

## Implementation of Science Learning Based on Local Wisdom to Provide Cultural Literacy

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### Abstract

*This study aims to realize cultural literacy through science learning based on local wisdom conducted in SD N Kembang Pacitan Academic Year 2016/2017. This research uses descriptive qualitative research approach. Data collection through interviews, observation and participant documentation. Validity of research data using triangulation method. Data analysis includes data collection, data reduction, data presentation, and data verification. The adequacy of data in this study are among others: principals, teachers, parents, and students. The results of the study include: (1) Parent and teacher involvement in mangrove planting activities with science concept strategies can provide a good example to students and a sense of love in local wisdom; (2) The concept of nature as a source and place of learning to develop the sensitivity and awareness of students on various conditions of the natural environment; (3) Programs that have implemented positive impacts in shaping students' insights to maintain local wisdom and cultural literacy, such as: love local culture, responsibility, cooperation and care for the environment (4) Facilities and infrastructure at SDN Kembang support in educating and teaching students to explore existing local wisdom. Conclusions have helped to realize cultural literacy with the policy, concepts and implementation of local naive-based learning that refers to natural awareness and environmental care programs*

**Keywords:** *Science learning, Local Wisdom, Cultural Literacy*

### Introduction

Learning essentially aims to improve the cognitive, affective and psychomotor abilities developed through learning experiences (Dimiyati and Mudjiono, 2006: 159). Learning Science is a process of teaching and learning to gain knowledge, skills, and attitude changes between students and teachers planned to achieve the desired goal of mastering the concept of science and understand the phenomena of natural phenomena that occur.

Ogawa (2002) states intuitive science is a social or cultural science (culture or social science) or also called indigenous science. Snively & Corsiglia (2001: 6) states that genuine science is concerned with the science knowledge it acquires through indigenous cultures in its environment. With the assumption was concluded that each region has had initial capital of science based on local wisdom in their respective regions.

The problem that is currently developing related to education is the lack of learning that leads to the understanding of culture, namely the values of local wisdom is now beginning to be forgotten by the surrounding community. The people are now more proud of the outside culture and there is little shift in the cultural values that are followed. Whereas the values of local wisdom need to be preserved, because local wisdom becomes ipenciri somewhere. According to Rahyono (2009), local wisdom learning has strategic position, among others: 1) local wisdom as identity formers, 2) is not a foreign value for the owner, 3) the emotional involvement of the community in appreciating strong local wisdom, 4) able to grow self-esteem, and 5) increased national dignity.

The combination of science learning combined with learning attitudes that lead to local nurseries becomes an alternative for educators to cultivate cultural literacy. Through science learning students are also expected to apply the concept of science in everyday life and scientifically explain the natural phenomena that occur in the surrounding environment one of them in the coastal area of Pacitan.

Pacitan is a regency in East Java province whose territory is directly adjacent to south coast. Some beaches one of the coastal areas of pancer has a diversity that can be though in the insertion of learning materials, especially for elementary schools in the area of coastal areas. Coastal pancer becomes a medium that is being galakkan for mangrove planting. Pancer Coast becomes an area rich in local wisdom. With the local wisdom students should be able to examine and examine the local wisdom that is scientifically, so awareness to maintain and preserve the environment will grow along with the science learning materials it receives. Scientific science also has an important role in transforming the values of truth because through learning science can shape scientific attitudes like honest, responsible, cooperative, cultivate curiosity, and critical thinking. Values of truth are also contained in the dimensions of science, especially in the dimensions of the scientific process, which require skills that target the three groups of skills, namely the skills of scientific thinking, the

practice and communication skills (Organization for Economic Cooperation and Development / OECD, 1999). In scientific thinking skills will produce the right thinking ability, then will be skilled to practice correctly so as to communicate correctly. In addition, local cultural elements also contain scientific aspects that have been tested (Sudiatmika, 2010). Therefore, if we want to maintain the local culture according to their respective areas, then in the learning process should be integrated with local culture so that the distinctiveness of local culture is not lost considering the knowledge must match the experience, and experience has been formed / influenced by the culture of the students since before entering school . If the process occurs repeatedly from low grade to high class students are accustomed to practice knowledge to maintain the local culture and keraifan then do not deny the realization of cultural literacy is no longer a dream of the Indonesian nation.

