

ADIWIYATA; MODEL OF BUILDING SCIENCE LITERACY OF BASIC SCHOOL STUDENTS IN 21ST CENTURY

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ABSTRACT

The rapid development and progress of the times became one of the important phenomena of the birth of 21st Century education. This gave a signal that it is time for young people to be equipped with various soft skills to make them as a generation that has an open insight in developing the times. One of the current efforts that can be done in equipping the younger generation, especially in elementary school students, is to utilize the Adiwiyata's program (School of Environmental Care) as a step to building scientific literacy values that will provide them with an understanding related to content, context, attitude, and the process of how to apply science in everyday life. One of the supporting components of the Adiwiyata's school that can be used as a step to cultivate literate openness to science is the existence of green houses, living pharmacies, and slogans in the form of scientific images attached along the walls of the school. These components indirectly give effect in the form of knowledge and scientific concepts that can later be applied in everyday life. The scientific literacy aspect resulted from the existence of several adiwiyata components in the form of openness of students' insight into the use of bethadine leaves as first aid for their fallen and bleeding friends. The application implicitly has penetrated the aspects of content literacy, concepts, attitudes, and scientific processes. It can be concluded that the Adiwiyata school is a school with the Environmental Care Program as one of the gateways to instill scientific literacy values in elementary school students.

Keywords: *Adiwiyata's School, Scientific Literacy, Elementary Student.*

INTRODUCTION

The progress of the times has led humans to be able to be competent and constantly increase their capacity to deal with various developments in science and technology. The rapid development in the sector requires us to be richer in various skills in utilizing the progress that is happening. The progress that has taken place at this time is a new face of 21st Century Education that should be able to flow easily to all generations with character, competence and literacy. This as stated by Anies Baswedan in his remarks reported by youtube stated "there are three fundamental components in education in the 21st century. The first is character or morals, the second is competence, and the third is literacy (openness of insight) which includes five points. namely reading literacy, cultural literacy, technology literacy, and financial literacy. This means that literacy is one of the main capital in equipping the younger generation, especially for elementary school students with as much information. It aims to ensure that the younger generation of 21st century education educators have an open mind in advancing science and technology in the 21st Century.

Education is an important place in improving skills and openness of insight for students. This means that the education process is expected to be able to form human beings who do full science and

technology, increase capacity in utilizing and using science and technology as a basis for problem solving. Winata Putra (in Majid, 2014: 4) argues that education is a channel of distribution with the principle that education and knowledge as a provision for life to children about the surrounding environment, provide the right practical knowledge, instill the attitude of scientific life, and appreciate scientific discoveries.

The above opinion is clear that one of the provisions that must be instilled through education for the younger generation, especially elementary school children, is by instilling the values of science as their ability to be literate generation of science. Holbrook and Rannikmae (1997: 15) suggest that scientific literacy is the ability to develop themselves to be creative in utilizing science in daily life, career, problem solving, making decisions to improve quality of life.

The above is in line with the definition of scientific literacy as stated by the Organization for Economic Cooperation and Development (in Holbrook and Rannikmae, 2009: 280) that scientific literacy is the capacity to use scientific knowledge, to identify questions and draw conclusions based on evidence to understand and help make decisions about the natural world and changes to human activities.

In other definitions as explained by the National Science Education Standard (NSES, 1996: 12) namely the knowledge and understanding of the concepts and processes of science needed for personal decision making, participating in community and cultural activities, and economic productivity, also includes specific types of abilities . it means that scientific literacy is a person's ability to utilize or apply scientific concepts in everyday life. There are three dimensions of scientific literacy, namely content (science knowledge), process (science competency), and context (science application). These three dimensions are profiles of someone who has openness to science.

Such a complex profile related to people who have scientific literacy makes the world of education have to work hard. Because the Indonesian students' scientific literacy assessment conducted by PISA has decreased throughout 2009-2012. This shows an indication that learning carried out in the realm of education in Indonesia is basically still centered or oriented towards mastering the material. Assignment through material is proven to only make students successful in competing in short-term remembering, but failing to equip children to solve problems of long-term life problems. Most children have not been able to apply the knowledge gained in school to the real world.

This condition shows that reform in the world of education has become a necessity. One program that is currently still possible to be used to equip students with scientific literacy competencies is the application of the Adiwiyata's Program in Schools. Adiwiyata is a government program that focuses on environmental awareness. This means that this program is one of the government's steps to educate and instill the values of environmental love for students to be applied in everyday life. The description related to the school with the Adiwiyata's program made the writer interested in conducting a literature study on the Adiwiyata component as planting scientific literacy for students in the 21st century.

RESEARCH METHODS

This research was conducted with a theoretical study method or literature review, from various primary and secondary data sources, as well as from the results of previous studies that were relevant to the discussion and writing. In this article data and information are derived from the results of primary data studies which are then analyzed with the advantages and relationships between the

components of the Adiwiyata's school and the scientific literacy dimensions of content, context, attitude and process. The main focus of writing this article is how all the components built in the Adiwiyata's school have a close relationship to the function of planting student scientific literacy especially in elementary school students. Scientific literacy in this paper refers to the ability of elementary school students to manage information from adiwiyata components as part of their openness in scientific insight.

