How to develop ethnoscience learning as a contextual learning strategy in madura primary school

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Abstract. This study aims to know how the implementation of etnoscience learning in primary schools. This research is a qualitative descriptive type. This research was conducted in Madura Primary School. The research instrument used was an observation sheet, and documentation. Based on research result, Ethnoscience learning strategies can be done interactively with subjects, taught on individual subjects, and taught separately. As for the strategy of learning in implementing Ethnoscience-based learning in order to realize the character of elementary school students by Choosing the models used are: a.) Complementary modeling (single subject) implantation "ethnoscience" is added to the curricular education program and curriculum structure. The implementation can be adding special subjects "ethnoscience" in the education calendar. b) Integrated models (integrative), and c) Separate models.

1. Introduction

Sudarmin et al. (2015) stated that scientific approach suggested for education in Indonesia is Ethnoscience [1]. It is local knowledge in the form of language, customs and culture, and moralsas technologies created by certain people or people containing scientific knowledge. According to Sardjiyo and Pannen (2005), this approach is a strategy for the creation of Ethnoscience learning environment and learning planning that integrates cultures as part of the science learning process [2]. In science teaching learning process at school, teachers are expected to relate the scientific knowledge with the local culture. An important factor that affects education in creating meaningful learning is by reconstructing the knowledge that students have before.In daily life, students alwaysinteract with the cultural environment of the local area. It can increase the potential of students' understanding of learning, especially science learning which is developed from the perspective of local culture and organized local wisdom related to certain natural events (ethnoscience). Ethnoscience-based learning is able to bridge the students's culturewith scientific culture in schools. It also encourage the students to realize the development process of self-quality of the students in elementary school as the next generation of the nation, which is believed to be the main factor for the growth of the nation as already stated in 2013 curriculum.

The cultural aspects of Science Learning (IPA) Okebukola (1986) states that the cultural background of the student has a greater effect in the educational process than the effect donated by the subject matter [3]. In other words, the impact of the KBM process carried out in class is not as much impact on the culture of the community that has been absorbed by students about the environment brought in the classroom process. Ogunniyi, Jegede, Ogawa, Yandila and Oladede (1995) stated that the cultural background brought by teachers and students into the classroom (especially during science learning) was decisive in the creation or conditioning of a meaningful, context-setting learning and teaching atmosphere [4]. Cobern (1994) confirms that the knowledge transfer (learning process) of any form, should consider the student's background [5]. The background influences that students have on the science learning process are two kinds. First, a positive influence will arise if the material on science learning in the school is being studied in accordance with the knowledge (culture) of daily students. In this circumstance the learning process supports the student's perspective on the natural surroundings. Studies of the cultural influence on science learning were followed by a discourse about what learning models are suitable for implementing a local culture-based curriculum.

Learning has been more likely to prioritize only the development of intellectual aspects with teacher Handbook to be the main learning resources. Based on the observation that the reality is an overview that occurred in Madura because the formal education process tends to be seen as a separate learning process of the acculturation process and separate from the context of a cultural community. In addition, many people who look at the school's subjects have a higher place (social prestige), than in the local cultural traditions that are viewed as meaningless and low (discreditation).

Nowadays, many Madurese are farmers who have a corn farmer and salt farmer. The profession as a farmer of corn DNA Tempe can be expressed as part of the culture, because according to Siregar (2002) culture is the whole way of life from the community and not only about some of the ordinances of life that are considered higher and more desirable [6]. Culture is a way of life that develops and is owned jointly by a group of people and is handed down from generation to generation. But the way of life or culture of society is lacking a positive appreciation in the hearts of the students. The lack of appreciation of students for the profession is because during this time students do not know that in the process of making salt and cornfield processing is actually a science process that can be excavated scientifically.

Salt, and corn was obtained hereditary, and has nothing to do with learning activities at school. To explain the process of making salt, and processing scientifically so that students can give a better appreciation to Tempe craftsmen, improving the skills of the science process and student learning outcomes required development of natural science (IPA) learning devices. Development of IPA Learning tool with ethnoscientific approach is thought to be the solution to overcome the problem because the ethnoscientific approach is a strategy of creation of learning environment and designing learning experiences that integrate culture as part of the learning process [2].

Science process skills are the insight or ability of the intellectualdevelopment, social, and physical skills that are sourced from fundamental abilities which in principle have existed in the learning [7]. Such fundamental abilities or skills are the ability or skill of observing, including counting, measuring, classifying, and seeking the relationship of space or time, hypothesizing research planning, controlling variables, interpreting. From here the activities of the Community can be prescribed scientifically.

