

## The Effectiveness of Learning Materials Based on Local Potentials on Students' Interests and Learning Outcomes

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### Abstract

This study aims to describe the effectiveness of learning materials based on local potentials on the improvement of students' interests and learning outcomes at SD N Malingmati II for Theme 1 "Save Living Things." The research sample was students of grade 6 SD N Malingmati as many as 34 students. The type of research that is used in this study is quasi-experimental research with one group pre-test – post-test design. Data were descriptively analyzed. The techniques of data collection used pre-test and post-test, as well as questionnaires. The result of the study showed that learning materials based on local potentials were effective in improving students' learning outcomes. Students' learning outcomes had N-gain 0.72 which was in the high category. The result of questionnaires about students' interest in science learning based on local potentials was in the excellent criteria. The highest interest percentage was in the aspect of concern for local potentials as much as 92%. The lowest interest percentage of the length of learning science was 85% because the students were not only focused on science only, but also integrated thematic learning.

Keywords: activity, interest, learning outcomes, local wisdom

### INTRODUCTION

In this 21<sup>st</sup> century, Indonesia is facing challenges in preparing human resources with high quality and high competitiveness at the international level. According to Law No. 20 of 2003 on National Education System, it stated that education is a vital element for creating the expected human resources quality to face various changes and globalization challenges. Ideal learning is indicated by its characteristics which emphasize on the active empowerment of students (Susilowati, and Anam, 2017).

The implementation of learning activities at the elementary level is supposed to present the integration of character education in all subjects. Learning should also involve real world such as living environment as one of the contextual learning designs. Also, the implementation of science learning is closely related to cooperation among students. Direct experience and habituation of cooperative attitude as well as respecting others' opinions are things that bring changes toward a better attitude (Cordova, and Lepper, 1996). Learning activities need certain skills of teachers and the availability of learning materials in which there is not only text that makes students less interested in learning the materials. The use of learning ma-

terials that integrate the environment as the learning sources will certainly make the learning goals optimally achieved (Aritonang, 2008).

Science learning in elementary schools should be able to open up an opportunity to develop students' scientific curiosity (Sya'ban, and Wilujeng, 2016). This type of learning will help them develop their questioning skills and looking for answers based on the evidence as well as developing a scientific way of thinking. It is in line with Nuryantini (2013) opinion that Curriculum 2013 is developed by improving the mindset, one of which is from passive learning to active learning.

Based on the field study through observation and interview activities which were conducted at SDN Malingmati II Tambakrejo District, Bojonegoro Regency, it obtained the result that the implementation of science learning activities have not been associated with the surrounding environment and have only been using printed learning materials in the form of the electronic standard book and student worksheet. This resulted in a small number of active students. Furthermore, the learning interest was decreased. It had an impact on the low learning outcomes which was indicated by the daily quiz score of grade 6 SDN Malingmati II. The mi-

nimum learning mastery criteria of SDN Malingmati II for science learning is 70, but in fact, the average score of students in science learning is below the applied minimum learning mastery criteria, which is 64.75 or only 20% students who master the learning mastery criteria out of all students.

Based on the problems identified from the study result in the introduction, learning materials based on local potentials can be a solution for teachers to gain students' interest, this is because learning using materials integrated with local potentials enables students to learn directly from nature to create contextual and meaningful learning for them. (Hawkins, and Pea, 1987). Based on the interview result, it is known that the teacher already knows the local potentials of the region. However, the teacher has not implemented it in the classroom learning process.

Learning materials based on local potentials used in this study have more advantages compared to the learning materials from Ministry of Education and Culture of Indonesia which use the surrounding environment as students' learning sources (Sarwanto, Sulisty, Prayitno, and Pratama, 2014). Learning by using materials based on local potentials stimulates students to learn from the surrounding environment such as learning the characteristics of plants and animals around Ngringinrejo, for example, butterfly, dragonfly, star fruit tree, hibiscus, paddy, medicinal plants such as turmeric, ginger, cutcherry, galangal, and mint leaves. Furthermore, students are also taught to know games, they are baseball and folk songs Bojonegoro Match, this game, and the local song will develop knowledge and affection of students for the local culture of their region. The illustration or stories presented in the learning materials based on local potentials match the questions asked by the students.

