

ANALYSIS OF AVAILABILITY OF GUIDED INQUIRY MODELS ON PHYSICS LESSON PLANS GRADE XI SEMESTER 1 IN SENIOR HIGH SCHOOLS

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ABSTRACT

In the revised 2013 curriculum, students are required to have skills that fit the challenges of the 21st century like 4Cs, HOTS. To train these skills is to apply the right model in learning, namely the guided inquiry model. The availability of guided inquiry models in learning can be seen from the lesson plans. All lesson plan high schools has not been identified whether have a guided inquiry model. Therefore, this research aims to find out the availability of guided inquiry models in lesson plan Physics grade XI Semester 1 in high schools. This research is descriptive research with a qualitative approach. The population data in this study are all lesson plan Physics grade XI semester 1 used by 15 districts in West Sumatra. The samples in this study were lesson plan Physics in high schools grade XI Semester 1 from 7 schools created by teachers. Based on the research that has been done, the availability of the guided inquiry model in lesson plan physics grade XI semester 1 obtained the results of the analysis that lesson plan with the highest availability category is lesson plan code 3 with a percentage of 83.3% in very available category. The lesson plan with the lowest availability is lesson plan 1 and lesson plan 6 with a percentage of 16.67% in the unavailable category. Thus, it can be concluded that the availability of the guided inquiry model in the lesson plans for grade XI semester 1 is categorized as sufficient available.

Keywords : Analysis; Guided Inquiry Model; Lesson Plans



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I. INTRODUCTION

Educating the nation's life is one of the ideals of the Indonesian nation that can realize through education. Education in Indonesia will continue to grow following the demands of the 21st century. In the 21st century, education becomes very important to ensure learners have learning and innovative skills, skills using technology and information media, work, and survive by using life skills [1]. These demands are also called competencies needed by students in the current era of globalization, often referred to as 21st-century skills. The concept of education is better known as 21st-century learning.

Based on the challenges of the 21st century, the Ministry of Education made breakthroughs to improve the quality of education to produce graduates who are ready to compete globally in the future. One of the early breakthroughs was by implementing the 2013 revised curriculum in 2017. The change of the previous curriculum with the 2013 curriculum revision 2017 aims to allow students to have 4C skills (communication, collaboration, critical thinking, creativity), Strengthening Character Education (PKK), Science Literacy, HOTS (Higher Order Thinking Skill).

But in reality, the government's breakthroughs have not seen maximum results on the ground. One of the government's demands is that students have HOTS ability but still not done well. From the interview results, the teacher mentioned that if the teacher has tried to use HOTS-oriented learning activities, it is only that the ability needs habituation again because students still find it difficult to solve the problems.

Based on the above problems, researchers want to see the learning activities conducted by teachers by conducting documentation studies on lesson plan made by teachers because lesson plan is one of the learning device units that help the standard of the learning process. In this study, because physics is a subject that demands students have HOTS skills, researchers will look at models that can improve students' HOTS abilities. But in this study, researchers only took one of the models that are guided inquiry model. Guided inquiry models are suitable for improving HOTS capabilities because one aspect of HOTS capabilities matches the syntax modelled in guided inquiry

This research focuses on the guided inquiry because teachers do not take away the activities performed by students. Teachers still have to give guidance and guidance to students in conducting activities so that slow-thinking students or students with low intelligence can still participate in the activities that are being carried out and students with high thinking skills do not monopolize activities[2]. According to the 1989 ALA Presidential Committee on Information Literacy Final Report and the 1998 AASL and AECT literature, "Guided Inquiry information literacy augments these in several important ways. First, Guided Inquiry takes a conceptual approach to information literacy. Second, it integrates these information literacy concepts into inquiry units in the same way that curriculum standards are met through inquiry learning." [3]

Based on the above background, it becomes the basis of researchers to analyze the guided inquiry model used in lesson plan as one way to improve the ability of higher order thinking skill (HOTS), critical, creative students. Therefore, the researchers conducted descriptive research with the title of the study "**Analysis of Availability of Guided Inquiry Model on Lesson Plans Physics Grade XI Semester 1 in Senior High Schools**".

II. METHOD

This type of research is descriptive research with a qualitative approach. Descriptive research is a study that is intended to gather information about the status of an existing symptom, namely the state of symptoms according to what it is at the time of the study, without making conclusions that apply to the public or generalization. Descriptive research is the most basic form of research, intended to describe or describe existing phenomena, both natural phenomena and human engineering[4]. The qualitative approach is a study that produces descriptive data in the form of written or spoken words from people and observed behaviours[5].

