

## Environmental Literacy in Elementary School 111 Pekanbaru (A Naturalistic Inquiry Study at Adiwijaya School National Level)

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### Abstract

*This research aims to; 1) describe the condition of the physical environment at Elementary School 111 Pekanbaru in the implementation of environmental literacy; 2) describe the implementation of Adiwiyata program at Elementary School 111 Pekanbaru in an effort to implement environmental literacy; 3) describe the learning at Elementary School 111 Pekanbaru in the effort to apply environmental literacy; and 4) describe the obstacles and solutions attempted by the schools at Elementary School 111 Pekanbaru in the implementation of environmental literacy. The method used in this study is naturalistic inquiry. The location of this study was conducted at Elementary School 111 Pekanbaru. Data collection techniques in this study are; 1) interview; 2) observation; and 3) documentation. Data analysis of the results of the study used Miles and Huberman model, namely, data reduction, data display, and drawing conclusion. The research results obtained that First, efforts to increase students' environmental literacy through the condition of the physical environment of Elementary School 111 Pekanbaru was dominated by the existence of Adiwiyata physical evidence. Second, efforts to increase environmental literacy of students in Elementary School 111 Pekanbaru through the Adiwiyata program are more dominated by the existence of Adiwiyata physical evidence and the application of an environment-based curriculum (monolithic curriculum for Environmental education subjects). Third, efforts to improve environmental literacy of students are made through learning, namely the selection of Basic Competencies in 2013 curriculum which has an environmental content and utilizes the school environment as a learning laboratory. Fourth, that is related to the obstacles encountered and the solutions pursued by Elementary School 111 Pekanbaru in an effort to increase environmental literacy of students. As for the obstacles including: accustoming students to love the environment, uniting the perspectives and goals of classroom action research, students, and parents, the solution pursued by Elementary School 111 Pekanbaru is to keep trying to accustom, give examples, give advices, provide guidance, and return to the written rules. The next obstacle is that there are still some teachers who sometimes give bad examples, the solution pursued by Elementary School 111 Pekanbaru is to inter-inspect each other related to activities in the school environment. The next obstacle is that some teachers are still trying to adjust to the implementation of 2013 curriculum, and the solution sought by Elementary School 111 Pekanbaru is to interact, learn and ask more experienced teachers.*

### Keywords

environmental literacy, elementary school, 111 Pekanbaru



## I. Introduction

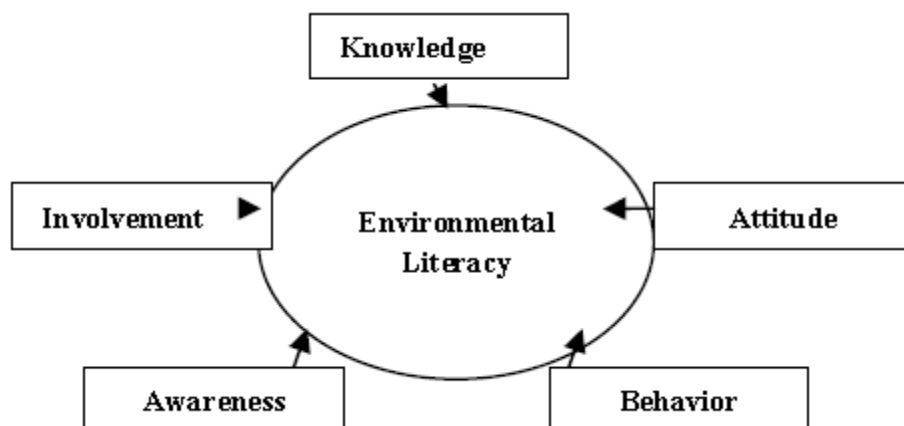
Environmental literacy is a learning approach that seeks to increase student involvement through the use of the environment as a learning resource. This approach assumes that the learning activities will attract students, if what is learned is taken from the environment, so what is learned is related to life and beneficial to the environment. According to Yulianto (2002) the environmental approach means linking the environment in a teaching and learning process where the environment is used as a learning resource. To understand material that is closely related to daily life, environmental approaches are often used. So it can be said that the environment around is a source of learning that can be optimized for the achievement of quality educational processes and outcomes.

