

CHAPTER I

INTRODUCTION

1.1. Problem Background

The development of science and technology has positively or negatively impacted aspects of human life. Therefore, problems that arise can be solved by efforts to improve science and technology. The development of science and technology also makes there no boundaries between humans to communicate. Therefore, the development of science and technology brings humans into global competition. One way that a country can take in order to survive in global competition is to improve the quality of human resources. Education is one of the efforts to improve the quality of human resources.

The quality of education is certainly influenced by the role of teachers in learning in schools. Teachers who direct the learning process follow the learning objectives that have been set. Government Regulation No. 74 of 2008 article 1 explains that: "Teachers are professional educators with the main task of educating, teaching, guiding, directing, training, assessing, and evaluating students in early childhood education through formal education, basic education, and education, medium."

Based on the Government Regulation above, it is clear that teachers must also evaluate their students in addition to teaching and guiding students. It aims to determine the extent to which the learning process implemented has been successful. Evaluation is an activity that cannot be separated from a program, including learning programs in schools. Evaluation is a systematic process to determine the success and efficiency of the program concerned (Subali, 2012).

The test items that must give answers and responses to measure a person's level of ability (Widoyoko, 2009). The test is a technique that teachers often use to determine the extent to which students are able to master the material. The tests conducted by the teacher are in the form of daily tests, mid-semester tests, and end-of-semester tests. In addition to having the ability to teach or deliver material, teachers must also have the ability to develop test instruments so that the test includes good questions to measure the abilities of their students. A good test will

provide an accurate picture of student learning outcomes. In other words, a good test must be a quality test. Learning outcomes test is said to be good if the test is valid, reliable, objective, and practical (Sudijono, 2011).

A test items is said to be good if it is able to measure what is to be measured with an accurate value. If the test items are not analyzed and the question given is not yet known about the condition, it could be that the question is not suitable for use in the exam. Analyzing items is a process of collecting, summarizing, and using information from students' answers to make decisions about each assessment. Item analysis shows why an item does not work well and how much it works.

Problem analysis can be done with two approaches: a qualitative approach and a quantitative one. The qualitative approach is carried out by examining questions that include aspects of the material, construction, and language. This analysis was carried out before the questions were used. The question category can be used if it has fulfilled all the aspects of the study. This analysis was carried out after the questions were given to the test takers and answered by the test-takers, who then analyzed the answers to assess the items. The qualitative analysis of the questions is basically a review of the questions in terms of the rules of writing questions, namely: (1) Material, (2) Construction, (3) Language. Meanwhile, quantitative means analysis is based on experimental data or empirical evidence.

On Wednesday, November 10th, 2021, the author made early observations with one of the biology teachers at Methodist – 8 Medan Senior High School, namely Drs. Golarden Purba, M.Pd. Based on the results of interviews that have been carried out, he said that the biology summative test items that he made did not observe an analytical process quantitatively and qualitatively. It can be concluded that the summative test items that he has made cannot be said to be test items that have quality.

The summative test consists of the items that are used as evaluation subjects. However, the items often do not go through the quality analysis stage, so the quality of the questions prepared is not known. Therefore, it is necessary to analyze the question to determine the quality of the items used for the test (Utami and Aryeni, 2017).

Questions that have qualified are the questions that can describe the actual abilities of students and provide precise information, and from the results of students, it can be seen that students who have and have not mastered the subject.

Based on the description above, the researcher did the research with the title **Analysis of Biology Summative Test Items at Odd Semester of Class 11 MIA in Methodist – 8 Medan Senior High School.**

1.2. Problems Identification

Based on the problem background, several problems can be identified as follows, namely:

1. The biology summative test items have not been analyzed quantitatively including validity, reliability, discriminating index, difficulty index, and distractor function;
2. The biology summative test items have not been analyzed qualitative including content aspects, construction aspects, and language aspects;
3. The biology summative test items have not been analyzed based on the level distribution of cognitive domain Taxonomy Bloom.