The population is a generalized area consisting of objects or subjects with specific qualities and characteristics set by researchers to be studied and then drawn conclusions[6]. The population of this study is the entire lesson plan Physics SHS grade XI semester 1 used by 15 districts in West Sumatra. The sample is part of the population members to be studied [7]. Lesson plan sampling techniques in this study are purposive samplings. Purposive sampling is a sampling technique with specific considerations that aims to make the data obtained later can be representative[8]. The lesson plan that will be analyzed amount to 7 lesson plan made by teachers in schools.

In practice, the research is carried out in three stages. The first is the preparation stage, the second is the implementation stage, and the third is the completion stage. In the preparation stage, in addition to preparing the research design and determining the subject and object of research in the form of lesson plan to be used. Preparation in the form of drafting the instrument is designed in such a way as to the purpose of the instrument itself, namely as a tool needed in research. Before writing the instrument items, the lattice of the instrument should be written first. The instrument that has been made is then validated by the validator. Evaluation of the validity of the instrument was carried out by 3 validators using the instrument validation sheet. Assessment of the validity of the interview guideline instrument and analysis of the availability of guided inquiry models on lesson plan is in the form of a checklist with a scale of 1 to 5. There are several revisions after the validation of the instrument by the validator, namely revisions to the addition of the suggestion column and improvements to the instrument and the objectives to be achieved are more clarified. The results of the overall validity were searched using the Kappa Cohen formula. At the end of the assessment, the moment kappa value (k) is obtained,

$$\text{Moment kappa } (k) = \frac{P_o - P_e}{1 - p_e} \quad (1)$$

The abbreviation (k) is the kappa moment which indicates the validity of the product. Abbreviation () is a realized proportion, calculated by dividing the number of values given by the validator by the maximum number.

While the abbreviation () is the unrealized proportion, calculated by means of the maximum value minus the total value given by the validator divided by the maximum number. The categories of kappa moment decisions obtained are in the following table [9].

Table 1. Validity Categories of Guided Inquiry Model Analysis Instruments

Criteria	Category
0,81 – 1,00	Very Valid
0,61 – 0,80	Valid
0,41 – 0,60	Moderate valid
0,21 – 0,40	Less valid
0,01 – 0,20	Invalid

(Source: Ref [9] in [10])

After the preparation for the research is complete, the research enters the implementation stage, namely data collection. Data collection techniques are methods used to obtain research data or information. Data collection technique in this research is through documentation study through interview. This technique requires an interview guide instrument as a guide for data collection[11]. The document in question can be in the form of writings, pictures, or monumental works of a person [6]. This documentation study is carried out by collecting documents or data needed in the research problem and then examining it in depth. The documents used in this study are written documents, namely lesson plan physics for high school class XI Semester 1. The data obtained by data collection techniques documentation is the availability of lesson plan physics for high school class XI Semester 1 with a guided inquiry model. The data obtained from the documentation study were analyzed using revised instruments. The data analysis technique used is content analysis, which is a method by making contextual inferences (conclusions) so that communication messages can be fully understood[12]. Data processing techniques carried out in this study by:

1. Summing up the appearance of the indicators of the guided inquiry model in each lesson plan analyzed
2. Calculating the percentage of lesson plans for physics class XI 1st semester that can facilitate guided inquiry models for each lesson plan analyzed by the formula:

$$\frac{\sum \text{Guided inquiry model indicators that appear}}{\text{total } \sum \text{Guided inquiry model indicators that appear}} \times 100\% \quad (2)$$

3. Determine the average percentage of each category of guided inquiry models of all lesson plan analyzed.
4. Determine the criteria of lesson plan physics of SHS grade XI semester 1 that can facilitate the guided inquiry model can be seen in Table 2.

Table 2. Criteria for presenting lesson plan physics class XI semester 1 which can facilitate guided inquiry models model

Criteria	Category
81 – 100	Very Available
61 – 80	Can be Available
41 – 60	Quite Available
21 – 40	Less Available
0 – 20	Not Available

(Source: Ref [13])

5. Draw conclusions, namely drawing conclusions from the data that has been obtained.

III. RESULTS AND DISCUSSION

The research was conducted by taking data on the availability of guided inquiry models in lesson plans. This study obtained data such as numbers processed using statistical methods, after which it returned to descriptive data. The descriptive data is an analysis of the availability of a guided inquiry model for lesson plans grade XI semester 1. The guided inquiry model in this study uses the syntax from Kuhlthau, which consists of 8 syntaxes, namely open, immerse, explore, identify, gather, create, share, evaluate. The following describes the results of the discussion of the six materials on the availability of guided inquiry models in the presentation of lesson plans at 7 high schools.