The theme that can be inserted with local potentials values in this study is Theme 1 in grade 1 which is "Save Living Things." This theme is selected because the learning can take advantage of nature potentials around the area so that it is easy to insert local potentials values in its learning. These local potentials values will enable students to have a direct learning experience from the natural environment around them and make learning more meaningful.

The local potential in Ngringinrejo village is star fruit agro-tourism. Star fruit garden is located along Bengawan Solo riverbanks which are very strategic, so the star fruit farmers can easily cultivate star fruit. According to Ngringinrejo villagers, cultivating star fruit is very beneficial compared to planting types of crops other than rice, which often fails. With the

villagers' effort and struggle to date, this agro-tourism becomes one of the excellent local potentials in Bojonegoro.

Local potentials include the environment close to the students. A variety of local potentials can be used as learning sources for students (Parmin, and Sudarmin, 2013). The use of science learning materials based on local potentials of Ngringinrejo village is the supporting factor that is expected to enable the implementation of learning activities to run well as planned. Learning materials of science-based the environment that will be used in the science learning activities are considered suitable with the steps of characteristics development of elementary students. Elementary students prefer learning materials that contain more colorful pictures and relate the surrounding environment as the fact compared to learning materials containing more texts without colorful pictures (Fitria, Permanasari, Sudargo, and Sopandi, 2013).

Fitriani, and Binadja (2012) stated that learning based on local potentials is suitable with the thinking step of elementary students; they cannot be separated from the concrete world or factual things which can be observed directly.

## **METHODS**

The type of research that is used in this study is quasi-experimental research with one group pre-test – post-test design. This design was selected because, in this study, there was no control class. The research procedure was conducted in two steps, they were preliminary and research implementation (Creswell, 2011). The activities conducted in preliminary were managing observation permit, conducting observation at the school where the research was conducted, doing interview with teachers, determining the research sample, organizing learning documents, including lesson plan, learning materials based on local potential, making pre-test, and post-test questions, making questionnaires about interest, and making questionnaires about students' response to the learning materials based on local wisdom. The steps of this study included: giving pre-test questions, conducting learning, providing post-test questions at the end of the meeting, comparing the result of pre-test and post-test, filling in the questionnaires about interest, and giving questionnaires about students' responses.

The research was conducted at SD Negeri Malingmati II, Tambakrejo, Bojonegoro. The reason for the research at that place is because based on observation result, it was found that the school has not yet integrated the existing local potential into the learning process. The

time of the study was conducted in the odd semester in July-August 2018. The sample of this study was all students of grade 6 academic year 2018/2019 as many as 34 students. The sampling was selected by employing a total sampling technique or saturated sampling where all population becomes the sample.

The analysis technique of quantitative data was conducted through a statistics test, while qualitative data were descriptively analyzed. The analysis of students' pre-test and post-test data was by calculating the N-gain. The instrument in this study, before tested to the students, was firstly tested for its feasibility by considering the validity, reliability, difficulty level as well as distinguishing the power of the questions.

$$(g) = \frac{(\text{post} - \text{test score}) - (\text{pre} - \text{test score})}{(\text{maximum score}) - (\text{pre} - \text{test score})}$$

The interpretation of the then-gain score indicated the improvement of students competence after learning by using materials based on local potentials which are shown in table 1.

**Table 1.** Interpretation of N-gain on Learning Outcomes Improvement

N-gain score	Interpretation
N-gain < 0.30	Low
0.30 ≤ N-gain ≤ 0.70	Medium
N-gain > 0.70	High

## RESULTS AND DISCUSSION

Data on students' learning outcomes was obtained from the pre-test and post-test scores. The analysis of learning outcomes data used the calculation of mean of pre-test and post-test score which later resulted in N-gain score. The data on the pre-test and post-test results were analyzed to find out the effectiveness of learning materials based on local potentials in improving learning outcomes of students. The analysis result of students' pre-test and post-test data is tabulated in Table 2.

**Table 2.** The Average Score of Pre-test, Post-test, and N-Gain of Grade 6 Students at SDN Malingmati II

Pre-test	Post-test	N-gain	N-gain Criteria
43.88	83.80	0.72	High

The average result of the then-gain score overall is in the high category with an N-gain score of 0.72. This indicates that the implementation of learning outcomes based on local potentials is effective in improving students' learning outcomes. Learning based on local potentials will encourage students to learn directly from the surrounding environment so that learning will be more meaningful for students. It is supported by Inwood (2013) who stated that the learning process based on local potentials does

not only transfer culture but also uses the culture to enable students to create meaning, break the imagination limit, and be creative in achieving a deep understanding about the subject they learn.

