The Effect of Instructional Strategy (Guided Inquiry and Expository) on the Learning Outcomes Concept Understanding of Science for Junior High School Learners Who have Different Levels of Achievement Motivation

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Abstract: *This research aimed to examine the effect of guided inquiry learning strategies and expository towards learning outcomes understanding of science concepts learners who have different levels of achievement motivation in learners in class VII SMP Negeri 7 Bangkalan. Therefore the purpose of this study was to determine the influence of the main and interaction effects (interaction effects) variable treatment of the scienceon learnes learning outcomes in class VII SMP Negeri 7 Bangkalan. The design of this research is quasi-experimental research design (quasi-experiment) with factorial (2 X 2) version of the nonequivalent control group design intact group by random sampling technique. The subjects of this research is 7th of SMP Negeri 7 Bangkalan school year 2015/2016 classified into for classis as samples. The experimental group and the control group was divided into two groups containing 20 learners. Instruments data acquisition is learning strategy, achievement motivation and learners learning outcomes understanding concept of science. Data were analyzed by Anova two lanes and normality test statistical distribution of data using the Kolmogorov-Smirnov and Shapiro-Wilk, homogeneity of variance between groups using Levene's Test of Equality of Error Variances. The results showed: 1) There are significant differences learning outcomes understanding concept of science group of learners applied using the learning strategy guided inquiry and learning strategy expository on learners, 2) There is a significant difference learning outcomes understanding concept of science between groups of learners who are achievement motivated who have high and low achievement motivation in learning, and 3) there is no interaction effect between guided inquiry learning strategies and motivational level achievement expository and the learning outcomes of the science on learners understanding of the concept.*

Keywords: guided inquiry/expository, achievement motivation, understanding of science concepts

1. Introduction

The standard process for units of primary and secondary education assert that the national education vision is to create a system of education as a social institution that is strong and authoritative to empower all citizens of Indonesia become quality human so capable and proactive answer the challenges of the times are always changing (BSNP; 2007a: 5). Based on to the vision of a predetermined set of principles providing education as the cornerstone of the implementation of education reforms, which one is the implementation of education as a process of acculturation and empowerment of learners that last a lifetime. Learning is a process of interaction of learners with teachers and learning resources in a learning environment (BSNP; 2007a: 6).

As a science, a science lesson has great contribution in science and technology, because science has the structure of knowledge acquired through methods tested (Hewitt, 2006). The proven method is the scientific method. The scientific method containing the steps, namely: formulating the problem, formulating hypotheses, designing experiment, making observations, collecting data from the experiment, and draw conclusions (Joyce et al., 2009). The scientific method used in scientific work of scientists for solving scientific problems using these steps, but are not necessarily

sequential, and may be a step is repeated several times, depending on the problem.

In connection with the scientific method, one of the goals for teaching science at curriculum level education unit is equip learners to have the ability to develop their experience to define problems, propose and test hypotheses, designing and assembling the instrument trial, bring together, process, and interpret data and communicate the results of the experiment orally and in writing (BSNP, 2006; NAS, 2000). To achieve the above objectives, learning science junior level scientific inquiry is expected to be implemented to foster the ability to think, work and communicate scientific attitude as well as one of the important aspects in life skills (Depdiknas, 2007).

Based pra-observation and supervision, directly or indirectly, in the process of learning science in SMP Negeri 7 Bangkalan, found the condition of science teaching in general as follows: 1) the learning strategy, a science teacher still many central role in learning and less varied by promoting lectures and experiments but its informative, rarely provide opportunities for interaction among learners, 2) teachers do the learning group but still conventional, not pay attention to the different characteristics of learners (academic ability, gender) so that the role of individuals in the group impressed dominated by learners certain, 3) the delivery of information teachers still in the form of facts,

concepts, theories, and laws of classical science than delivering the relevant issues to be solved and discussed in groups with the guidance of teachers. Teachers often use lectures, discussion and drill in the order of the material in the curriculum strictly. While learners should quickly and carefully listened, noted for information.