1. Material Rotational Dynamics and Equilibrium Rigid Body

The results of the analysis of the lesson plan presentation for the dynamics and equilibrium of rigid bodies can be seen in Figure 1.

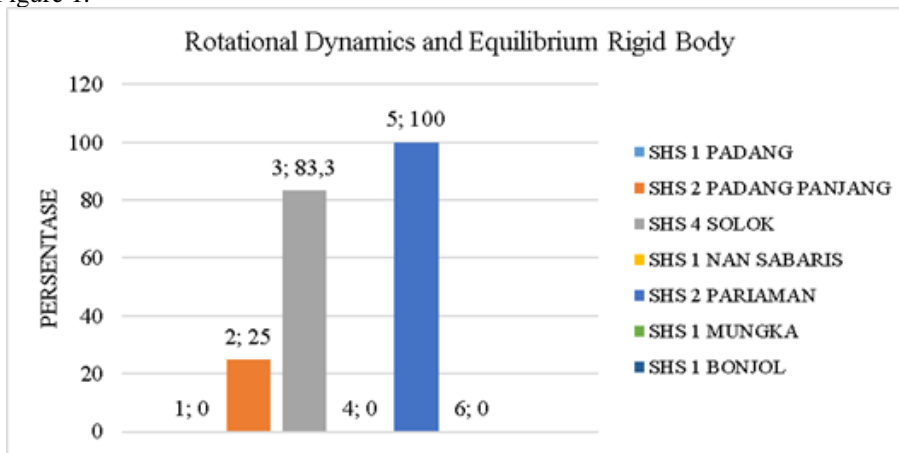


Fig. 1. Percentage of Average Score Availability of Guided Inquiry Models on Rigid Body Dynamics and Equilibrium Materials

Based on Figure 1, on the material of rigid body dynamics and equilibrium at 7 lesson plan, it was found that only 3 schools used the guided inquiry model. One school with the lesson plan code 5 got the highest score of 100% for the availability of the guided inquiry model, so it was concluded that it was very available. For the two other lesson plans, the model used in the lesson plans was not written, so the researchers analyzed based on the instrument items. The other lesson plans are lesson plan with code 2, lesson plan with 3, with each different percentage. For lesson plan with code 3, it gets an availability percentage of 83.3% with the very available category. This lesson plan meets the open, immerse, identify, gather, share, and evaluate syntax. For lesson plan with code 2, the availability percentage is 25% with the less available category. The lesson plan with code 2 do not meet the availability of the guided inquiry model because they only meet the immerse and evaluate syntax. From the analysis results on this material, only the lesson plan with code 5 provides one of the most important syntaxes, namely explore. According to [14], in the explore phase, students are formed to read, watch videos, demonstrations by the teacher, which are useful for gathering as much information as possible about the material to be studied so that later it will help form interesting questions. For lesson plans that were not analyzed, there was no guided inquiry model because teachers used other types of models in teaching, such as discovery learning models, problem-based learning. In some schools, researchers did not get lesson plan data on this material.

2. Materials of Elasticity and Hooke's Law

The results of the analysis of the lesson plan presentation for elasticity and Hooke's law in lesson plan can be seen in Figure 2.

