

The Analysis of Scientific Attitude with Environmental Knowledge Through the Role Of Teacher And Parents (A Case Study of An Eco-friendly School in Salatiga)

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Abstract

Modern technology causes environmental problems and climate change. An eco-friendly school becomes one of the solutions to that problem in Indonesia. However, the program has not been effective for society to change their attitude and behavior. This research aims to find an appropriate solution using several steps; to analyze students' scientific attitude and environmental knowledge; to analyze the role of teacher and parents; and to formulate an action to increase students' scientific attitude. This descriptive qualitative research results on students' scientific attitude that changes the behavior in daily life, measured by using a particular indicator. This needs cooperation between teachers and parents to support changes in students' characters.

Keywords: *Students' Scientific Attitude; Environmental Knowledge; Teacher's Role, Parents' Role*

1. Introduction

Children are the nation's next-generation, expected to lead, nurture, develop, prosper, and to bring peace. The globalization era is evidence for the development of the young generation with unpredictable impacts, whether it is a positive or a negative one. Many people undeniably shape children to mirror their intention of the older generation. Fundamentally, a child undergoes an "outer control to inner control," when he is very much dependent on someone else that his life is dominantly controlled by outsiders. As the knowledge and experience grow, children can control themselves (Cardwell, 2013). This statement underlies that they need guidance and encouragement to function.

Formal education becomes one of the ways to give guidance and encouragement systematically to children. Constitution No. 20 of 2003 chapter 1 number 1 states that education is a conscious activity by man to control the change of behavior and mindset systematically. Indonesia as a developing country has created a formal education system for its young generation, which is included in the Regulation of Education and Cultural Ministerial number 20 of 2016 stating that education in Indonesia aims to develop a noble, healthy, knowledgeable, creative, independent, democratic, and responsible human. To realize that goal, education must include the principle of meaningfulness, defines as shaping character and personality as an integral part of mastering knowledge (Vallori, 2014).

The above statement refers to knowledge application in daily life wisely to prosper the human life. The environment is an integral part of human life so that the environment-based education is essential to Indonesian education for the future generation. The environment-based education is applied to a program of an Eco-friendly School, intending to form the responsible school citizens in efforts to protect and manage the environment through the school's good management to support continuous development (KLH, 2012). There are serious obstacles to this eco-friendly school program, which is only 1.351 from 251.415 schools (from elementary to high school) succeeded. The reason is the difficult implementation of the Eco-friendly School Guideline (KLH, 2013).

The city of Salatiga succeeded enrolling nine schools to join the eco-friendly school program, namely SD Marsudirini, SD Negeri Mangunsari 3, SD Negeri 6, SMP Negeri 6, SMP Negeri 2, SMP Negeri 10, SMA Negeri 2, SMK Negeri 1, SMK Negeri 3 (Salatiga Governor, 2014). Nevertheless, research by Untung Wahyuadi (2014) about eco-friendly school in SMK Negeri 1 Salatiga stated that there had not been any balance between the

implementation and monitoring and evaluation by the principals to reach shared purposes. Next, it is explained that the students had limited awareness of their environment when the school carried out the program and that the attitude has not fully shown in daily life. In the other side, there is behaviorism by the older generation (teachers and parents) that did not lead to the environment maintenance, such as: throwing garbage in the river, picking up flowers carelessly, stepping on the plants in the city park, urinate at places, cutting up trees without any reasons, throwing cigarette butts in plants pot, etc.

These cases tend to happen in almost all stages of education. The high (cognitive) understanding of the theory of environment has not been balanced with appropriate life behavior, let alone the scientific attitude that comes from them. In the eco-friendly school case, the success rate results from unnatural conditioning. The schools are competing to make sudden rules to pass the proposal selection. Another matter is that the motivation of receiving the additional fund to build school facilities becomes a dominant factor rather than the motivation to fix the real environmental problem. The analysis used in this writing is to show readers the other side of the eloquent administration of the eco-friendly schools that have not met the essence of environment maintenance.

The awareness of concern on the environment can be raised through the scientific attitude. It is not only a behavior pattern by the scientist, but can be basic to make reasonable daily habits. Scientific attitude is a tendency to receive or reject a way of thinking that supports the basis of knowledge (Hendracipta, 2016). A strong scientific attitude of a child or student becomes a very good basis in facing external influence.

