

The Effect of Students' Worksheet Based on Skill of Science and Motivation Process toward Learning Outcomes at Grade 4 SDNegeri 164330 Tebingtinggi

Farida Hanim¹, RetnoDwiSuyanti^{2*}, FauziyahHarahap³

¹Postgraduate Student, State University of Medan, UNIMED. Jln. Willem Iskandar Psr V Medan Estate, 20221, Indonesia

²Department of Chemistry, Faculty of Mathematics and Natural Sciences, State University of Medan, UNIMED. Jln. Willem Iskandar Psr V Medan Estate, 20221, Indonesia

³Department of Biology, Faculty of Mathematics and Natural Sciences, State University of Medan, UNIMED. Jln. Willem Iskandar Psr V Medan Estate, 20221, Indonesia

*Corresponding Author: RetnoDwiSuyanti, E-mail: dwi_hanna@yahoo.com

Abstract : *This research aims to analyze: 1). The Effect of Students' Worksheet based on skill of science process toward student learning result, 2). the effect of motivation level to students learning outcome, 3). Interaction between Students' Worksheet with motivation level in influencing students learning outcome, (4) the nature of students' attitude with the use of students' work sheet based on scientific processes. This research is a quasi experiment research. The population is the fourth grade students of SD Negeri 164330 sub district Padang Hilir, Tebingtinggi. The sample in this study is chosen by purposive sampling that consisted of two classes. The experimental class is treated using students' worksheet based on the skills of the science process and the control class is treated by using the conventional students' worksheet. The applied instruments are consisted of learning outcome test, questionnaire of study motivation and observation sheet of scientific attitude. Data analysis is performed by using two-way ANAVA. The results of this study indicate that the students learning outcomes that are taught by using students' worksheet based on skills science process differs significantly and better than students who are taught using conventional students' worksheet. High motivated students have higher learning outcomes than low-motivated learners. This study proves the interaction between students' worksheet and the level of motivation in influencing students' learning outcomes. The observation also shows that the students' scientific attitude towards the use of students' worksheet based on the skills of the science process is better. The results of this study suggest that student's worksheet based on skills of science process is a solution and alternative choice of teachers in improving learning outcomes of students.*

Keywords: *Learning Outcome, Motivation, worksheet based on Science Process Skills.*

I. Introduction

The development of technology and education is inseparable from the development in the field of science. The process of scientific development that has been done by scientists brings positive impact for the development of technology, by the creation of equipment is called as technology products. They also bring advancement in the field of science. In relation to the learning process in school, science is often associated with science lesson (Natural Science). Learning science in primary schools in the implementation of learning, teachers are required to be able to apply science to produce products that can be justified truth. Rina (2013: 3), in an educational journal entitled science development with science process skill approach using free modified experimental method and guided experiment in terms of scientific attitude and learning motivation of students reveals the challenge of learning today is the need to develop learning adapted to the progress of science and technology so that it can be a solution to problems related to technology and science.

Based on observations, interviews and questionnaires at SD Negeri 164330 located in cluster II Kelurahan Bagelen Tebingtinggi on December 19, 2016 to students of class IV as 31 students are given a questionnaire, science lesson is the second lesson that disliked by learners, it can be seen from the percentage obtained: Mathematics 25.09%, Science 22.57% (it is noted that some prefer only when the practice is not for

concept problems), social 20.15%, Language Indonesia 16.51%, Civics 12.45%, SBDP 3.23%. Based on the questionnaire, most of the students have not seen any learning process involving science process skill. The results of interviews to some learners that they are more interested in practice lessons such as sports or SBDP, because learning is a very tedious memorization. It is seen that learners prefer the learning process in practice from the lectures that do not spur their motivation to like the scientific processes on science subjects.

It is seen in the fourth grade, science subjects are still relatively low, namely 63 achievements are under the Minimum Learning Completion of science subjects that is 70. Still low achievement of SK and KD in SD Negeri 164330 cluster II Kelurahan Bagelen Tebingtinggi city caused by several factors such as science learning tends to use the expository approach. The teacher's learning only provides definitions of a word and provides principles and concepts of learning. In addition, teachers rarely provide opportunities for learners to conduct experiments. Nami, et al (2013: 2) in an educational journal entitled the influence of inquiry learning model guided against scientific attitudes and science learning outcomes, stated that applying science is supported competence, create a conducive environment, the process of science should be taught through practicum.