One of the implementation of learning that uses an environmental approach is the existence of Adiwiyata as a program in a more planned school. Adiwiyata is the result of a joint agreement between the Condition Minister for the Environment and the Minister of National Education in 2006. As intended in the Regulation of the Minister of Environment Number 02 Year 2009 Regarding the Implementation Guidelines for Adiwiyata Article 1, "Adiwiyata is a good and ideal school as a place to obtain all the knowledge and various norms and ethics that can be the basis of mankind towards the creation of prosperity and the aspirations of sustainable development." (Minister of Environment Regulation No. 2 of 2009). For Elementary School 111, the National Level Adiwiyata was awarded last 2016. So that learning should link to the environment as a source of learning.

The importance of students to be environmentally literate or to have environmental literacy is a thought that is based on seeing the phenomenon of the current environmental crisis. One example is the frequent environmental damage in Riau Province due to land burning by farmers or companies. This can be overcome by means of students' knowledge and understanding of the environment must be provided early. This is then used as a consideration in an effort to equip students at a young age to be environmentally literate or to have environmental literacy through the Adiwiyata program as a manifestation of PLH implementation, remembering and also weighing students in elementary school who will later become the next generation in protecting natural environment as a source of human survival. Knowledge and understanding, environmental awareness until finally manifested in the form of action is a sign that students are environmentally literate or have environmental literacy.

Iqbal et al (2015) defines environmental literacy, is the ability to consider in detail and depth the environmental problems in order to analyze, evaluate, assess, and finally voice decisions on environmental problems. The definition proposed by Iqbal is slightly different because there are no demands on attitude, behavior, and there is no component at the level of action, participation, or action related to solving environmental problems. Like Iqbal, Ramdas and Mohamed (2014) also formulated an environmental literacy component only on the order of knowledge and environmental attitudes.

Jannah et al (2013) emphasized environmental literacy on five components, namely knowledge, awareness, behavior, attitudes, and involvement in environmental action. As seen there is the following figure:



*Figure 1. The Components of Environmental Literacy According to Jannah et al (2013)*

Not much different from Blessing, Kubiatico (2014) tried to combine components that had been formulated by three experts namely Hungerford and Volk, Marcinkowski, and Simmons with only three core components of environmental literacy. The three components are:

1. Knowledge,
2. Attitude, and
3. Behavior towards the environment

The study, entitled *Environmental Literacy Assessment: Exploring the Potential for the Assessment of Environmental Education / Programs in Ontario Schools*, was conducted by Blessing from the University of Windsor Canada. The focus of this research is in the process of implementing Life Education which is organized by schools in Ontario. Blessing's research began with an analysis of the responses and positive effects of the Eco School program, which began in 2002 in schools in Ontario. In the results of his research, Eco School succeeded in making a large increase in school participation by encouraging students to have environmental literacy. However, the quantitative effect of this Eco School program on environmental knowledge and student literacy is usually not emphasized. From this phenomenon Blessing proposes proposing an environmental literacy assessment for elementary and secondary schools in south west Ontario as a tool for assessing the effectiveness of Environmental Education (Blessing, 2012).

Based on perfecting the UNESCO definition, the goals of environmental education are:

1. Improve the awareness and attention to the interdependence of the economic, social, political and ecological fields, both in urban and rural areas;
2. Give an opportunity for everyone to get the knowledge, skills, attitudes / behaviors, motivation and commitment needed to work individually and collectively to solve current environmental problems and prevent new problems from arising;
3. Create a whole new pattern of behavior for individuals, groups and communities on the environment (Danis, 2013).