RESULT AND DISCUSSION

One of the characteristics of the Adiwiyata's school is the arrangement of the environment with various slogans and images that allow it to be used as additional learning resources for students. Non-Human Components in the Adiwiyata's School which enable it to become one of the capital in planting scientific literacy for students can be broken down into several points, namely;

1. *Slogan of Science Knowledge as Learning Media.*

The Adiwiyata's School arranges around the environment in which students learn with a variety of images and slogans that lead to students' knowledge, both science and knowledge that enable students to be able to utilize their understanding of using science in everyday life. The provision of various slogans and drawings such as "how to choose healthy snacks and not littering" which is almost in every corner of the school is one of the visual media that can be seen directly by students. That is, it is usually used by the teacher as a secondary learning resource for students to better understand the scientific process they have gained in class.

The existence of a pamphlet as a visual media that relies more on vision provides a function that is quite effective in instilling understanding. One very fundamental function is its usefulness in manipulating everything in various ways according to conditions, situations, goals and objectives. Strengthening these findings, Asyhar (2012: 35) suggested that the presence of learning media has a psychological function, one of which is the affective function that can arouse emotional feelings and the level of acceptance or rejection, thus giving rise to students' attitudes and interests towards learning material. The existence of slogans or better known as graffiti walls in the Adiwiyata's school provides an environmental message for students to always remember (deswari, 2015: 97). This means that the existence of scientific knowledge slogans displayed along the walls of school buildings provides positive values for the cultivation of scientific literacy for students.

2. *Green House and TOGA (Family Medicinal Plants)*

Adiwiyata is a degree for schools that care about the environment. Green House and Life Pharmacy are components that must exist within the Adiwiyata's school environment. The existence of these two components is certainly an important thing in the cultivation of scientific literacy. The term greenhouse for school residents is interpreted as a hospital for plants. This means that when a plant begins to wither, the rejuvenation process is to put the plant into a greenhouse. Another important component in supporting the cultivation of scientific literacy for students is TOGA. TOGA is one of the specific environmental components of Adiwiyata which functions as a slogan in the form of "growing". This means that it can be used realistically in field practice in schools.

Positive values that appear from the presence of these two components is to provide understanding to students in using TOGA as the first alternative treatment for sick friends or

students. This means that the presence of TOGA in the Adiwiyata's school environment equips students to use it for the treatment needs of sick friends. The use of students is essentially referring to the meaning of scientific literacy. This is as stated by PISA (2015: 7) namely Literacy Science as the ability to engage with science-related issues, and with the ideas of science, as reflective citizen, a scientifically literate person, therefore reasoning discourse about science. and technology which requires competencies to explain scientifically, evaluate and design scientific inquiry, and interpret data and evidence scientifically. The same thing was also expressed by Remziye Ergul, et al (2011: 48) related to the use of TOGA in solving problems that use is related to basic science process skills which include observing, measuring, using, and calcifying. This clearly provides an intellectual basis in scientific inquiry in basic education (Walter and Soyibo, 2001).

The explanation above shows that the existence of greenhouses and TOGA lures students to improve their thinking and applicability so that students are able to use them as solutions to problems that occur in everyday life (Context of scientific literacy).

3. *Supporting the Shady Library and Environment.*

Maximizing the use of libraries in schools as a place that can accommodate students in helping to increase knowledge related to various materials and environmental knowledge contained in schools. The provision of various story books that are integrated with science and the environment becomes interesting for children to continue to be in demand. This maximizing action makes students continue to miss visiting the library so much information they get. The amount of information obtained indirectly makes students have a lot of knowledge and information about information. Ida (2005: 35) suggests that libraries in educational institutions are active environments and can collaborate with teachers or lecturers, students or students by increasing various information literacy skills and instilling habits into life-long learning.

Another thing that allows for the occurrence of scientific literacy is the supportive capacity of a shady environment. The availability of a shady environment in the Adiwiyata's School is not only for the assessment process but also has its own meaning in instilling environmental care attitudes and values. The existence of a shady and comfortable environment, for elementary school students is a very necessary thing in supporting the success of increasing understanding. Because basically elementary school students are identical with nature and use nature as a means of playing and learning. This is as expressed by Moore and Cosco (in Wilson, 2008: 4) related to the environment that Natural Environment stimulates play, development, and learning in special boundless ways. Nature must, therefore be seen as an essential component of the children 's environment. The same thing was also expressed by Wilson (2008: 8) that the way children know and learn makes them very good for exploring nature. Exploration helps children's ability to concentrate. Nature offers a wealth of sensory and material experience. Outdoor play experiences tend to enrich opportunities for growth in all developmental domains including adaptation, aesthetics, cognitive, communication, sensorimotoric, and socioemotional.

The presentation meant that the library's supportive capacity and shady environment provided students with a wealth of learning experience. The learning experience gained is not related only to cognition but to several other aspects of development including information literacy.

CONCLUSION

Adiwiyata's School is a formal education institution with an environmental care program. Some components of the Adiwiyata's school that can be used as a model for 21st century education's scientific literacy planting include three things, namely the science knowledge slogan better known as wall graffiti which is useful as a learning media for students to provide environmental messages to always remember; greenhouses and TOGA are natural components that are used as learning tools or real media for students to use them in solving everyday problems; The library's supporting capacity and shady environment provide breadth for students in enriching information and as a means of playing in developing natural talent as a young scientist. These three components provide added value to the Adiwiyata's school as a model for planting scientific literacy for elementary school students in the 21st century.

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