The analysis of the students' scientific attitude with environmental knowledge viewed from the role of parents and teachers is indispensable to give solutions. Based on the description above, this writing has three purposes: 1) to analyze students' scientific attitude and environment knowledge; 2) to analyze the role of teachers and parents towards students' environmental awareness; 3) to formulate treatment for increasing the scientific attitude with environmental knowledge.

2. Methods

This case study in Salatiga eco-friendly school uses the descriptive method and be the starting point to strengthen the argument of the following/ advanced research. This is done since the condition of the eco-friendly school pays more attention to the administrative matter. This is symptomatic and becomes a common thing that is difficult to be changed if it is not followed by a thorough theoretical review. The data collection is by literature study related to theory from books, journals, and researches. The data is compiled and analyzed to answer determined purposes.

3. Results and Discussion

Environmental problems have been important issues in global life. The modern technology has given convenience and ease to human, yet also be a dominant contribution to the environmental problem and climate change. The knowledge of the environment is modal to give a real solution. The eco-friendly school program has been running since 2006 until the present, including in Salatiga.

Based on the Rules of the Minister of Environment Number 2 in 2009 on the guidelines to run an eco-friendly school states that a good and ideal school is a place to gain all knowledge, norms, and ethics for humanity to reach prosperity and continual development goals. The purpose of the eco-friendly school is to create a condition in school to be a place for raising awareness to the school citizens (teachers, students, staff), that is realized in 1) the development of the school's policy for environmental awareness and cultural-based; 2) the development of the environment-based curriculum; 3) the development of participative environmental activities; 4) the development and management of the supporting facilities of the eco-cultured school. It is expected that through this program, the school citizens be responsible for saving the environment and continuous development (Landriany, 2014).

The census of Salatiga shows around 40.716 in productive school ages should receive appropriate environment knowledge (Salatiga governor, 2016). This number will impact the

area advancement if supported with attitude change to the real action of environmental awareness. The data becomes the answer to the weakness of the eco-friendly program related to the lack of human resources which are actively doing actions. Children can interpret and adapt rapidly to their environment (Puspitasari, 2014). This character is a strength of children in school ages to face environmental problems.

Based on findings at the target place (especially in the eco-friendly school), the school has not empowered the students in the level of mindset, behavior, and attitude. This program tends to work on the rules made. This is proved with the number of students who answered “watering plants at school because the teacher says so,” “sweep the floor because of the picket duty.” Although it does not apply to all students, it is the dominant tendency. This research is an early study to get answers for “a gap between the eco-friendly program and its implementation.” To research the scientific attitude, a strong analysis of real problems in school is needed. Certainly, this research helps the researcher to continue without any one-sided judgment. Therefore, an idea is proposed as specific indicators to see the scientific attitude with environmental knowledge in an eco-friendly school.

The scientific attitude with environmental knowledge is a combination of the researcher's scientific attitude to solve problems and the knowledge of the surrounding environment. This is a strong foundation facing environmental problems, which is expected to be a prime character of the young generation. The combination can be seen in the following Table 1.

Table 1. Children’s Scientific Attitude with Environmental Knowledge

No.	Scientific Attitude	Explanation
1	Curiosity	<ul style="list-style-type: none"> a. Children are guided to observe phenomenon and problems that often happen in the surrounding area. b. Children are led to raising their curiosity toward their environment. c. Children develop their curiosity towards their environment starting from the closest object to them.
2	Respect for Evidence	<ul style="list-style-type: none"> a. Children are given many examples of environmental problems in their surrounding b. Children are asked to be actively observing and analyzing the problems. c. Children are guided to give a solution to the environmental problems with teachers and parent's help.
3	Critical Reflection	<ul style="list-style-type: none"> a. Children are led to find the value of environmental awareness. b. Children are asked to reflect on their contribution to the environment. c. Children are guided to discover their role in solving the environmental problem.
4	Perseverance	<ul style="list-style-type: none"> a. Children are guided to preserve their environment in daily life. b. Children are conditioned to face and give a solution to simple environmental problems they find in daily life.
5	Cooperation with others	<ul style="list-style-type: none"> a. Children are made to be accustomed to socializing the truth value of environmental awareness to their peers, neighbors, and society. b. Children are made to be accustomed to respect and appreciate works by others who keep the environment safe.
6	Willingness to tolerate uncertainty	<ul style="list-style-type: none"> a. Children are made certain to the environmental issues in nearby or in the broader area. b. Children are made certain that keeping the environment is necessary.
7	Sensitivity to the environment	<ul style="list-style-type: none"> a. Children are accustomed to being sensitive to environmental problems nearby or in the broader area. b. Children are accustomed to giving opinions related to environmental problems.