The environmental education policy in Indonesia was agreed on February 19, 2004 by four Ministries, namely the Condition Ministry for the Environment, the Ministry of National Education, the Ministry of Religion and the Ministry of Home Affairs. This policy is seen as a solution in an effort to increase public knowledge and understanding of the preservation of environmental functions (Adiwiyata Guide, 2012; Adam, 2014; Maryani, 2014). Several studies on the implementation of the Adiwiyata program include; 1) based on evaluative

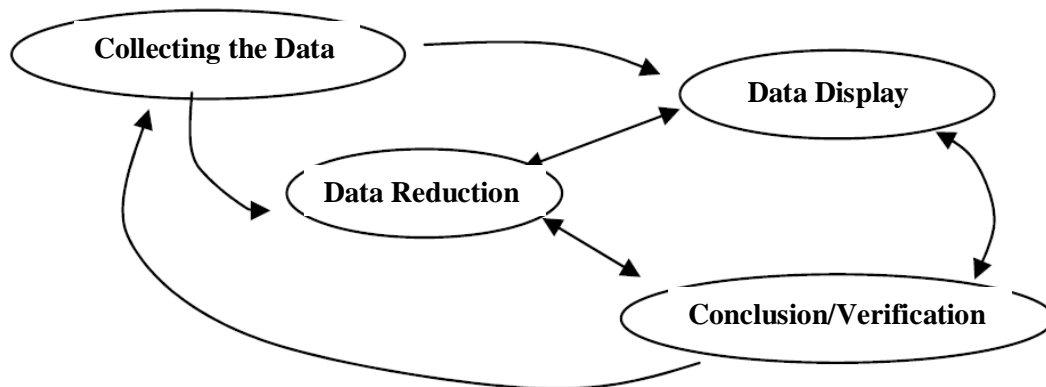
research conducted by Ika Maryani, it is known that the implementation of the Adiwiyata School program at Condition Elementary School Ungaran I in Yogyakarta run well as indicated by the criteria for meeting high standards for aspects of post-participatory environmental activities (Maryani, 2014); 2) John Kaliaman conducted a study related to the effect of Adiwiyata program on environmental protection and management in the education sector in Samarinda City as an embodiment of East Kalimantan Governor Regulation No. 22/2011 concerning Guidelines for the Implementation of Green East Kalimantan. In a report by John Kaliaman, entitled Evaluation of Student Participation in Waste Management to Support the Adiwiyata School Program, explained that the existence of the Pergub had an impact on every school in Samarinda who thought that Adiwiyata program was not a race whose winners were looking for, but Adiwiyata program was a must and obligation which must be implemented and developed by every existing school without exception (Kaliaman P, 2014).

## II. Research Methods

This research uses a qualitative approach. In this study, researchers are trying to explore and develop an understanding of environmental literacy conducted at Elementary School 111 Pekanbaru as a school that seeks to realize environmental education goals more planned. The method used in this research is naturalistic inquiry. Hatch (2002: 26) refers to Lincoln and Guba (1985) as initiating naturalistic inquiry, Hatch defines naturalistic inquiry as a direct method to get activities that occur naturally in the field.

In this study, researchers collected data without intervening in the research subjects. Researchers also do not manipulate or effect both resource persons and activities that occur in the field. This research has a natural background without making up or what is available, humans as instruments, meaning that researchers use themselves or others to collect primary data; This research utilizes implied knowledge, that is researchers can argue to legitimize the implied things based on intuition or feelings; naturalistic inquiry is a method in qualitative research, this is because the method is more easily adapted when dealing with many realities or realities that exist in the field; Furthermore, naturalistic inquiry uses purposive sampling, that is, only certain samples are designated to answer or as sources of research data; data in naturalistic inquiry research are analyzed inductively, that is, the analysis of researchers is built from facts as specific matters into general matters; grounded theory, is the theorizing of data, that is data obtained as a result of research guides researchers to make theories from that data; There is no standard design in this study, but this research makes it possible to bring up the research design because of the many unexpected things during the research.

