The Development of Inquiry Learning Materials to Complete Content Life System Organization in Junior High School Students

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Abstract: This research aims to develop the material eligibility to complete the inquiry learning of student in the material organization system of junior high school students. Learning materials developed include syllabi, lesson plans, students’ textbook, worksheets, and learning achievement test. This research is the developmental research which employ Dick and Carey model to develop learning material. The experiment was done in Junior High School 4 Lamongan regency using One Group Pretest-Posttest Design. The data collection used validation, observation, achievement test, questionnaire administration, and documentation. Data analysis techniques used quantitative and qualitative descriptive. The results showed that the developed learning material was valid and can be used. Learning activity accomplished with good category, where student activities were observed. The aspects of attitudes were observed during the learning process are honest, responsible, and confident. Student learning achievement gained an average of 81.85 in complete category, with N-Gain 0.75 for a high category. The activities and student response to learning was very well categorized. Based on the results, this researcher concluded that the device classified as feasible of inquiry-based learning (valid, practical, and effective) system used on the material organization of junior high school students.

1. Introduction
The 2013 curriculum is a curriculum of learners’ competence development, which emphasizes on the application of scientific approach in the learning process. Scientific approaches of such learning include: observing, asking, trying, reasoning and communicating for all subjects [1]. The 2013 curriculum demonstrates the existence of simplicity, and integrative thematic efforts that refer to SBC (KTSP). The 2013 curriculum encourages students to be able to observe, ask, reason, communicate what is known in the learning process. This is very much in line with the science subject that emphasizes discovery in searching facts, concepts and principles in natural science. Of course it is long before the 2013 curriculum was applied which emphasizes the scientific approach. In accordance with the 2013 curriculum that emphasizes the scientific approach, researchers as science teachers in junior high schools are also required to apply similar learning which is learning that emphasizes the discovery to find facts and concepts in order to gain better knowledge.

Based on the 2013 curriculum which has just began to be applied in researchers’ school, the researchers are interested to conduct research on grade VII in the organization system of life material because researchers consider it as an abstract material that cannot be captured by the five senses without any tools or media. Therefore, researchers want to invite students to see the organization system of life starting from the cell level that can only be seen through a microscope.
The researcher previously initiated pre-research activities to identify the ability of students' knowledge in Junior High School 4 Lamongan on life system organization material. The test is given to 28 students of IX E. Students of grade IX who are deemed to have received material about life system organization were questioned about the material. The result is that all students get the mark under minimum-standardize criteria (KKM) with highest score of 67, 5 and average score of 36, 63. This means that all students were failed. The results of interviews from randomly selected students explain that the life system organization is a difficult material because they never see the cells directly; they only see the cells from the reading books. That is the reason of why they forget in recalling the material. During this time teachers use more lecture methods and group discussions in the life system organization material and students have never been invited to observe and experience directly on the material.

From the results of pre-research, researchers are encouraged to attempt in completing the learning achievements of Junior High School 4 Lamongan on life system organization material. The treatment was done to know the effect of participants on the learning outcomes, attitude and skills. Teachers can observe the development of attitude and learning skill outcomes during the learning activities, while the development of learning outcomes can be identified from the pretest and posttest results.

One of the learning strategies that emphasize student activeness in the learning process is inquiry. The inquiry learning strategy is also in line with the 2013 curriculum that emphasizes learning with a scientific approach. Inquiry is a process for answering questions and solving factual problems from observations [2].

Based on the background, the researchers want to do research of inquiry learning materials development which is applied to complete the learning achievements in junior high on life system organization material.

2. Research Methods
This research is a developmental research because it will develop inquiry learning device on life system organization material by using Dick and Carey development model with one group pretest and posttest design [3].

This research was conducted in Junior High School 4 Lamongan in the even semester of the 2016/2017 academic year precisely in March 2017. The subject of the research is inquiry learning material on life system organization material on grade VII as the treatment target.

The variables in this study are the validity of learning materials, the implementation of lesson plan, student activities, learning achievements, and student responses.

The data collection technique which is used in this research is: learning materials validation, observation, test, and questionnaire. While the research instruments which are used in this study include: student effectiveness sheet consisting of attitude assessment journal, assessment sheet of student learning achievements, student skill assessment sheet, and student response sheet.

In this study, the data were analyzed by descriptive quantitative and qualitative analysis which included the learning materials validation, the practicality analysis of the learning materials, and the effectiveness analysis of the learning materials which has been developed.

3. Research and Discussion
Based on feasibility analyses of learning material include validity, practicality and effectiveness of learning materials [4], researchers obtained the following results:

Analysis of validation result of learning material development obtained average of lesson plan validity score are 4.0 for format, 3.9 for content, 4.0 for language, and overall aspect in category of lesson plan is “very valid” [5], with a comparison value of 98.4% so it is categorized as “suitable” [5]. The validation result on learning materials was obtained average score for content is 3.7, language is 3.7, material presentation is 3.6, and all aspects on very valid category [5], with comparison percentage of both valuator on 97% where it is categorized as “suitable” [6]. Validation results on Student Activity Sheet (LKS) obtained average score for format 3.4, for language 3.6, for content 3.6 and all aspects on “very valid” category [5] with 96% matched [6]. The result of validation on test obtained the average
score, on multiple choice questions obtained content validation of 4.0, the validity of the language of 3.3, while the question description obtained content validity of 4.0 and the validity of the language of 3.5. This indicates that the validity of the test results can be used without any revision.

Practical analyses by applying learning materials that have been developed include analysis of lesson plan implementation and student activity analysis. Based on the observation by two observers, the result of lesson plan is as shown in Figure 1.

Based on the graphics, it can be analyzed that the implementation of lesson plan by using learning materials that have been developed in each syntax shows that the existence of development in each meeting, obtained average value as much as 3.9 with “good” category [6].

On student activeness aspect in three meetings of learning can be described as shown in Figure 2.

Based on the graphics, it can be stated that student activities in the highest learning activity is in making observations with a value of 14.0%, and the lowest percentage is in answering teacher questions where it reach 9.9%.

Analysis of the effectiveness in application of learning materials include attitude analysis, analysis of knowledge learning achievements, analysis of skills learning achievements and student responses to learning by applied learning materials that have been developed[7].

Attitude analysis during learning is used to know the development of student attitude during the learning progress and facilitate the growth of student behavior. The development of student attitudes
was viewed during teaching-learning process which focused on the value of honest, responsible and confident characters that are recorded in the attitude assessment journal [8]. Analysis of student learning achievements can be seen in Figure 3.

![Figure 3. Students’ Achievements](image)

Based on the diagram, it can be seen that before the application of developed learning materials was done [9], the average pretest results is 23.83, while after the developed learning materials had just applied, the average posttest results is 89.08 with “passed” category while the minimum student mastery score is 70[10].

4. Conclusion
The conclusion of this research shows an adequate and decent learning material in completing student learning achievements on life system organization material of students in Junior High School 4 Lamongan.

5. Suggestion
Inquiry learning materials which are developed by the researchers declared eligible and can possibly lead the student learning achievements to succeed, so it is expected for further research in order to develop the understanding of the concept/learning materials derived from the discovery lesson. A similar study is required to familiarize students in formulating questions /problems in inquiry learning. It is necessary to conduct similar research on the same subject for more perfect learning materials developed in completing student learning achievement

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