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Preliminary study for development of teacher's Books oriented research-based learning on science lesson in Junior High School

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Abstract. The teacher's books that is used has not yet been based on an inspirational learning model so the learning process is not carried out contextually and scientifically. The impact on students competency was low. The solution to improve student competency was develop a research-based teacher book in science learning subject at Junior High School. To develop a research-based teacher book, a preliminary study was conducted. The researchs using descriptive methods. The researchs subject is the teacher on science lesson junior high school. The research respondents is science teacher on junior high school, Padang. The research instrument is observation sheets, questionnaires and interview guides. The data analysis technique used in this study is descriptive qualitative. The results showed that the analysis of the graduate competency standards was in the less category, the analysis of the learning proses standard was in the less category, the analysis of learning assesment was in the less category, the analysis of learning difficulties was in the very less category, and the analysis model and learning approach was in the less category.

1. Introduction

Education is a planned action for developing potential [1]. Education is interpreted process of increasing and developing abilities and forming student mindsets. Learning process is an investigation activity where students are required to observe, ask, try, reason, and communicate. As mandated in the curriculum 2013 there are 3 competencies demanded, namely attitudes, knowledge, and skills.

Competence is a skills, attitudes and knowledge, that must be owned by the student [2]. Skills are the ability of students to change or make things to produce something more meaningful. Assessment Standards, teachers assess skill competencies through performance appraisal [3]. Skills competency assessment can be seen in the practicum activities.

Through practical activities a research process is built, where students can place themselves as researchers / scientists. This process can produce quality and meaningful learning if done according to the learning process. There are four important activities in the learning process, namely planning,



implementation, assessment, and supervision [4]. Each activity has concrete steps that must be implemented so that the learning process can be carried out optimally.

Humans are given the mind by God with the ability to think that can be developed at any time. Learning is what is produced/obtained by students during the learning process. Learning is a change in mindset that occurs in a person caused by learning [4]. This means that learning is a form of behavior change that occurs while learning is the process of the occurrence of interactions that cause changes in these behaviors. All that is done in the this process can be able to produce a meaning/value that can be taken. The benefits that can be felt by students themselves are increasing knowledge and knowledge of things. In accordance with one of the learning objectives, which can improve student competence.

Science specifically examines phenomena and natural phenomena that are around us. Students are required to find natural problems through activities to find facts, theories, and practices. This is not only limited to activities in the classroom but also outside the classroom where students are led to search, test and solve problems themselves to find facts about material. In addition students can also conduct their own investigations to find new things as part of the learning experience. This activity can produce answers and solutions to things if done according to scientific procedures. The research process requires the existence of systematic and objective activities or efforts to find reliable knowledge [4].

Research-based learning is an activity or effort undertaken to find, develop, and test the truth of a knowledge and conclude the findings obtained [4]. From this research-based learning students can be able to conclude own theories and concepts from a learning activity. Research based learning can not only be done through practical activities but also with the provision of media that are able to direct students to optimize activities so they are able to find and conclude learning outcomes based on data and information that is obtained [4].

Based on the curriculum 2013 states that teachers as facilitators can provide a variety of learning resources both self-designed and provided by the government. The guidebook a support for the learning process to be directed. The teacher manual is a guide to the learning process which consists of steps that must be done [2]. The student book is a guide to student activities during the learning process. Student books are students' grip on the learning process worthy of textbooks.

Based on observations made, it is known that teacher books used as teacher guidelines are rarely used, this can be due to several things, namely the lack of teacher books distributed by the government to schools, still lack of understanding of teachers in using of existing teachers book, and still the teacher book has not been developed by the teacher himself. This certainly contradicts the understanding of the teacher's book itself which must be the guiding teacher in conducting learning and assessment. Preliminary studies need to be done before developing a research-based teacher book on junior high school science subjects. The purpose of research is to analyze the need for developing research-based teacher books in junior high school science subjects.