The location of this research was conducted at Elementary School 111 Pekanbaru with its address at Jalan Suka Karya, Tuah Karya Panam Pekanbaru, Riau Province, Indonesia. The selection of this school is based on the fact that this school is one of Adiwiyata schools at the national level. Data collection techniques in this study are; 1) interview; 2) observation; and 3) documentation. In analyzing data from the results of this study researchers used the Miles and Huberman models. Analysis of the data in this study continues. Sugiyono (2014) described the analysis of research data using the Miles and Huberman models, namely, data reduction, data display, conclusion drawing, as shown below:



**Figure 2.** The Illustration of Miles and Huberman's Data Analysis Model

### III. Discussion

#### 3.1 The Conditions of Physical Environment in Elementary School 111 Pekanbaru

The condition of the school's physical environment can also be utilized in an effort to increase environmental literacy of students. The condition of the physical environment of Elementary School 111 Pekanbaru in an effort to increase environmental literacy of students is more dominated by the existence of physical evidence Adiwiyata. The utilization of the physical environment such as various types of plants, making graffiti art on building walls, making maximum use of cleaning tools, and maximizing the use of waste produced in schools is also an effort that can be done in an effort to increase environmental literacy of students. Elementary School 111 Pekanbaru was greatly helped by the existence of the Adiwiyata program. It cannot be denied that Adiwiyata's presence in the school as a planned program has an impact on the school itself. One of them is physical evidence of the existence of the Adiwiyata program that did not exist before. At Elementary School 111 Pekanbaru there is some physical evidence of the existence of the Adiwiyata program, namely: Three types of trash bins, the use of used containers for plants, the number of water taps for washing hands and for channeling water, the presence of parks in each class, environmentally friendly messages on every wall school, information about pharmacies living on the walls of the school, the existence of a School Seed Garden, the existence of a hydroponic house, the existence of a mushroom house, the presence of Latin names in each plant, the types of plants become more diverse, the presence of infiltration wells / biopori, the existence of works-the results of the recycle on display, the composting, the sighting devices become more diverse, the presence of aviary, and the existence of fishponds.

The existence of physical evidence is not only to meet the standards set for the National Adiwiyata award. Directly the existence of physical evidence can be utilized to improve students' environmental literacy. The maximum utilization is by utilizing all physical evidence of Adiwiyata's existence in all academic activities at school. One of them is in learning, physical evidence of the existence of Adiwiyata can be used as a source or medium of learning, for example in some learning materials or indicators by using a contextual approach. This is in accordance with the theory of the symbol system developed by Salomon which was previously preceded by Edgare Dale. Dale explained that the learning experience of students can be obtained through the process of observing certain media, and if the more concrete the media used, the more experience he gets (Supardan, 2015: 39).

Meimudayanti and Rukmi (2013) explained that teachers can use the school environment as a source of learning for students, to observe everything that is in the school environment. Learning by utilizing the school environment as a source of learning, based on research conducted by Atmodiwirjo (2013) concluded that most primary schools in Indonesia have not utilized the school environment as a source of learning. Atmodiwirjo also explained the need for the development of school layout design for the existence of the school yard or field. Furthermore, Atmodiwirjo also explained that in addition to school spatial design, learning experiences about the environment can only be offered if the school environment is equipped with various elements that are easily accessed by students.

Atmodiwirjo's suggestion based on the results of his research confirms that the school environment with physical conditions and spatial design in accordance with students will build on the learning experiences of students by maximizing their utilization. This is of course considering that elementary school age students are students with high mobility or motor activity. Lestari (2014) in Classroom Action Research (CAR) conducted in one of the Public Elementary Schools in Malang related to learning using a contextual approach with real object media can improve student learning outcomes. Arsana et al (2013) also conducted a Classroom Action Research in one of the Undiksha Elementary School Labs related to learning that uses contextual approach to help the surrounding environment as a medium for dividing science, the result is that the use of such media can increase the activities and learning outcomes of students.