Learning as above is often called the expository teaching strategy. Warpala (2009: 2) states that the implementation of conventional learning or expository regarded as the transmission of knowledge. In this study the role of teachers preparing and transmitting knowledge or information to learners, while the learner role is to receive, store and carry out the activity as a teacher orders. Expository strategy is the assimilation of information with the characteristic lies in the symbolic resources such as listening to the learner or reading resources. In the case of the assimilation of information resources greatly affect the learning process. Thus, this model tends to be deductive.

Thuckman, (1999) stated expository as transmission model that assumes that knowledge consists of facts that must be learned by the learners. Burrowses (2003) states that expository emphasis on recitation of content, without giving sufficient time to the learner reflect on the materials presented, relating to prior knowledge, or apply to real life situations. Further stated that the expository have the characteristics, namely: (1) learning centered on the teacher, (2) learners passive, (3) the interaction between learners less, (4) there is no cooperative groups, and (5) assessment is sporadic.

The main objective expository is to move the knowledge, skills and values to learners. It is essential in teaching materials should be explained to learners. The role of the learner is essential in expository as follows: (1) preparation of learning programs; (2) the provision of correct information; (3) provision of learning facilities were good; (4) give learners in acquiring the correct information; and (5) the assessment of the acquisition of information, (Dimyati, 2006).

The process of learning science for secondary schools already include: (a) activities of observation, (b) selecting observation relevant to the investigation / investigation to be studied further, (c) find and identify new patterns and connect with patterns already available. (D) advise and assess the explanations of the patterns that exist, (e) designing text learning and experiments, including performing various measurements to implement them in learning as a process and a product or interact with their environment and transforming the minds with the help of cognitive structures already in his mind.

Learning is seen as preparing the knowledge of concrete experiences, collaborative activities, reflective and interactive (Brooks & Brooks, 1993, 1999; Degeng, 1997). Learners must learn to play an active part in compiling knowledge. For teacher-centered learning, placing learners as mere objects and cannot find a gap to actualize themselves during the learning process, the partisipation of learners in the learner's activity is low. Such conditions affect pen-achievement of learning outcomes. In an effort to

gain understanding of the concept of learning outcomes, individual-hooked me new knowledge with old knowledge they already had to build new knowledge (Kirk Penney., Burgess-Limerick., Gorely, & Maynard, 2002).

Inquiry learning strategy is one effective learning strategies that can be applied in teaching science (Depdiknas, 2006). Anderson, 2002; Joyce., Weil & Calhoun, 2000; Rooney, 2009) states that guided inquiry learning more effectively prioritize keterlibatn learners in learning. Application of inquiry learning strategy is essentially a social process, where in learning learners are assisted in making observations, collecting data, related to the problems faced. In the implementation, the teacher gives a problem situation, learners find, inquire, examine and try to find their own things to learn with the guidance of teachers. Anderson (2002) stated that the application of guided inquiry learning can help teachers analyze learning materials to create a variety of learning conditions, so that learners are motivated to learn more optimal, encourage curiosity more and more motivated to master the concept. Guided inquiry learning strategies can improve the ability of learners to understand and analyze the learning material based on the phenomenon and persolan society (Parker & Diane, 2007). This is reinforced by some of the characteristics of inquiry learning strategies.

Gagne (1985) stated that in the learning activities, learners need to pay attention to the road pebelajar provide guidance and directs his attention. The guidance given will direct learners to the learning objectives. Guidance provided includes: 1) guiding learners in search of information, resources, record the information, gather information, provide an opportunity to provide feedback on the issues presented, make a hypothesis, test the hypothesis and drawing conclusions, 2) provide the instructions for composing, recording data , answering questions and drawing conclusions. Guidance given by the teacher, is directed to the application of guided inquiry learning focused on the achievement of learning objectives.

In the achievement of learning objectives required syntax or learning steps to provide instructional direction implemented. Step-by-step guided inquiry learning is used adapted from opinion (Anderson, 2002; Minner, Levy, Century, 2009; Felder, 2002) as follows; (1) the teacher explains the procedure of learning to learners, (2) the teacher presents a problem to the learners, (3) learners collect data and propose hypotheses about the information that is found, (4) learners test the hypothesis, (5) to formulate a hypothesis, (6) provide conclusions.