Sub-themes in the theme "Save Living Things" are also analyzed for the average of their N-gain score to investigate the effectiveness of learning using learning materials based on local potentials for each sub-theme which has been learned as well as distinguishing students' learning outcomes for each sub-theme as in Table 3.

**Table 3.** The N-gain score for Each Sub-Theme

Sub-theme	N-Gain	Criteria
Plants my living sources (Sub-theme 1)	0.78	High
Plants my living sources (Sub-theme 1)	0.70	Medium
Preserve animals and plants (Sub-theme 3)	0.66	Medium

The result of students' learning activities shows that the highest activity percentage is in the sub-theme by 74.07%, this is because the materials in sub-theme 1 involve students to directly observe the pollination types of plants around the school environment. The presented materials also train students to make star fruit products then show off their products to friends. The high activities in sub-theme 1 affect students' learning outcomes; this can be seen from the N-gain score of sub-theme one which has a higher score than that of the other sub-themes.

The lowest percentage of students' activities in the sub-theme 3, 69.94%, is due to the difficulty to be understood by the students such as the types of animals and plant preservation. The result of low learning activities in sub-theme three also affects student learning outcomes, which is indicated from the low N-gain score compared to the other sub-themes.

High learning activities of the students result in high learning outcomes; on the contrary, low learning activities cause low learning outcomes of the students. It is supported by Istiana, Sarwi, and Masturi (2016) who stated that by doing a lot of activities according to the learning, students would be able to experience, understand, remember, and apply the materials they learn. The improvement of learning activities will enhance learning outcomes.

Activities are realized in various forms, for example listening, discussing, producing something, arranging a report, solving a problem, etc. However, some activities cannot be observed, such as hearing and listening activities (Rimrukeh, Ierhievwie, and Agbozu, 2013).

Salmani, Hakimzadeh, Asgari, and Kha-leghinezhad (2015) explained that activities in the learning process include students' activeness in following the lesson, asking unclear things, taking notes, listening, thinking, reading,

and all activities are done by students which can support learning achievement. Learning by using materials based on local potentials overall shows a good result on students' learning activities, this is shown from the percentage of activities aspect which is in the excellent category to good enough category.

This result is in line with Sukarjita, Ardi, Rachman, and Supu (2015) findings which showed that students' learning activities improve and understanding of science concepts is strengthened after learning with the media based on local potential as in table 4.

**Table 4.** Percentage of A Questionnaire About Science Learning Interest

Indicators	%
Awareness of learning science	90
Curiosity about the science subject	89
Length of learning science	85
The effort to understand science lesson	89
The frequency of learning science	90
Concern for local potential	92

Data on the percentage average of a questionnaire about interest shows that all aspects are in the excellent category. Based on the analysis results, the aspect of concern for local potentials has the highest percentage than the other aspects. This shows that learning by using materials based on local potentials provide several advantages such as increasing learning interest, changing behavior as well as facilitating students to understand and love local potentials. It is supported by Istiana, Sarwi, and Masturi (2016) opinion that integrating local potentials with learning functions to design students' character development. Moreover, according to Fitriani, and Binadja (2012), science-based on local potentials will develop students' affection for the existing local potentials, present creativity both teachers and students, and enable students to have a spirit of struggle for their region.

Viewed from each aspect, the percentage of learning science awareness is 90%. Students are very enthusiastic about the materials elaborated in the learning materials based on local potential, so the students are serious in paying attention to the teacher's explanation and taking note of all materials explained. The lowest percentage is the duration of science learning with a percentage of 85%. This is due to Curriculum 2013 which has been recently implemented in grade 6, which is three years. This causes students to learn many subject which is integrated and not only focused on science materials in one theme.

## CONCLUSION

Learning materials based on local potentials are effective in improving students' learn-

ing outcomes shown from average N-gain 0.72 score with high criteria. Questionnaires about students' interest in learning materials based on local potentials are in the excellent criteria. The highest interest percentage was in the aspect of concern for local potentials as much as 92%. The lowest interest percentage of the length of learning science was 85% because the students were not only focused on science only, but also on integrated thematic learning.

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