Initial observation results are found when the learning was completed, the learners work on the problems of students' worksheet that has been available from the publisher without any scientific process to find the concept. Students' worksheet circulating in schools bearing the phrase "adapted to the 2013 curriculum" but the contents of students' worksheet is still the same as students' worksheet in general. Students' worksheet can actually be made by the teachers themselves, so that it becomes more interesting and more contextual with the situation and condition. Prastowo school (2015: 67) in his book entitled the development of thematic materials, theoretical review and practice.

The learning process in elementary school students needs to be done in such a way that they can see, do, undergo and experience about the thing. It will help to develop their curiosity. Gusmentari in his journal (2014: 4) entitled the scientific attitude of students in science lesson at SD Muhammadiyah Condong Catur.

Regulation minister of education and culture number 67 2013 states that the learning process should be held interactively, inspiration, fun, challenging, motivate learners, and provide enough space for initiative, creativity, and independence according to talent, interest, physical development and psychological learners. Based on this regulation about the implementation of learning process contained in the curriculum, one of them is the learning process which can motivate learners. The updates in the 2013 curriculum by integrating subjects into themes, it is packed integrative thematic learning process. It is aims to make learning process more meaningful for students as well as improve students' motivation.

This research offers the use of students' worksheet based on science process skill in learning natural resource in environment, technology, and society in fourth grade semester two. It emphasizes on the learning process based on science process skill involving observation, classification, interpretation, prediction, interaction, asking question, proposing hypothesis, designing experiment, using tools, applying the concept, and conducting the experiment. The students' worksheet is expected to content questions and activities which can stimulate students to work like a scientist. Performing science process skill is accordance with the demand of curriculum and it can solve the problem in the test. Based on the above explanation, students' worksheet based on science process skill is expected to encourage students' motivation in the learning process of science lesson so it can improve students' learning outcome and grow scientific attitude of students

Basically, students' worksheet has goal and benefit in learning process. Its aim is stated by Ardiyanti (2014:3) in her journal entitled the use of work sheet is opened to increase understanding of concept and think creatively in biology lesson. It is stimulation or guidance of teacher in learning that provided by writing so it needs to notice the criteria of graphics media as a visual media to catch students' interest. Duri (in Prastowo, 2015:45), in his book entitled the development of thematic lesson viewed from theoretic and practice reveals that there are four points of the arrangement of students' worksheet. Firstly, to make teaching material that eases students to interact with the material. Secondly, to provide assignments that increases the mastering of the teaching material. Thirdly, to train the students' independence and fourthly, to ease teachers to assign the students.

Besides the use of students' worksheet, there are several things that want to achieve by applying students' worksheet. It can be seen in the learning process, as follows: 1). To give knowledge, attitude, and skill that should be owned by students. 2) to examine the students' level of understanding to the subject material. 3) to develop and apply the subject which is hard to explain verbally. 4). To help students to acquire the lesson through learning activity. (Achmadi, 1996), in journal (Ango 2002 : 14) in *international journal of educology*.

Besides having the goals, the design of students' worksheet has benefit for students and teachers. For teachers, it is beneficial to direct students in activity as well as it considers the process of thinking from students. Meanwhile, students do not need to write or resume in their note book since each students' work has provided all the lesson material. The benefit of students' worksheet for learning process, as follows: 1) to give concrete experience for students, 2) to help the variety of study, 3) to encourage students' interest and motivation, 4) to improve retention in learning process, 5) to use time effectively and efficiently. Hadidalam Ango (2002:4) .on the same journal, it is also expressed by Wiwik et.al (2016:2) entitled *the effectiveness of geography student worksheet to develop learning experience for high school student* "Worksheet is able to increase the knowledge of learners. The response of students to the use of the worksheet is also very good because students are more active, interesting and not boring". It can improve students' knowledge. Students' respond toward the use of students' worksheet is very good because students are more active and interesting. Damayanti (2013:5) in education journal states that students' worksheet is an important to achieve the success in learning

Moreover students' worksheet is expected that students can be motivated in studying the concept of studying lesson, especially in the sub topic of natural resource with environment, technology, and society. In the learning process, students' worksheet is used as tools of lesson to direct students to deepen the subject material. Students are taught to observe, classify,

interpret, predict, communicate, ask, propose hypothesis, design the experiment, use the material, apply the concept and conduct experiment.