## **Research and Metodology**

This research is qualitative descriptive. Descriptive research is a form of the most basic research aimed to describe or describe the phenomena - phenomena that exist, both natural phenomena or human engineering. (Sukmadinata, 2010: 72). Thus it can be seen that the main purpose of descriptive research is to describe systematically the facts and characteristics of the object or subject is examined appropriately. This study aims to describe a situation, describe and illustrate the implementation of science learning based on local wisdom to realize cultural literacy in SDN Kembang Pacitan.

### **1. Target / Research Subject**

The target of the research is the students at SDN Kembang Pacitan, with a population of 124 students spread in class I, II, III, IV, V, and VI. . In this research, the key informant is the grade teacher of SDN Kembang Pacitan. In addition to key informants, there were additional informants, who in this study were principals

### **2. Procedure**

Stages of the research procedure include

#### **a. Stage of Preparation**

The initial phase of the study is part of setting the focus of the study. Activity begins by setting themes and titles that will be the object of research and preparation that support the implemented research

b. Research Stage

The next stage is the research stage. At this stage is done data collection, data processing, and data analysis. At the stage of data collection researchers get data from various sources in the form of documents, interviews, and observation or direct observation and questionnaire given to students and teachers

c. Reporting Stage

At this stage is the stage of completion of reports or presentation of data. The compilation of data is based on the results of data analysis that has been obtained in the previous stage.

Data collection technique In this study, the method used is as follows:

a. Observation

According Sukardi (2013: 50) understanding of observations in the context of collection can be an action or process of data information retrieval through observation media in observing researchers using the main means of vision senses. In this study, observation is the most important method of data collection. Researchers conducted observations on activities outside the classroom is to invite fourth graders SDN Kembang Pacitan to do the introduction and planting of mangroves around the coast of pancer.

b. Interview

According to Basrowi and Suwandi (2008: 127) interviews are conversations with a certain maxim by two parties, namely the interviewer (interwier) as pengaju or questioner and interviewee (interviewee) as a giver of answers to the question.

In this study, interviews were conducted by researchers to grade 4 teacher SDN Kembang Pacitan. The purpose of the interview is to find out what problems teachers encounter when planning, implementing and conducting assessment of science-based learning of local wisdom to realize cultural literacy at SDN Kembang Pacitan.

c. Questionnaire

The questionnaire used in this study is open with a brief description filled out by the students.

The data collected should be checked for validity. In this study the validity of the data using data triangulation. Triangulasi is a technique of checking the validity of data that utilizes something else outside the data for checking purposes or as a comparison of the data (Moleong, 2007: 330). In this study, the method used to obtain the truth is by using triangulation method.

### 3. Data Analysis Technique

Data analysis technique in this research is qualitative data analysis. Data analysis technique is done by using interactive data model analysis technique. The three main points of interactive data analysis model according to Miles and Huberman (1992: 19-20) is data reduction, data presentation, and conclusion or verification.

#### a. Data reduction

Data reduction is part of the analytical process that emphasizes, shortens, focuses, discards things that are not important, and organizes the data in such a way that the research conclusions can be done (Sutopo, 2002: 92). In this research. In this study, reduced data is on planning, learning process, assessment, and obstacles in the implementation of science learning based on local wisdom to realize cultural literacy at SDN Kembang Pacitan.

#### b. Presentation of data

According Wiyono (2008: 39) data presentation or display data is an assembly of organized information that allows emphasis conclusions. In this research, the researcher presents data about planning, implementation, assessment and obstacle of implementation implementation Learning science based on local wisdom to realize cultural literacy at SDN Kembang Pacitan

#### c. Conclusion / verification

The conclusion is made during the research process, so that it can generate a valid conclusion.

## Result and Discussion

Implementation of science-based learning of local wisdom in its application would require an understanding first of which is helpful in pelksanann research both the principal teachers and students. The principal understands the school based on local wisdom as a school

condition that implements local wisdom into the learning environment. The Developer Team understands the local wisdom-based school as an application of learning by integrating local wisdom. The teacher understands local wisdom-based schools to link learning with local wisdom that is around. Principals, teachers, and development teams share the same understanding of local wisdom-based schools that are the conditions of schools that implement local wisdom into learning.

The understanding of principals, teachers and development teams in accordance with Zuhdan K.'s (2013: 3) theory that defines local wisdom-based schools is a conscious planned effort through the excavation and exploitation of local potential wisely in an effort to create a learning atmosphere and process learning, so that students actively develop their potential to have the skills, knowledge and attitude in the effort to participate in building the nation and state. Based on the above definition, principals, teams, and teachers have the same understanding with Zuhdan K in mengaritikan school-based local wisdom.

