban, and urban). The study could observe the similarities and differences in the students' perception of environmental education and environmental awareness.

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