The indicators for scientific attitude with environmental knowledge would practically be seen from the change of attitude and real actions, for example, children are guided to discover some environmental cases in their classroom or school. How children throw their food trash, gums, and papers inside their drawers is the most common cause. That case is appointed in class to give children an understanding that they need to care about their classroom as their study place. Next, children are prompted to reflect on their roles in keeping the classroom's cleanliness, given the responsibility to keep their drawers clean, and trained to keep their drawers and classroom clean diligently. They will be examples to the other students who haven't been so aware of the matter. It is expected that it will be influential by socializing with other students. After this activity is done daily and becomes a habit, then students will be sensitive about cleanliness. They will tend to keep their place clean, which certainly needs perseverance in the application, as there are many schools failed in keeping in the track that shows that it has not become a habit.

This attitude meets the analysis by the Minister of National Education (2012) stated that the eco-friendly program has not been optimal due to the difficult implementation. Practical indicators are more effective rather than the administrative matter, the implementation becomes easier and aims precisely. Children as the learning agent need teachers and parents to guide.

According to the Constitution of the Indonesian Republic no. 14 in 2005, the teacher is a professional educator with the main duty of educating, teaching, guiding, promoting, training, assessing, and evaluating students from the early stages of formal education, primary, and secondary level. The functions of teachers become a benchmark of success in their profession. Teacher willingness to be better will be the main example for students, who easily imitate others. The teacher is a role model for the student. If the teacher holds fast on his concept of knowledge, then he will be ignorant of his environment.

The 2013 Curriculum has the Core Competencies for all subjects, designed in four related aspects, of religious (Core Competence 1), social (Core Competence 2), knowledge (Core Competence 3), and skills (Core Competency 4). Those aspects are developed into basic competencies for integrative instructional (Curriculum Document, 2013). The second Core Competency states "Developing honesty, discipline, responsibility, politeness, eco-friendliness, togetherness, cooperation, peace-keeping, response, and proactivity, also showing attitudes to solve the nation's problems by effectively interacting with the social and natural environment, as to be the nation's portrayal among the world." This statement proves that all teachers are responsible for that matter. This point supports environmental education with human resources in school. Table 2 will show what the teacher does for the scientific attitude.

Table 2. Teacher's Scientific Attitude with Environmental Knowledge

No.	Scientific Attitude	Explanation
1	Curiosity	a. The teacher is accustomed to revealing environmental problems nearby. b. The teacher is accustomed to understanding the students' interest in environmental problems. c. The teacher is accustomed to getting a student's opinions about the matter. d. The teacher is accustomed to probing students' attitude for the environment that they get from home.
2	Respect for Evidence	a. The teacher is accustomed to revealing environmental issues in learning or scientific discussions. b. The teacher is accustomed to criticizing a fact related to the environment and make it into a discussion with the students. c. The teacher influences the students to be sensitive to the surrounding environmental problems.

No.	Scientific Attitude	Explanation
3	Critical Reflection	<ul style="list-style-type: none"> a. The teacher reflects on his role in the environment. b. The teacher evaluates his contribution to environmental matter c. The teacher guides the students to reflect on their roles and responsibilities for the environment. d. The teacher raises students' awareness of environmental problems.
4	Perseverance	<ul style="list-style-type: none"> a. The teacher has a strong belief to act considerably with environmental awareness. b. The teacher can build students' belief in the correct behavior for the environment.
5	Cooperation with others	<ul style="list-style-type: none"> a. The teacher builds cooperation with subject teachers to emerge their attitude toward environmental awareness. b. The teacher builds cooperation with subject teachers to emerge students' attitudes toward environmental awareness. c. The teacher builds cooperation with parents to emerge parents' and students' attitudes towards environmental awareness.
6	Willingness to tolerate uncertainty	<ul style="list-style-type: none"> a. The teacher has the integrity to teach about environmental awareness among the students' diversity. b. The teacher has the integrity to be an example of his awareness among the parents' diversity. c. The teacher has the integrity to exemplify his awareness of the environment despite the curriculum or school system.
7	Sensitivity to the environment	<ul style="list-style-type: none"> a. The teacher accustoms himself to be sensitive to environmental issues. b. The teacher accustoms himself to be sensitive to changes in students' attitudes related to their environment. c. Teacher accustoms himself to be sensitive to the parents' view on their environment.