### **3.2 Adiwiyata Program**

The existence of Adiwiyata program in Elementary School 111 Pekanbaru is very helpful in efforts to improve students' environmental literacy. This effort can be seen from the four components of the Adiwiyata program. For example in the first component related to environmentally sound policies implemented by Elementary School 111 Pekanbaru. Tilaar and Nugroho in Bakry (2010) revealed that educational policies cannot be released with the essence of education in the process of humanizing human children to become independent human beings. That is, the existence of an educational policy has a goal as a regulation of the system that runs within the educational institution itself. One of the policies implemented is related to efforts to increase environmental liability through an environmentally sound policy by making it part of the school's vision, mission and goals. In the form of environmental culture. The environmental culture which is part of the vision, mission, and goals of schools in Elementary School 111 Pekanbaru exists after the existence of the Adiwiyata program. The culture of the environment as outlined in the vision, mission, and goals of this school can strengthen the culture of the existing school as an effort to increase environmental literacy of students.

Aziz (2014) defines policy as a set of decisions made and determined by parties who are competent in their efforts to choose and achieve certain goals in solving a problem. Thus, the existence of policies on the planned program will provide certainty in the implementation of the program. In running the Adiwiyata program, planning policies related to the budget are also part of the policies that must be implemented. Schools must prepare School Activity Plans and Budgets and inside them there must be funds used for the implementation of the Adiwiyata program. Proper planning with the calculation of the estimated cost needed will certainly reduce the possibility of a shortage in the implementation of the Adiwiyata program. The next policy is related to the environment-based curriculum set forth in Environmental education subjects that did not exist previously, as the implementation of an environment-based curriculum in the Adiwiyata program component. Environmental education subjects are

subjects derived from the Adiwiyata monolithic curriculum. Environmental education subjects contain material about water, land, air, energy, forests, natural disasters, and humans and their environment. This material is the same from class I (One) to class VI (six), it's just that it has different material content or depth, the higher the grade level, the higher the content of the material or indicator to be achieved. Achievement that is demanded from PLH subjects is not only from the aspect of knowledge, but there are also affective aspects or attitudes and skills through practice.

The existence of Environmental education subjects can even touch various aspects in an effort to improve environmental literacy, namely, knowledge, attitudes, and behavior. By looking at and studying the syllabus of Environmental education subjects in Elementary School 111 Pekanbaru from Class I (One) to Class VI (six), the following aspects of knowledge, attitudes, and skills can be touched: 1) Water aspects of knowledge aspects, 2) Water material attitude aspects, 3) Air material behavioral aspects, 4) Soil material aspects of knowledge, 5) Soil material attitude aspects, 6) Soil material behavioral aspects, 7) Air matter knowledge aspects, 8) Air material attitude aspects, 9) Air material aspects behavior, 10) Energy material aspects of knowledge, 11) Energy material aspects of attitude, 11) Energy material aspects of behavior, 12) Forest material aspects of knowledge, 13) Forest material aspects of attitude, 14) Forest material behavioral aspects, 15) Natural disaster material aspects knowledge, 16) Natural Disaster material attitude aspects, 17) Natural Disaster material behavioral aspects, 18) Human material and Environmental aspects of knowledge, 19) Human material and Environmental attitude aspects, 20) Human material and Environmental behavioral aspects.

The existence of standard policies and planning related to the implementation of the Adiwiyata program will also determine the success of this program. Case study research conducted by Rakhmawati (2016) in one of the Condition Vocational Schools in Semarang shows the results that, the implementation of the four components of Adiwiyata can play a role in creating situations and conditions that support the development of environmental care behaviors. However, planning that was not optimized caused the implementation of the Adiwiyata program to be not fully implemented.

### **3.3 Learning with Environmental Literacy**

Increased environmental literacy in schools can also be pursued through learning. One of the goals of individuals conducting learning activities is a long-term goal (Hosnan, 2014), this is in accordance with the principles of environmental education that emphasizes the principle of sustainability with the expected results are individuals who have environmental literacy or environmental literacy. Learning activities occur because of learning. According to Imelda (2019) the effective learning is learning that provides opportunities for self-study or self-activity. The learning process carried out in class is an activity to transform knowledge, attitudes and skills. The nature of learning is a process of interaction between students and students, students with learning resources, and students with educators (Majid, 2014). In learning, the teacher plays an important role as planners, developers, organizers, facilitators, and evaluators during interactions in learning. Anderson and Krathwohl (2015: 170) formulated three main components of learning, namely, learning objectives, learning activities, and assessment. Good planning is the beginning even play a role in determining learning outcomes with student learning outcomes as a measure. Supardan (2015) emphasizes that the implication of planning in learning is to produce or organize the class so that it runs smoothly with few disciplinary problems and deviations. Planning learning in an effort to improve environmental literacy certainly needs to pay attention to the material to be taught. That is,

environmental literacy can be a goal if learning material has a charge or is integrated with the environment.