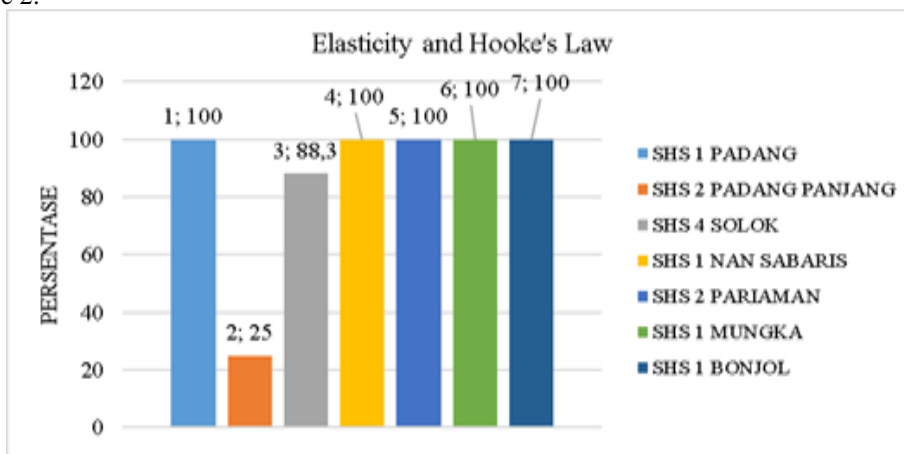


Fig. 2. Percentage of Average Score Availability of Guided Inquiry Model on Elasticity and Hooke's Law Materials

Based on Figure 2, the results of the analysis on elasticity material and Hooke's law on 7 lesson plans found that 7 lesson plan used the guided inquiry model. Five schools wrote down the model used, namely lesson plan

with code 1, lesson plan code 4, lesson plan with code 5, lesson plan with code 6, lesson plan with code 7 and these five lesson plans got the highest percentage of 100% with the very available category. As for the other 2 lesson plans, namely lesson plan with code 2, lesson plan with code 3, found that the model used was not written that researchers analyzed the items based on the guided inquiry model instrument. The two lesson plans have different percentages of availability. For lesson plan with code 3, it gets 83.3% with the very available category. This lesson plan meets the open, immerse, identify, gather, share, and evaluate syntax. Lesson plan with code 2, get a percentage of 25% with the less available category. The lesson plan with code 2 do not meet the availability of the guided inquiry model because they only meet the immerse and evaluate syntax. From the overall analysis above, several syntaxes are not found, one of which is created. In the create phase, after students analyze the experiment results, students are then guided to be able to conclude the results of the experiment. So that in this phase, students understand what has been learned, which will later strengthen students' understanding of this material. Of the 7 lesson plans that use the guided inquiry model in this material, only 5 lesson plans have this syntax. Other than that, it is not available.

3. Static Fluid Material

The results of the lesson plan presentation analysis for static fluid materials can be seen in Figure 3.

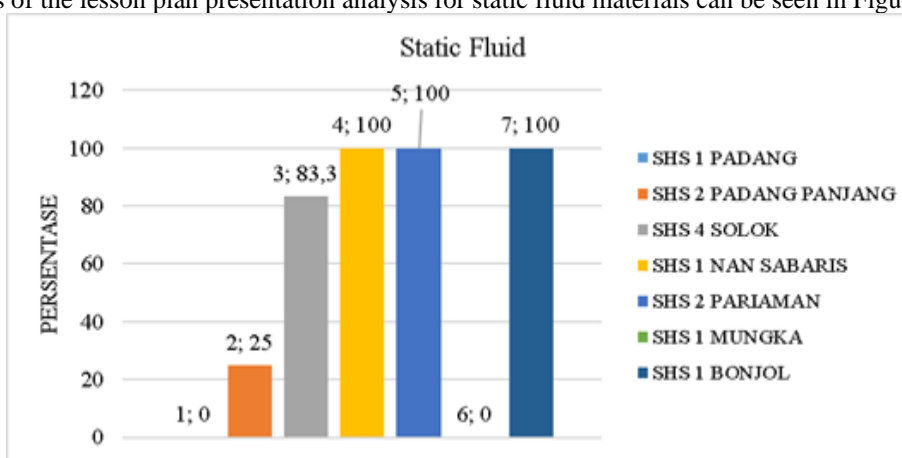


Fig. 3. Percentage of Average Score Availability of Guided Inquiry Model on Static Fluid Material

Based on Figure 3, the analysis of the static fluid material at 7 lesson plan found that 5 lesson plan used the guided inquiry model. Three schools wrote down the model used, namely lesson plan with code 4, lesson plan with code 5, lesson plan with 7, and these three lesson plans got the highest percentage of 100% with the very available category. As for the other two lesson plans, namely lesson plan with code 2, lesson plan with code 3, found that the model used was not written that researchers analyzed the items based on the guided inquiry model instrument. The five lesson plans have different percentages of availability. For lesson plan with code 3, it gets 83.3% with the very available category. This lesson plan meets the open, immerse, identify, gather, share, evaluate syntax. Lesson plan with code 2 get a percentage of 25% with the less available category. The lesson plan with code 2 do not meet the availability of the guided inquiry model because they only meet the immerse and evaluate syntax. For lesson plans that were not analyzed, there was no guided inquiry model because teachers used other types of models in teaching such as discovery learning models, problem-based learning, learning cycles.