From the description above can be concluded researchers that learning strategies guided inquiry is the appropriate learning strategies applied in teaching science because it prioritizes active involvement of learners, search, collect information and of giving answers to the problems that learned by following the directions of activities designed learner form questions the answer regarding the empirical experience that leads to learning objectives.

Science subjects is one of the subjects considered difficult by most learners in junior high. Because of this view, many

learners who have low achievement motivation towards science subjects, resulting in low yields obtained learners learn. To overcome the low motivation of learners, teachers should be able to choose the approach and appropriate learning strategies, are able to raise achievement motivation of learners. With the awakening of the motivation is expected to improve the learning outcomes of learners.

So that learners can understand the science teaching materials that a lot of digging community life of the high-level aspects of cognition, it takes a high achievement motivation of learners. Achievement motivation gives big influence to achieve optimal learning results. Achievement motivation as the desire to achieve compliance with the standards that have been set (Degeng 1997). According to Cohen (2007) there are two aspects of the underlying motivation of achievement, which rewards for success and avoid failure. Both of these motivational aspects related to things / tasks in the future.

Pintrich (2003) defines the achievement motivation as motivation that drives individuals to achieve success, and aim to succeed in the competence or competition with some measure of excellence (standard of excellence). The size of that advantage may be its own previous accomplishments or the accomplishments of others. Ardhana (1992) suggested that the concept of achievement motivation oriented towards the cognitive aspect, which is an effort to improve and maintain a personal capacity as high as possible in all activities with excellence as a comparative measure. According Ardhana (1992) achievement motivation tends to try to achieve success or successful goal-oriented activities.

Achievement motivation is one source of driving force and stabilize the behavior of learners in schools. Motivation is a powerful force for achieving the objectives and the ability to perform actions required in certain circumstances. By having achievement motivation it will be a realization that the drive to achieve success (productive behavior and always pay attention to quality) can be a permanent attitude and behavior of the individual self (Sudiharto, 2011: 1). Achievement motivation has an important influence on learning because the motivation one of the factors that determine the process and learning outcomes of learners. So that the learning process can take place properly, each learner should partisipation in the learning process voluntarily. Motivating learners is the duty of teachers in schools. In principle, there are differences between the learner's attention with high motivation and learners who have low motivation (Akbas, 2007: 11). Learners who have high achievement motivation will appear pleasure, concerns, wishes of business, use that time, the focus of the lesson, and not do things outside of learning.

Based on the above, this study was designed to study quasi experiment to test the effect of guided inquiry learning strategies and expository as independent variables, the results of learners to learn science in junior high school as dependent variables that have different levels of achievement motivation as moderator variables.

2. Method

This research using draft quasi-experimental research (quasi experiment), with factoreal (2 X 2) version of the non equivalent control group design intact group with random technique, because in the research may be if you want to control all the variables expected influence of the treatment and the impact of treatment (study results). The subjects were learners in class VII SMP Negeri 7 Bangkalan first semester of school year 2015-2016 of 80 learners. The technique of taking a subject taken at random. the subject of as much as 5 class, randomly taken four classes each class of 20 learners, two classes as an experimental group with the number of 40 learners, 2 classes as control group with the number of 40 learners. Both groups, the experimental group and the control group was given the test kemampual initial (pretest and achievement motivation questionnaire sheet).

There are two types of instruments created and used in this study, the treatment instrument and measuring instruments. Treatment instrument in the form of lesson plan (RPP) and worksheets for the learners guided inquiry learning, lesson plans and worksheets for expository learners. The design of the treatment activities provided for learners 6 lesson plan and LK (student worksheet) for each learning strategy. Measuring instrument consists of two things, namely instruments achievement motivation and learning outcomes science instrument learners.