Thus, the development of learning indicators in an effort to increase environmental literacy of students also needs to pay attention to the competencies to be achieved, including the content of environmental material in these competencies. Elementary School 111 Pekanbaru applies the 2013 curriculum at all grade levels. In an effort to improve students' environmental literacy, there needs to be a study of Basic Competencies that are environmentally charged. In addition to the objectives to be achieved in preparing the learning plan, another thing that must also be taken into account is the approach, model, source and learning media used. In an effort to increase environmental literacy of students, utilizing the environment is one alternative that can be tried as a learning approach. Students in daily life build knowledge from their own environment. This is in accordance with the meaningful learning theory proposed by Ausubel, namely learning by linking the knowledge that students already have with new knowledge (Dahar, 2011). Learning approach by utilizing or utilizing the environment, meaning learning strategies that use the environment as a source of learning. In practice, based on the results of research in Elementary School 111 Pekanbaru, several teachers made use of the environment around the school and visited several places as a learning strategy by utilizing the environment. Based on the results of the study also, that the application of this strategy has been around for a long time and not because of demands from Adiwiyata, except for Environmental education subjects which indeed require students to study in the field.

Mulyasa (2014: 212) assumes that learning activities using this approach will attract the attention of students if the material learned is lifted from their daily environment, thus students learn about their lives and whatever learners learn benefit the environment. Deeper, Mulyasa (2014) explained that competency development using this environmental approach must provide a way out for students in responding to their environmental problems.

Environmental liability is built on cognitive or knowledge, affective or attitude aspects, and skills in the form of behavior. So that the assessment of learning in an effort to improve students' environmental literacy requires a thorough assessment. In the 2013 curriculum, authentic assessment is one of the characteristics in its implementation. Authentic assessment is a significant measurement of student learning outcomes for the realm of attitudes, skills and knowledge (Hosnan, 2014: 387). More specifically, Majid (2014: 75) adds that authentic assessment must be able to describe how students apply their knowledge, in the case that they have or have not been able to apply learning acquisition, and so on. With authentic assessment, the improvement of students' literacy environment can be measured comprehensively, namely aspects of knowledge, attitudes, and skills in the form of behavior.

The description above shows that the effort to increase environmental literacy of students in Elementary School 111 Pekanbaru through learning is more dominated by the existence of 2013 curriculum which almost all of its Basic Competencies are related to the environment. In addition, efforts to improve the environmental literacy of students in Elementary School 111 Pekanbaru through learning are also carried out by inserting environmental advice in learning activities as an environmental culture, and utilizing the condition of the school's physical environment as a medium and learning resource.

Learning success will certainly be more optimal if supported by the role of parents who are actively involved in the process. Parents can also play a role in the success of student learning, especially related to environmental literacy. Students can learn from the environment around their homes through the guidance of their parents. Old people can also be managers for



students, for example by providing supervision (Santrock, 2012). Another thing parents can also do is provide motivation. In addition, working with teachers in schools is important, parents can discuss matters related to developments or obstacles found by students and find solutions together.

### **3.4 Obstacles and Solutions**

In an effort to increase environmental literacy of students in Elementary Schools 111 Pekanbaru there are several obstacles encountered. For example in accustoming students to have environmentally friendly behavior. This cannot happen instantly even after going through learning, but there is a process or time required during the learning process. There are also teachers as figures who sometimes still give bad examples related to environmentally friendly behavior. Further obstacles were encountered by some teachers who felt they were still rigid in implementing the 2013 Curriculum. Based on the study of researchers, environmental livelihood or environmental literacy for elementary school age students was built by three components namely, knowledge, physics, and skills in the form of behavior. In an effort to improve the environmental literacy of students, we cannot be separated from the characteristics of the age development of these students. The researcher tries to examine the research conducted at this elementary school through the perspective of the characteristics of the development of elementary school age students. Students in primary school age are in childhood and end. Primary school age students are at the concrete operational stage, which is around 6 / 7-11 years. Piaget in Santrock (2012: 329) states that the concrete operational stage takes place at around the age of 7 to 11 years. At this stage, children can carry out concrete operations, they can also reason logically as long as that reasoning can be applied to specific or concrete examples.