2. Ethnoscience Studies at Madura Elementary School

Ethnoscience-based learning in elementary school students is an education by utilizing community culture in science learning in elementary schools that are utilized as global competition. For example, Madura has a typical eating area that is "salt" in the process of making and use there are several aspects of science in it. In this case the teacher can associate the science learning process of elementary school students with some materials field of natural sciences e.g. utilization of natural resources. The people of Indonesia are supposed to return to the nation's identity through the reuse of cultural values in a certain nation [1]. Indonesia has a distinctive culture in each region, which can indirectly impact the world of education.

Moreover, Madura also has a very wide cornfield. The area of Pamekasan is an area that has a huge corn fields of 40.272 hectares in 2013. Especially the Batumarmar and Palengaan areas of Pamekasan. This enormous potential needs to be explored so that it can be used in the learning of Ethnoscience-based thematic. Through an exploration study of the corn fields and the life of the Corn farmer Pamekasan will be obtained the concept of ethnoscience and local wisdom that can be applied in the Pembalajaran. Learning based on local wisdom is essential to present contextual learning and to hone students' critical Thinking skills [8]. The exploration of knowledge of Community science (Indigineous knowledge) can be made as a source of science concepts that impressed ancient as ancestral heritage can become accountable scientific knowledge [9].

3. Ethnoscience Learning Models and Strategies in Madura Elementary School

The stage of ethnoscientific learning in elementary school is important to make the environment as a contextual learning resource for students, so that it can strengthen the view of elementary school students about the environment that has an impact on increasing the students ' scientific thinking about the local culture so that future generations do not lose the Indonesian identity because it is prudent, love and preserve the environment.

There are a number of things educators need to do in implementing Ethnoscience-based learning in order to realize students who are conscious and sensitive to cultural culture in the surrounding environment. Learning models that can be applied include:

a. Model (single subject)

This Model applies the "ethnoscience" learning specifically to the activities learning. "Ethnoscience" learning is taught individually, given special time allocation to ethnoscientific subjects, and this is usually given to local content subjects. Some elementary schools in Madura have local content subjects such as batik making process, simple salt making process inserted in local content other than Madurese language.

From this local content, teachers also teach the concepts in the making of batik, as well as the salt that in a scientific concept can be held accountable.

b. Integrated Model (integrative),

The application of "ethnoscience" on this model is implemented in the programs of the intracurricular and has been integrated into the science or thematic subjects. Some students in PGSD UTM have applied the teaching materials based on ethnoscientific module on thematic learning, which is used as a reference in ethnoscience learning, especially in the school of Madura.

c. Separate Model (discreet).

The application of "Ethnoscience" is explicit from the extracurricular program. The implementation could be the development of local culture separate from learning. Can be in the form of extracurricular activities

The stage of ethnoscientific learning in the elementary school in Madura Island can be done with several learning stages.

1) The initial knowledge ldentification of secondary speakers (local salt farmers, local fishermen, and local batik merchants) about original science that aims to dig the minds of students to accommodate the concepts, principles or beliefs that the students have rooted in the culture of the communities in which they live.
2) expose some concepts from secondary sources to excavated its potential in relation to what activities are done, and reduce the activities of any kind that can be conceptualized from the customs and culture of the resource.
3) Associate the concepts that have been excavated from the secondary resource, to be used as an interesting science topics related to the local social culture environment.
4) Introduce character values in elementary school students in preserving and preserving the culture of the surrounding environment.
5) The development of strategies that provide a cultural environment around to be utilized as a source of learning, outdoor class to scientifically identify the culture that exists in the community, the surrounding environment. Strategy selection is also based on consideration of material relevance, student karaketristic, as well as time and cost efficiency.
6) After facilitating the students by finding ideas, the teacher is fishing students to identify, solve, formulate problems, formulate hypotheses, design experiments, conduct experiments, analyse to withdraw conclusions and demonstrate the concepts learned.
7) The role of teachers as motivators that students are responsible, diligent and critical and have a high curiosity and maintain the culture and environment that are around so that the culture of community will remain awake.

4. Conclusion

Globalization has significantly shifted the values of local culture of Indonesia one of them is indigenous people of Madura. Reality shifts in cultural values lead to neglected local cultural values. One of the fixing shifts is with education. The learning role that learns about the distinctive knowledge of a particular society (ethnoscience) is essential to the primary school students to find out what symptoms are important and to organize in the learning process. Learning will also be effective, if learning can be integrated into ethnoscience. Thus building character in elementary school through ethnoscientific learning is very precise. This is because in addition to learning the original culture, students can also learn science learning that exists in the culture so that the

planting of characters in loving and preserving their environment and culture will be seen. There are a number of things educators need to do in implementing Ethnoscience-based learning in order to manifest the character of primary school students can be implemented by Choosing the models used are: a) Complementary models (single subject) implantation "ethnoscience" is added to the curricular education program and the existing curriculum structure. The implementation can be adding special subjects "ethnoscience" in the education calendar. b) Integrated models (integrative), and c) Separate models.

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