Instruments achievement motivation using a questionnaire in the form of components indicator of achievement motivation and item selection option 5, option 5 score of 1 to 5 in the form of positive and 5 option score 1 till 5 negative kind. Each item can only choose one answer that is deemed appropriate. Instrument of learning outcomes using the test method in the form of questions about the competence of science teaching which have been made in the implementation of learning. Test instruments in the form of multiple choice questions with four options. Each item has only one correct answer. If the learner answer correctly get a score of 2 and if any receive a score of 0 (zero).

The preparation of the questionnaire refers to the indicators of achievement motivation. Beads of indicators of achievement motivation include: 1) Seek Superior, 2) Completing a good job, 3) Ra-sional in success, 4) Like the challenge, 5) Accept personal responsibility for success, and 6) Liking the job situation with personal responsibility, feedback, and a medium level of risk. To determine the compatibility between the grains of the items on the instrument with indicator instrument item in order to know the actual level of motivation of learners, instruments tested to other groups outside the subject imposed further treatment is consulted with experts to obtain expert judgments.

Measurement results of study conducted in the form of multiple-choice written test (multiple choice) are performed after the learning process for three basic competency materials that have been implemented. Item answer choices are 4 options with selection symbols A, B, C, and D. Each item has only one question about the correct answer. If the learner answer correctly get a score of 2 and if any receive a score of 0 (zero).

Prior implemented learning process, the experimental group and the control group were tested with a pretest to determine the ability of early learners within the common average. This meant that the learning outcomes of the learning process is really a result of the treatment is made, not because of external or internal influence that is not made. Therefore, to test the similarity average pretest science learning outcomes both groups used ANOVA one lane. Anava one lane is done after first tested the prerequisite analysis of normality test and homogeneity test. The data analysis scienceposttest learning outcomes in this study was done by using analysis of variance (ANOVA) two lanes, often called Two Way Anova. Before testing the hypothesis test analysis is the prerequisite test for normality and homogeneity test. Further data analysis with ANOVA technique two lanes.

3. Results and Discussion

Summary result of the data obtained prior to the achievement motivation of the experimental group and the control group received after the treatment. Scores acquisition of both experimental groups (guided inquiry) and control (expository) are grouped into two categories: high and low. The category is classified high if average total score acquisition of learners each item statement is greater than the average (mean) total score, score grade> the mean total score, the achievement motivation of learners are categorized as high, whereas if the score be obtained smaller than the mean total, score <mean total, the proficiency level of achievement motivation learners categorizedlow. Examples categorization of the acquisition of achievement motivation scores of two groups.

Summary data from learners to learn science from both the experimental and control groups, obtained fromthe science posttest learners can be seen in Table 1.

Two lanes used ANOVA hypothesis testing. ANOVA results for the two-track strategy of inquiry learning and expository science learnerstowards learning outcomes according to different levels of achievement motivation can be seen in Table 2.

Table 1: Perbedaan Learning Outcomes Science Experiment Group and Control

After Treatment		Gain	N-Gain $<g>$	Significance	explanation
Experiment (Inquiry)	Control (Expository)				
74,12	64,87	9,25	0,263	0,000 < 0,05	Significant

Table 2: Interaction Strategies Learning and Achievement Motivation on Learning Outcomes Science
Tests of Between-Subjects Effects

Dependent Variable: Y					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	3767,068[a]	3	1255,689	12,961	,000
Intercept	366344,073	1	366344,073	3781,394	,000
A	1931,202	1	1931,202	19,934	,000
B	1972,094	1	1972,094	20,356	,000
A * B	60,353	1	60,353	,623	,432
Error	7362,932	76	96,881		
Total	397550,000	80			
Corrected Total	11130,000	79			

a. R Squared = ,338 (Adjusted R Squared = ,312)