Dahar (2011: 111) also stated the same thing based on Piaget's theory. Dahar explained that this level was the beginning of rational thinking. This means the child has logical operations which can be applied to concrete problems. When faced with a conflict between mind and perception, children in concrete operational periods choose to make logical decisions, and not perceptual decisions like preoperational children. Operations in this period are related to personal experience. In Pekanbaru 111 Elementary School, researchers found that educators gave different treatments according to the class level of the students. That is, with different age of students, efforts to improve environmental literacy are different. For example, at the level of supervision carried out by each homeroom teacher, the higher the grade level, the better behavior of students being monitored. Besides that, it can also be seen from the environmentally charged material, the higher the class level, the deeper the material demands.

Education that takes place in educational institutions or schools is inseparable from education that takes place at home. Both must be synchronized so that the results of education are on a straight line with the objectives to be achieved. Both of them also have to equalize goals, act according to their respective roles, balance each other, and of course must be cooperative. Students are subjects that continue to be given and get intervention both at school and at home. The time spent by students at home is even more than at school. At home, students are also referred to as children, and children are part of the family. In this case the parents are very play a role towards education obtained by students in his home.

Parents are powerful people, but most parents assume that they are not important to their children (Lickona, 2013). This indicates that in reality there are some parents who think that education actually taken by children is only at school, while education at home will not affect children. In an effort to improve the environmental environment of students, parents must also

be a good example and role model for their children, especially in activities related to the environment.

Based on the previous presentation, it can be concluded that Elementary School 111 Pekanbaru always involves students' parents in an effort to increase students' environmental literacy through school culture, learning, and Adiwiyata program. Maximizing the role of parents in the education of children at school is also one solution that can be done. Maintaining good relations with parents of students and vice versa by establishing intense communication. Practically Elementary School 111 Pekanbaru establish communication only in the distribution of student report cards. Thus, communication that is established in one school year can be counted more or less only twice. Schools can also involve parents of students in certain programs. In elementary schools 111 Pekanbaru, for example, in Adiwiyata program which also involves parents of students.

## V. Conclusion

Based on the findings of the researchers, there are several efforts undertaken in Elementary School 111 Pekanbaru, namely as follows:

First, efforts to increase students' environmental literacy through the condition of the physical environment of Elementary School 111 Pekanbaru was dominated by the existence of Adiwiyata physical evidence.

Second, efforts to increase environmental literacy of students in Elementary School 111 Pekanbaru through the Adiwiyata program are more dominated by the existence of Adiwiyata physical evidence and the application of an environment-based curriculum (monolithic curriculum for Environmental education subjects).

Third, efforts to improve environmental literacy of students are made through learning, namely the selection of Basic Competencies in 2013 curriculum which has an environmental content and utilizes the school environment as a learning laboratory. Fourth, that is related to the obstacles encountered and the solutions pursued by Elementary School 111 Pekanbaru in an effort to increase environmental literacy of students. As for the obstacles including: accustoming students to love the environment, uniting the perspectives and goals of classroom action research, students, and parents, the solution pursued by Elementary School 111 Pekanbaru is to keep trying to accustom, give examples, give advices, provide guidance, and return to the written rules. The next obstacle is that there are still some teachers who sometimes give bad examples, the solution pursued by Elementary School 111 Pekanbaru is to inter-inspect each other related to activities in the school environment. The next obstacle is that some teachers are still trying to adjust to the implementation of 2013 curriculum, and the solution sought by Elementary School 111 Pekanbaru is to interact, learn and ask more experienced teachers.

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