2. Method

This research method is descriptive research. Research conducted in June-July 2019. The research subjects were science teachers from several junior high schools in Padang. The research data is descriptive data. The research instruments were questionnaires and interview guidelines. Questionnaires are sheets that must be filled out by science teachers by giving scores on responses in the questionnaire. The interview guide is used as the question sheet submitted to the science teacher. Data analysis using descriptive techniques with categories on table 1.

Table 1. Score category

Category	score
Very Good	$90 < X \leq 100$
Good	$75 < X \leq 90$
Less	$60 < X \leq 75$
Very Less	$X \leq 60$

Kemendikbud (2013: 314) [5]

3. Result and Discussion

3.1. Result

The results of this study are the percentage of teacher questionnaire data analysis in Kota Padang junior high school. The questionnaire analysis consisted of four components, namely the SKL (the terms of the competency graduate) analysis, the analysis standard process, the assessment, the learning difficulties, and the learning model and approach.

3.1.1. SKL (the terms of the competency graduate) analysis. The SKL analysis on the questionnaire used included attitudes, knowledge, and skills. As shown in figure 1.

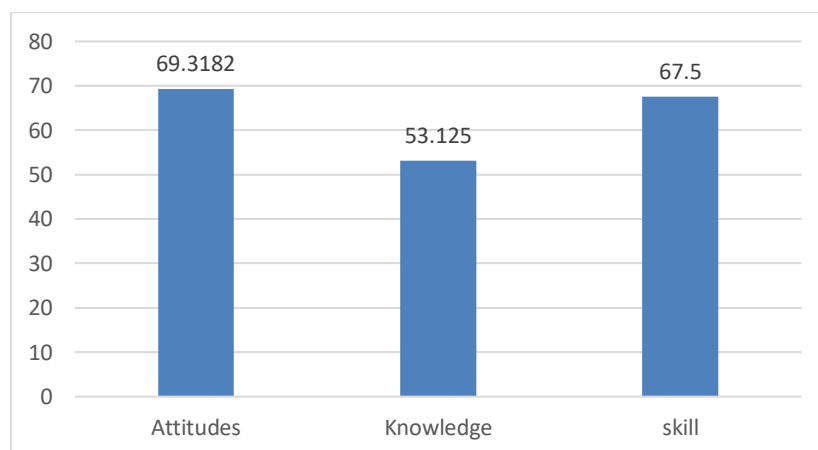
**Figure 1.** Analysis SKL

Figure 1 shows that the percentage of attitudes obtained was 69.3182% in the less category, the percentage of knowledge 53.125% in the very less category, and the percentage skill 67.5% in the less category. For the percentage of overall SKL analysis of 65.525%, it falls into the less category.

3.1.2. Standard of the process. The standard of the process in the questionnaire used includes planning learning and implementing the learning process. As shown in Figure 2.

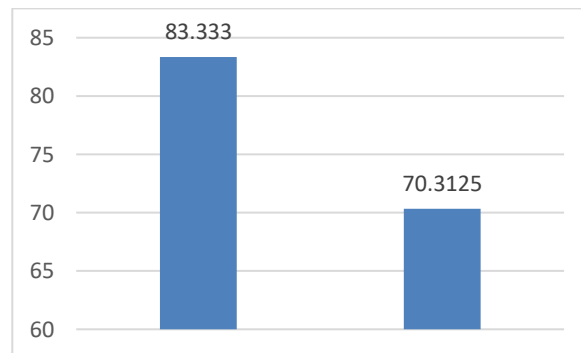


Figure 2. Standard of the process

Figure 2 shows that percentage of learning planning was 83.333% in the good category, and the learning process was 70.2125% in the less category. For the percentage of standard analysis the overall learning process is 70.3125% in the less category.

3.1.3. Assessment analysis. Assessment analysis on the questionnaire used included attitude assessment, knowledge assessment, and skills assessment. As shown in figure 3.