II. Research Methodology

This research is conducted at SD Negeri 164330 district Padang Hilir, Tebingtinggi academic year 2016/2017. The amount of population is 62 students in grade IV at SD Negeri 164330 academic year 2016/2017. There are three variables in this research, namely: free variable, moderator variable and bounded variable. The design uses quasi experiment, while research design uses factorial 2 x 2. Technique of data collecting is performed by collecting the data of learning outcomes, scientific attitude, and motivation of students that is modified by researcher and validated by expert. The procedure of this research can be seen as follows:

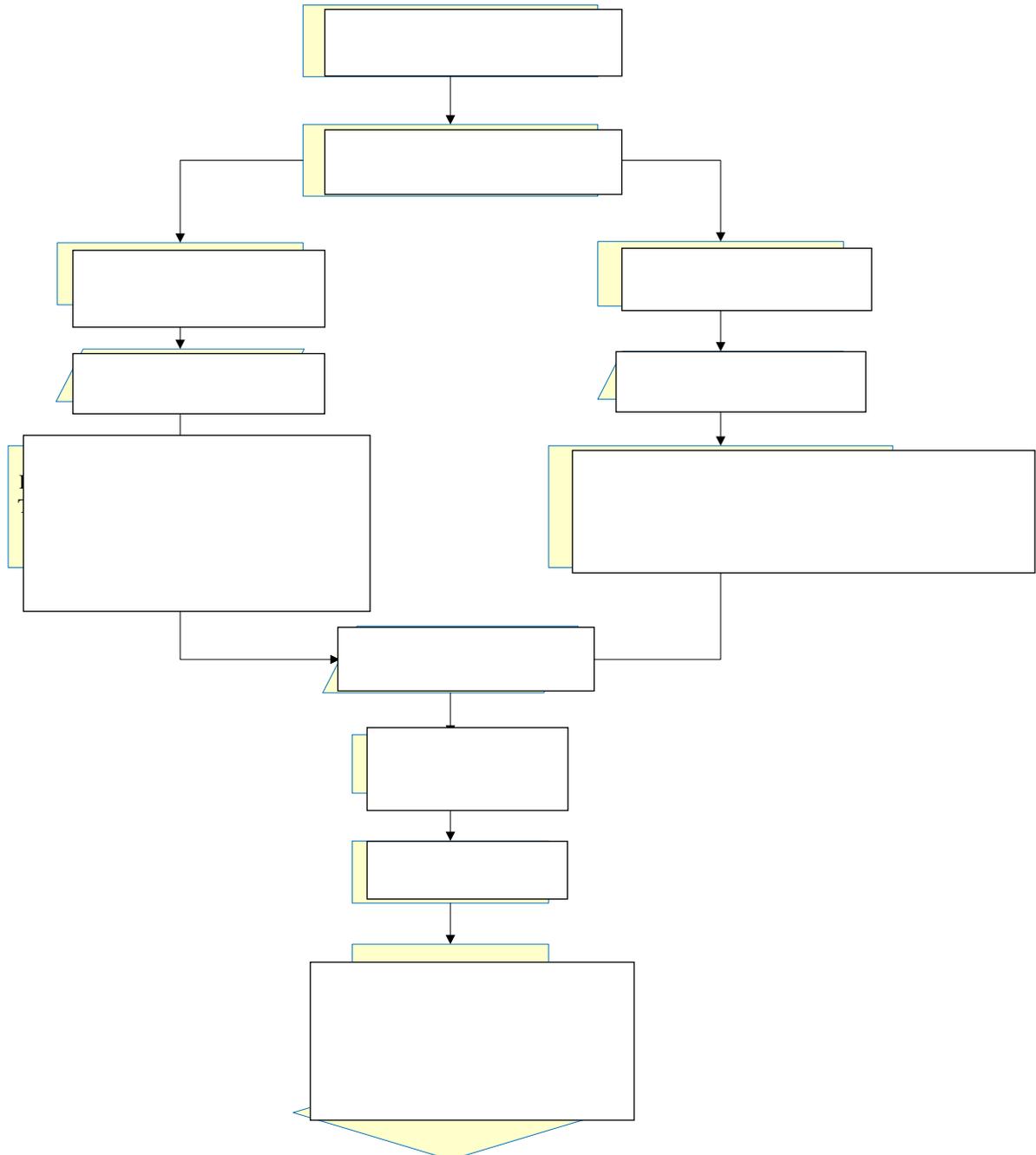


figure 3.1 scheme of research design

III. Finding and Discussion

The result obtained from this research covers students' learning outcomes from experimental class and control class. Observational data of students' learning motivation on science subjects of natural resource materials with environment, technology and society in class IV SD Negeri 164330 sub district Padang HilirTebingtinggiAcademic Year 2016 / 2017. Based on the processing data obtained that the difference of students' learning outcomes which taught by students' worksheet based on science process skill with the students taught by conventional students' worksheet. The average of students' learning outcomes taught by students' worksheet based on science process skill is higher namely 77.16 with average of score gain 0.63, while the average of students taught by conventional students' worksheet namely 66.32 with the average of score gain 0.47. This fact shows that the use of students' worksheet based on science process skill is better in improving students' learning outcomes than conventional students' worksheet. Thus, teaching science lesson on topics about natural's resource with environment, technology, and society by using students' worksheet is better than using conventional students' worksheet. Learning by using students' worksheet is the learning concept that helps teachers to relate topics discussion with reality in students' daily life. Studying by the approach of science process skill does not only study about the product but also study about process aspect, attitude, and technology so that students can understand science totally.

The result data shows that the average of students' learning outcomes that have high motivation and students with low motivation is different significantly. Students with high motivation have higher learning outcomes than students with low motivation. It shows that high and low motivation in study influences significantly toward students' learning outcomes. Motivation in study is stimulus that comes from students to do certain activities with certain purposes. The result of this research shows that there is significant interaction between the use of students' worksheet based on science process skill with students' motivation in study. Interaction between the use of students' worksheet and students' motivation in study happen if both of them play role in improving students' learning outcomes. Other words, if students who have high motivation are taught by students' worksheet based on science process skill, it will increase students' learning outcomes