4. Dynamic Fluid Material

The results of the lesson plan presentation analysis for dynamic fluid materials in lesson plan can be seen in Figure 4.

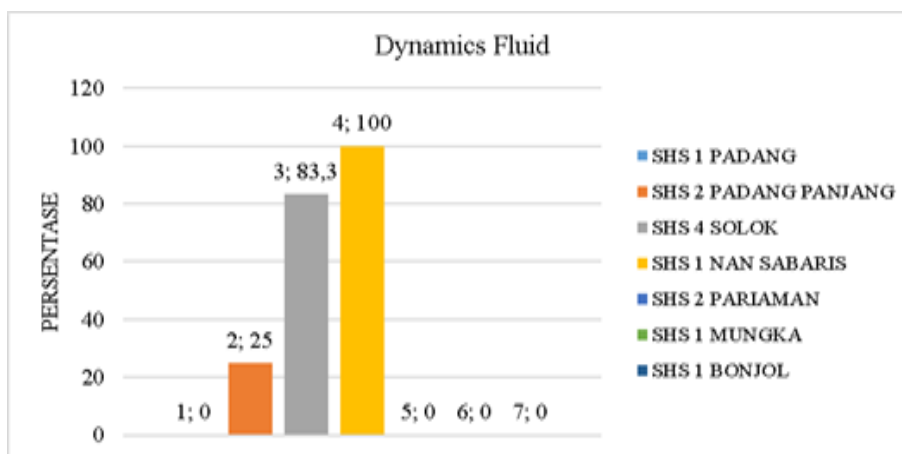


Fig. 4. Percentage of Average Score Availability of Guided Inquiry Model on Dynamic Fluid Material

Based on Figure 4, the analysis of the dynamic fluid material at 7 lesson plan found that 3 lesson plan used the guided inquiry model. One school with the lesson plan with code 4 got the highest score of 100% for the availability of the guided inquiry model, so it was concluded that it was very available. For the other two lesson plans, the model used in the lesson plans was not written, so the researchers analyzed based on the instrument's items. The two lesson plans are lesson plan 2, lesson plan with code 2, lesson plan with code 3 with a different percentage of each. For lesson plan with code 3, the availability percentage is 83.3% with the very available category. This lesson plan meets the syntax of open, immerse, identify, gather, share, evaluate. Lesson plan with code 2 get a percentage of 25% with the less available category. The lesson plan with code 2 do not meet the availability of the guided inquiry model because they only meet the immerse and evaluate syntax. For lesson plans that were not analyzed, there was no guided inquiry model because the teacher used other types of models in teaching such as cooperative learning, problem-based learning, project-based learning and in some schools.

5. Material Temperature and Heat

The results of the analysis of the lesson plan presentation for the temperature and heat material in the lesson plan can be seen in Figure 5.

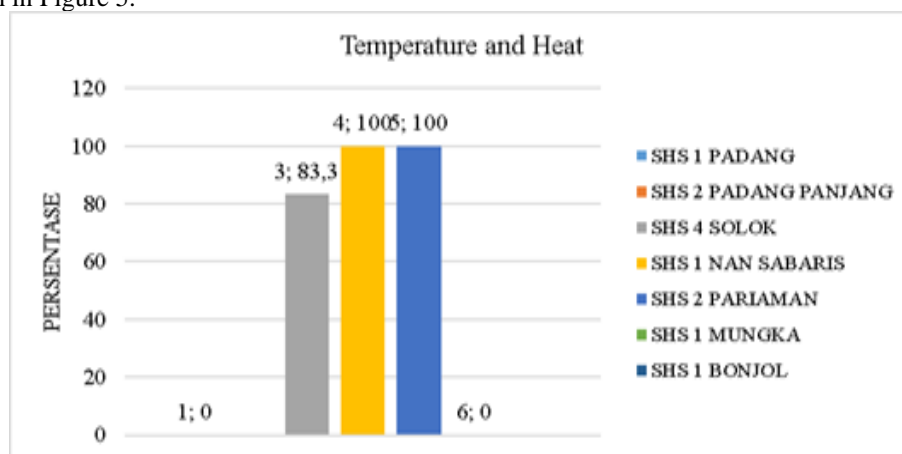


Fig. 5. Percentage of Average Score Availability of Guided Inquiry Models on Temperature and Calorie Materials