Parents have important roles for children to create continual education progress in the family to shape the smart and virtuous generations (Jailani, 2014). It is pointed out in The Constitution of National Education System number 20 in 2003, Chapter 1 Article 1 Verse 13, saying that "informal education is through family and environment." Article 27 Verse 1 states "informal education activity by families and environment is independent learning." It is a fact that parents are inseparable from the environment, which makes the environmental issues a part of the family education. The relation between children and parents forces the parents to have the knowledge and care about the environment.

Biologically, hereditary parents' behavior is a great factor in determining the children's character. Family holds a strong role in education and children's nurture. School is only a supporting facility in developing children's potentials. Not to diminish the school's role, but there is a different portion of the fundamental education done by family and school. The school facilitates alternative solutions to daily life's problems equipped with materials and theories. While parents work with children to face daily life problems, including environmental problems, Rahmawati (2014) jotted down the parent's role influenced nearly 70% of the students' success. The maximum role from parents and teachers could minimize the obstacles, such as the economy, mental, spiritual problems, and non-conducive learning place.

The environmental problem inside the family is a complex one. Household waste is the greatest among the production waste. Waste management knowledge should be introduced in the family from an early age if not, the children would not care at all. The concern that expected to be their habit is raised in the family. One example, a child raised in a family with low concern to the environment will ignore his role in nature. Parents allow their children to pluck flowers on the streets and throw them away after they get bored. How much flower will be destroyed, and the litter it will cause? This is common for most Indonesians. They will be

staggered knowing that Netherland does not allow people to touch, let alone destroy flowers in city parks.

Parents are teachers, teaching every day, and influencing greatly on their children's character. Parents need to develop their concern about environmental knowledge to support their children. Table 3 shows the parents' attitudes toward environmental knowledge.

Table 3. Parents' Scientific Attitude with Environmental Knowledge

No.	Scientific Attitude	Explanation
1	Curiosity	<ul style="list-style-type: none"> a. Parents accustom themselves to discover environmental problems in the house. b. Parents accustom themselves to find out the children's interest and problems related to the environment. c. Parents accustom themselves to probe events in the house to be learning materials. d. Parents accustom themselves to communicate with teachers related to environmental problems.
2	Respect for Evidence	<ul style="list-style-type: none"> a. Parents try to keep discussing to children about attitudes to the environment. b. Parents try to influence children to learn the environmental problem at the house. c. Parents give children roles to solve environmental problems.
3	Critical Reflection	<ul style="list-style-type: none"> a. Parents lead children to concern about their roles in the environment. b. Parents reflect on their actions and build understanding to children about it. c. Parents accustomed themselves to take bigger roles in keeping the environment.
4	Perseverance	<ul style="list-style-type: none"> a. Parents assure the children's role in preserving the environment in the house.
5	Cooperation with others	<ul style="list-style-type: none"> a. Parents work with teachers in convincing the children's role in the environment. b. Parents work with other parents in preserving their environment.
6	Willingness to tolerate uncertainty	<ul style="list-style-type: none"> a. Parents accustomed themselves to answer children's questions related to their role in preserving the environment. b. Parents accustomed themselves to control children's unstable behavior.
7	Sensitivity to the environment	<ul style="list-style-type: none"> a. Parents accustomed themselves to educate children about environmental knowledge from the simplest. b. Parents accustomed themselves to criticize environmental issues around the house or society. c. Parents accustomed themselves to make activities for environmental awareness to be the children's examples.

The indicators above are applicable in daily life and strengthen the role of parents and teachers in shaping the children's awareness of the environment. This surely needs perseverance in resulting in positive responses. Those efforts ensure the change in the cognitive paradigm that will produce a change in behavior. Learning materials that contain theories give a less positive result as the students do not internalize, nor do the right action. Whether the approach used in the indicators above is through the affective aspect that underlies the students' thinking and actions.

4. Conclusion And Suggestions

Children's scientific attitude is necessary to change the daily behavior. That change influence greater than cognitive construction. Parents and teachers are obliged to cooperate in applying the scientific attitude to environmental knowledge to support students' character. Parents' actions in implementing their concern to the environment are effective examples for the children's' positive responses.

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