Graphic interaction by applying SPSS 22.0 shows that interaction line between the use of students' worksheet and learning motivation is almost intersection. Students taught by students' worksheet based on science process skill with high motivation gets higher learning outcomes than students taught by conventional students' worksheet with high motivation. It shows that there is interaction between the use of students' worksheet with students' motivation.

The result of this research shows that the scientific attitude by using students' worksheet based on science process skill is better than conventional students' worksheet. It also shows that the average of students' scientific attitude in experimental class is higher namely 58.76 while the average of students' scientific attitude in control class achieves 53.69. Moreover among 7 indicators of scientific attitude, persistence seems to increase with percentage 69%. Based on this thing, the use students' worksheet based on scientific process skill or conventional has the increase students' scientific attitude. But it shows that using students' worksheet based on science process skill can improve higher students' scientific attitude than conventiona worksheet.

IV. Conclusions and suggestions

4.1. Conclusion

Based on the results of the research that has been presented earlier,it can be concluded as follows:

1. Students' learning outcomes in science subject thattaught by students' worksheet based on science process skill is better than conventional students' worksheet at SD Negri 164330 Tebing Tinggi, it is obtained the average of students learning outcomes 77.161 is higher than conventional students' worksheet 66.323.
2. High motivation influences students' learning outcome better than the low motivation, that is the average of students' learning outcome who have a high motivation of 76.09 higher than the average of students who has a low motivation of 63.23
3. There is an interaction of the use of the students' worksheet based on science process skill and the conventional students' worksheet with the motivation of the students in influencing the learner of the inquiry. It can be seen from the obtained of students' learning outcome, students who has high motivation has higher leaning outcomes than

students with low motivation. Meanwhile, the learning outcomes in control class with high and low motivation increases insignificantly as it happens in experimental class

4. Students' scientific attitude that use students' worksheet based on science process skill is better than conventional students' worksheet.

4.2 Suggestion

Based on the results and the conclusions of this research, there are several suggestions as follows:

1. Teachers who wants to use students' worksheet based on science process skill will get benefit to improved students' learning outcomes and motivation through the implementation of the following steps: (1) encouraging students to seek and explore more deeply about the surrounding natural concepts through experiment, (2) students will be more creative in learning through group learning, (3) each students will get the same opportunity in speaking, (4) dialogue and communication between students make the learning atmosphere more fun.

2. Headmaster should encourage teachers to add literature and can apply it to their students during teaching and learning activities by holding a workshop or training on the development of students' worksheet especially students' worksheet based on science process skill. For further research, it can be continued by adding other variables, such as self-concept, interest, thinking style and experience.

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