Based on Figure 5, the analysis results on the temperature and heat material at 7 lesson plan found that 3 lesson plan used the guided inquiry model. Two schools wrote down the model used, namely lesson plan with code 4, lesson plan with code 5 and these two lesson plans got the highest percentage of 100% with the very available category. For lesson plan with code 3, the percentage is 83.3% with the very available category. This lesson plan meets the open, immerse, identify, gather, create, share, and evaluate syntax. For lesson plans that were not analyzed, there was no guided inquiry model because teachers used other types of models in teaching such as cooperative learning, problem-based learning, discovery learning and in some schools, the researchers did not get lesson plan data on this material.

6. Material for the Kinetic Theory of Gases

The results of the analysis of the lesson plan presentation for the temperature and heat material can be seen in Figure 6.

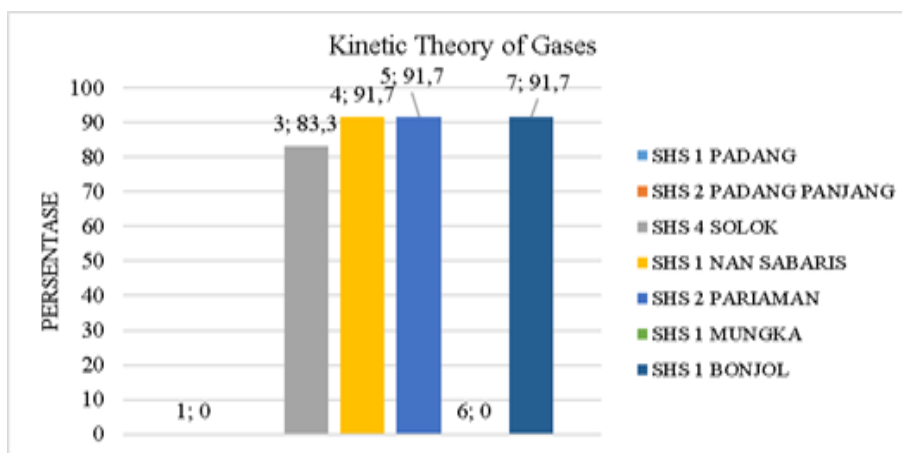


Fig. 6. Percentage of Average Score Availability of Guided Inquiry Model on Gas Kinetic Theory

Based on Figure 6, the results of the analysis of the gas kinetic theory material in 7 lesson plans found that only 4 schools used the guided inquiry model. This data was adjusted to the lesson plan because not all lesson plans wrote learning models in it. Three schools with code lesson plan with code 4, lesson plan with code 5, lesson plan with code 7 got a score of 91.7% for the guided inquiry model's availability, so it was concluded that it was very available. For lesson plan with code 4, lesson plan with code 5, lesson plan with code 7 fulfils the open, explore, identify, gather, create, share, evaluate syntax. One other school is coded lesson plan with code 3. For lesson plan with code 3, the percentage is 83.3% in the very available category. Lesson plan with code 3 fulfils the open, immerse, identify, gather, create, evaluate syntax. For lesson plans that were not analyzed, there was no guided inquiry model because teachers used other types of models in teaching such as cooperative learning, problem-based learning, discovery learning and in some schools, the researchers did not get lesson plan data on this material.

From the overall analysis results, the availability of guided inquiry models in lesson plans sufficient available. Things like the amount of data not found in some materials make the overall percentage decrease. Then the majority of teachers who are still not too familiar with the guided inquiry model are also one of the low results of the analysis. The weakness of this model is also because it takes too long, so that the implementation of learning is feared not following the target. However, although there are weaknesses, there are also many advantages of using this guided inquiry model, one of which is the active role of trained students through the processes during guided inquiry learning. This student activity will later train the abilities demanded by the curriculum.

IV. CONCLUSION

Based on the results of the analysis of the availability of the guided inquiry model in the lesson plan as a whole were obtained in the quite available category. For schools that have the availability of a guided inquiry model in the lesson plan made by the teacher, the highest category is the lesson plan SMAN 4 Solok with the code (lesson plan 3), and the lowest availability of the guided inquiry model is the lesson plan made by the teacher, namely lesson plan SMAN 1 Padang (lesson plan 1) and lesson plan SMAN 1 Mungka (lesson plan 6) because there is only one material that uses a guided inquiry model.

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