Ni Wayan Sartini (2009: 28) said that One form of local wisdom that exists throughout the archipelago is the language and culture of the region. Nurma Ali Ridwan (2007: 7) who said that this local wisdom will become a cultural tradition. Based on the two theories put forward above, the SD N Kembang has applied and developed a form of local wisdom in the school. There are five dimensions of presentation of local wisdom, namely: 1) local knowledge, namely information and data about the character of local uniqueness and knowledge and experience of the community to face problems and solutions; 2) Local culture, which is related to cultural elements that have been patterned as local traditions, which include value system, language, tradition, technology; 3) Local skills, namely the skills and abilities of local communities to apply and utilize their knowledge; (4) Local sources, ie resources owned by communities to meet their basic needs and carry out their main functions; and (5) local social processes, relating to how a society performs its functions, the system of social action undertaken, social order and existing social control (Keraf, 2010). The location of SD N Kembang not far from Pancer beach lips this mngakibatkan potential damaged by high waves or tsunamis as happened in 2015 ago, this mneggerakkan surrounding communities and government to develop safety belt around the coast area through mangrove planting. Localized cirrhism that leads to environmental concerns is a major goal to teach students to understand the culture around them.

Implementation of science learning based on local wisdom becomes an important point in this research, the application of learning certainly involves the role of various parties in schools, principals, teachers and students who are integrated with local wisdom Puger coastal areas so that in the contents of the module contents made nuanced local wisdom is in the coastal area of Pancer. Teaching materials are structured based on the competence of understanding the relationship between natural resources and the environment, technology, and society. Aspects that guide students to the creation of local wisdom-based learning on these teaching materials are demonstrated by the way local knowledge is presented about local natural resources, local cultures that contain customs or traditions that are believed and developed in the student area and the last one is the values of wisdom developed in the student area. Learning activities are developed to develop student activity. Student activity observed in this research consists of activity of listening, listening, writing of activity of discussion, questioning (issuing opinion), to create student learning activity. students are given a stimulus not only through lecture activities by the teacher but also through discussion activities a problem that is found in teaching materials, this is in accordance with the learning of Science BSNP (2006) aimed at developing knowledge and understanding of IPA concepts that are useful and applicable in life day-to-day, curiosity-building, positive attitude and awareness of interrelated relationships between science, environment, technology and society.

The concept of science on the subject is designed in harmony with local wisdom in the coastal area of Pancer, as well as the installation of small mangrove spots where the tip of the ajir-ajir made pointed so that from this local wisdom students can learn the concept of pressure. Another example is also found in the manufacture of salted fish that utilizes osmotic pressure and also the making of boats used by Pancer fishermen to be able to float on the sea surface so that from this local wisdom students can understand the application of the concept of static fluid (floats, floats and sinks). Another activity that is done is in the form of local food. Local food is an important form of preserving and introducing local nativity especially in coastal areas of pance. Local food becomes the mascot of cultural literacy. Local food developed in this implemetasi is introducing the processing of salted fish by studying the scientific process in its manufacture. Besides knowing the tuna become a typical preparation in Pacitan district.

Develop knowledge and understanding of useful and applicable science concepts in everyday life, cultivate curiosity, positive attitude

and awareness of interrelated relationships between science, environment, technology and society, develop process skills to investigate the surrounding world, solve problems and make decisions, Raise awareness to participate in maintaining, preserving and preserving the natural environment. Long-term benefit is expected through the learning of science-based local wisdom is students love the culture that exists in the environment so that students are able to preserve the culture and as a form of identity for himself. According to Rahyono (2009), local wisdom learning has strategic position, among others: 1) local wisdom as identity formers, 2) is not a foreign value for the owner, 3) the emotional involvement of the community in appreciating strong local wisdom, 4) able to grow self-esteem, and 5) increased national dignity. In terms of the implementation of local wisdom-based learning is known science-based learning local wisdom learning activities integrate the elements of culture in the learning process. According Sutarno (2008: 7-6) culture-based learning one of them is learning with culture, occurs when the culture is introduced to students as a way or method to study a certain subject. Based on observation results known in the learning based on local wisdom known that the culture, nature, and values of local wisdom has been well conveyed.

## Conclusion

Implementation of science learning based on local nurseries in realizing cultural literacy in SDN Kembangan pacitan able to cultivate a positive attitude and needed habituation activities of the school, family and community for an understanding of local kearifan and cultural literacy and can be realized in every student self. In order for the implementation of local science-based science lessons to be nurtured optimally requires the support of the education office and related institutions to be more concerned and motivate other schools to participate in implementing the same program.

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