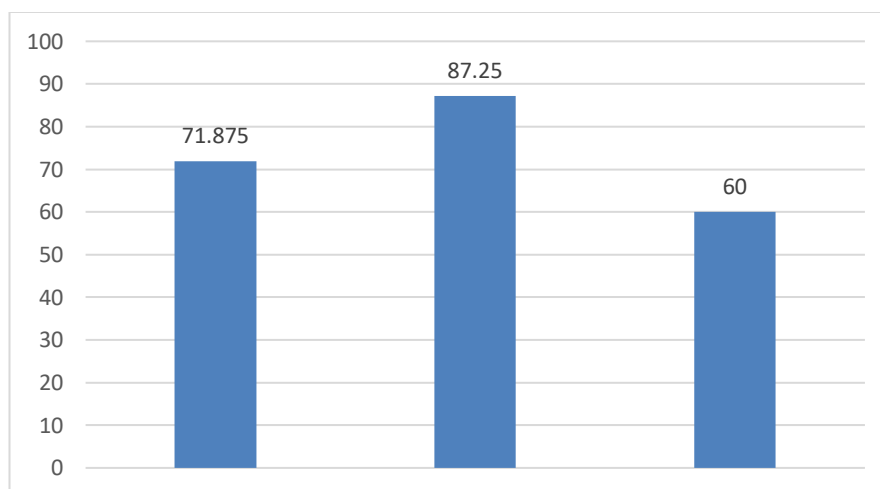


Figure 3. Assessment

Figure 3 shows that percentage attitude assessment is 71.875% in the less category, the knowledge assessment is 87.25% in the good category and the percentage of skills assessment is 60% in the less category. the overall assessment of learning analysis was 70.1923% in the less category.

3.1.4. Analysis of learning difficulties. For the analysis of learning difficulties obtained at 58.3 % fall into the very poor category. This explains that the teacher is still having difficulty in finding solutions to the difficulties faced by students. Analysis of important learning difficulties to be carried out considering that the teacher can identify the needs of students in learning.

3.1.5. Learning model and approach. For the analysis of the model and learning approach obtained at 70.8% in the less category. Not precisely the selection of models and learning approaches can result in not achieving learning goals and low student learning outcomes. Identification of models and approaches is important so that the material to be taught can be conveyed well.

3.2. Discussion

Based on the SKL analysis data on the questionnaire, it turns out that students knowledge in connecting material with the facts around them is low and also the students' low ability to do practical activities. This could be caused by his lack of readiness of teachers in the learning process, both personal readiness and the readiness of the media to be used. Therefore, a teacher must be able to formulate learning objectives in conformity with the subject with clear goals for learning can be implemented and students can achieve the expected competencies. [4] The learning should pay attention or be based on a clear purpose. This means that learning objectives are specifically designed by identifying existing needs.

The implementation of good learning goals will produce a learning process that is in accordance with the demands of the curriculum. Preparation of the learning process includes the preparation of lesson plans in which there are methods and models that must be adapted to the material that is taught to achieve good learning outcomes. From the standard data analysis, the learning process illustrates that the low quality of the learning process is at school, this is caused by the learning steps used by the teacher still not in accordance with the steps of learning in the lesson plan. In addition, the teacher's handbook still has not presented a learning model that is in accordance with the material needs and facilities and infrastructure in the school. From here it can be seen that teachers need facilities and readiness to carry out his role as a whole. [6] Competency must be owned by teachers in the learning process can be grouped into three activities, namely preparing teaching programs, to present / carry out teaching, and conducting evaluations.

Evaluation is the final activity in the learning process. The assessment analysis data shows that the teacher is constrained due to the absence of an appropriate and complete handle. [7] the teacher's book has a function as a mandatory guide for the teacher to used as a guide and as a reference for learning activities in the classroom. To realize a teacher's book that can improve teacher performance, it needs to be implemented as a model that is able to encourage student activities . Based on the questionnaire the right model to use is a model integrated with scientific activities. Based on this, the suitable model is a research based learning model.

4. Conclusion

This research show that ability teacher in preparing the learning is still low,so that the performance of teachers in teaching was not optimal. One reason is the absence of clear and complete guidelines for teachers in teaching and the learning model used has not optimized students' activeness as required in the curriculum. Therefore important to developing the teacher's book orianted research-based learning as a guide for teachers in teaching.

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