Based on the results of the analysis can be stated that: 1) There is a significant difference in learning outcomes science group of learners that learned with guided inquiry learning strategies and learning strategies expository learners of class VII in SMP. This is evidenced by the results of p value = 0.000 <0.05, so that no distinction can be expressed learning outcomes science group of learners that learned with guided inquiry learning strategies and learning strategies expository learners of class VII in SMP Negeri 7Bangkalan on the 3 subjects, 2) There are significant differences between the groups of science learning outcomes of learners who have achievementmotivation high and low achievement motivation in class VII in SMP. This is evidenced by the results of p value = 0.000 <0.05, so it can be revealed no differences in outcomes between the groups of learners to learn science that have high achievement motivation and low achievement motivation in learners of class VII in junior high school, and 3) There is no interaction effect between guided inquiry learning strategies and expository and level of achievement motivation on science learning outcomes in grade VII in SMP. This is indicated by the results of the result p value = 0.432 <0.05, so it can be stated that there is no influence in-interaction between the learning strategy guided inquiry and expository and air-achievement motivation level is different to the learning outcomes science in class VII at Junior High School 7 Bangkalan.

Science learners learning outcomes in this study are presented in Table 1 obtained the information that there are differences in learning outcomes sciencelearners who learn with guided inquiry learning and learners who study with expository. Sciencelearning outcomes learners are learning with guided inquiry is higher than on learning outcomes for science learners who learn by expository.

The application of guided inquiry learning began to formulate the phase problem, hypothesize, experiment, evaluate hypotheses and make conclusions have been able to condition the learners to be active and more independent in their learning. Learners tend to gain knowledge of things based on the five senses, so that the knowledge is more easily embedded in his memory. This is consistent with that disclosed in Amien (1987) on one of the advantages or benefits of teaching by using guided inquiry learning strategy, which helps in retention and knowledge transfer using the new learning process.

Learning strategies guided inquiry learning outcomes are easier to remember the concepts, principles, and laws that have been studiedscience(Amien, 1987). Learning with

expository strategy according Neat (2008) is done with the lecture method, lack of attention to the beginning of knowledge, learners are less active, giving the concept, so that learners feelbored and even Selcuk (2010) states "The fact that traditional methods of education cannot serve the needs and wants of today's student, the need for lifelong learning, and the latest developments in the teaching-learning have alltogether paved the way to the emergence of new approaches in teaching ".

Results of analysis of variance of two lines showed that no interaction between guided inquiry learning strategy and expository and level of achievement motivation toward science learning outcomes learners in junior class VII. This is shown by the results p value = 0.432 <0.05, so it can be stated that there is no interaction effect between guided inquiry learning strategies and expository and level of achievement motivation to learn science in the junior class VII.

Hypothesis testing results showed that there was a very significant difference to the learning outcomes science between groups of learners who learn with guided inquiry learning strategies and learning strategies expository. Calculation of test data results to learn science shows that through the application of learning strategies guided inquiry obtained an average score of 74.125, and learning strategies expository an average score of 64.875, it means the application of learning strategies guided inquiry proved to have influence better for learning outcomes sciencecompared with expository teaching strategy.

These findings are consistent with research conducted by researchers before her, among others: the results of research Yager, et al, (2005); Sigler &Saam (2007). Yager research results, Abd-Hamid, and Akcay (2005) concluded that the learning strategy guided inquiry led to the learners motivated to want to know more, questions and experiences more than expository strategy. Learning is done with guided inquiry learning strategy, encouraging learners are motivated to learn more in depth with the guidance of teachers. Research Sigler &Saam (2007) concluded that there is a significant correlation between the score of learning outcomes in the two groups were studied with guided inquiry learning strategy and expository.

Expository strategy is the best strategy in the teaching material is memory and comprehension. Tuniyah research results (2010); Wuryaningsih (2010); Paidi (2009) concluded that the strategy of guided inquiry learning can improve learners' understanding of the learning material, the impact on improving learning outcomes achieved by learners. Learners who learn to use the learning strategy guided inquiry obtain the mean (average) better learning achievement than the learners who study with expository teaching strategy. This is because learners are learning with guided inquiry learning strategy is more effective, then the more effective use of time to conduct the investigation so it's easier to understand the material being studied.

In hypothesis testing concluded that there are significant differences between the groups Science learning outcomes of learners who have high achievement motivation and low.

Groups of learners who have high achievement motivation earn higher learning outcomes than the group of learners who are highly motivated low. This is indicated by the calculation results of test data learned that a group of learners who have high achievement motivation earn an average score of 74.125, and a group of learners who have low achievement motivation, the average score of 64.875. These results indicate that the level of achievement motivation shown to have a significant impact on science learning outcomes.

The results of this study support the results of the studies previously conducted by, Sudarma&Fitria (2005); Susanto (2008); Nqurawan (2007); Gani (1999); Panjaitan (1997) that the achievement motivation affect the acquisition of learning outcomes. Learners who have high achievement motivation earn better learning outcomes compared with learners who have low achievement motivation.

In the third hypothesis testing concluded that there was no interaction effect between learning strategies and achievement motivation on sciencelearning outcomes. These findings reinforce the findings of the first and second that the effect of key variables on the dependent variable is very strong, that 1) there is a significant difference sciencelearning outcomes between groups of learners who are taught by teaching strategy guided inquiry and expository, 2) there is a significant difference between the groups of learners who have high and low achievement motivation. In factorial analysis, if the independent variable and moderator variable of each allegedly provides influence of the dependent variable, the effect of the interaction of independent variables and moderator variables on the dependent variable is expected weak and insignificant.

On exposure of the results showed that the learning strategy provides a strong influence on learning outcomes learners. It is shown from the calculation results of research data, the study of theory and the results of previous research that supports the impact of learning strategy (guided inquiry) on learning outcomes learners.

In addition, Exlin (2004) suggested that the strategy of inquiry learning (guided inquiry) can be implemented in all disciplines in a broader perspective through observations of the wider world, to the discipline of art, exact, scientific, historical, economic, social and discipline other sciences. Inquiry (guided inquiry) is very important in generating student interest and comprehend knowledge with new learning paradigm shift, from the receipt of information into information retrieval. Correspondingly, Lynn, (2000) suggested that the application of guided inquiry learning strategies geared towards active learning and the development of thinking skills, not only to learn how to achieve the feat.

4. Conclusions and Suggestions

4.1. Conclusions

Based on the result of the research and the result test above hypothesis can be summarized as follows; 1) results between the groups of learners to learn science that learned with

guided inquiry learning strategies and learning strategies differ significantly expository. Guided inquiry learning strategy found to have a better effect on learning outcomes are achieved learners compared with expository teaching strategy, 2) science learning outcomes between groups of learners who have high and low achievement motivation differ significantly. Groups of learners who have high achievement motivation earn better results than in the group of learners who have low achievement motivation, and 3) learning strategies and achievement motivation showed no interaction effect on sciencelearning outcomes.

4.2.Suggestion

Based on these results we can put forward suggestions related to the utilization of research results in science learning in junior high and further research, as follows: the science teacher suggested to improve the learning outcomes of learners by implementing a learning strategy guided inquiry on competence in accordance with the characteristics of a learning strategy guided inquiry, by the way; 1) designing learning systematically contextual by taking into account the characteristics of learners (achievement motivation), so that the implementation of the learning is done by means of search and information discovery in problem solving can do learners smoothly, because achievement motivation gives a strong influence on learning outcomes learners, 2) select the problems easily understood learners, as a step to understand the concept and analysis of the concept of learning materials, 3) condition and motivate learners, so that learners can independently learn to foster an atmosphere free learning and encourage learners to seek as much information, as well as the brave solve the problem with the results of his own ideas, 4) learners need to understand the differences of personality, characteristics and identity of learners, the ability and experience of learners, so that the learning process in accordance with the needs of potential learners and learning objectives. Guided inquiry learning strategy requires activeness, independence, the ability to understand the problem correctly, and the ability to utilize learning resources correctly, then four things need to be conditioned in advance so that the implementation of measures guided inquiry learning can be run in accordance with the lesson plan.

The researchonly done in SMP Negeri 7 Bangkalan, then from that other researchers can develop with research other similar in a broader, more in-depth according to the situation and condition of the place, so that the results of this study can be utilized in a wider scale too ,

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