1.3. Research Questions

Based on the problem identification, the research to be studied can be formulated, namely :

1. How is the quality of the Biology Summative Test of Class 11 MIA in Methodist – 8 Medan Senior High School based on qualitative analysis such as content aspect?
2. How is the quality of the Biology Summative Test of Class 11 MIA in Methodist – 8 Medan Senior High School based on qualitative analysis such as construction aspects?
3. How is the quality of the Biology Summative Test of Class 11 MIA in Methodist – 8 Medan Senior High School based on qualitative analysis such as language aspects?

4. How is the level distribution of cognitive domain Taxonomy Bloom of the Biology Summative Test of Class 11 MIA in Methodist – 8 Medan Senior High School?
5. How is the Validity of biology summative test items of class 11 MIA in Methodist – 8 Medan senior high school?
6. How is the Reliability of the biology summative test items of class 11 MIA in Methodist – 8 Medan senior high school?
7. How is the Difficulty Index of biology summative test items of class 11 MIA in Methodist – 8 Medan senior high school?
8. How is the Discriminating Index of the biology summative test items of class 11 MIA in Methodist – 8 Medan senior high school?
9. How is the Distractor function of biology summative test items of class 11 MIA in Methodist – 8 Medan senior high school?

1.4. Scope of Problems

Based on the problems identification above, the scope of this research are :

1. The biology summative test items that will be analyzed qualitatively and quantitatively are the biology summative test of class 11 MIA in Methodist – 8 Medan Senior High School;
2. The biology summative test items that will be analyzed based on their qualitative aspects including content aspects, construction aspects, and language aspects;
3. The biology summative test items that will be analyzed based on the level distribution of cognitive domain Taxonomy Bloom.
4. The biology summative test items that will be analyzed based on their quantitative including validity, reliability, discriminating index, difficulty index, or distractor function of the test items;

1.5. Research Purposes

The purposes of this research are as follows, namely :

1. To find out how the quality of the Biology Summative Test of Class 11 MIA in Methodist – 8 Medan Senior High School based on qualitative analysis such as content aspect;
2. To find out how the quality of the Biology Summative Test of Class 11 MIA in Methodist – 8 Medan Senior High School based on qualitative analysis such as construction aspects;
3. To find out how the quality of the Biology Summative Test of Class 11 MIA in Methodist – 8 Medan Senior High School based on qualitative analysis such as language aspects;
4. To find out the level distribution of cognitive domain Taxonomy Bloom of the Biology Summative Test of Class 11 MIA in Methodist – 8 Medan Senior High School.
5. To find out the validity of the biology summative test items of class 11 MIA in Methodist – 8 Medan senior high school;
6. To find out the reliability of the biology summative tests items of class 11 MIA in Methodist – 8 Medan senior high school;
7. To find out how the Difficulty index of biology summative test items of class 11 MIA in Methodist – 8 Medan senior high school;
8. To find out the Discriminating index of the biology summative test items of class 11 MIA in Methodist – 8 Medan senior high school;
9. To find out how the Distractor function of biology summative test items of class 11 MIA in Methodist – 8 Medan senior high school;

1.6. Research Benefits

The benefits expected in this research are as follows:

1. For Researcher

The experience and information that will be obtained while conducting research will be a guide for researchers to develop the suitability of making Biology Summative Test items.

2. For Teachers

This research will be helpful as a tool or a way to determine whether the questions have a good quality based on quantitative and qualitative analysis.

3. For school

This research will be used as an evaluation subject in making test tests for daily or monthly tests and semester exams.

4. For readers

This research will be able to provide input on the importance of the suitability of the test items.

1.7. Operational Definition

The operational definitions related to this research are as follows:

1. The analysis of the test items is a process to assess the quality of each item. The analysis of the test items aims to identify the test items qualitatively, such as the content aspect, construction aspect, and language aspect of the test items, and quantitatively such as validity, reliability, discriminating index, difficulty index, or distractor function of the test items;
2. Validity is one of the characteristics that mark a good learning outcome test. To determine whether a learning outcome test has validity or measuring accuracy can be done from two aspects, namely: in terms of the test itself as a totality, and in terms of the items, as an inseparable part of the test. The formula Biserial point correlation coefficient (r_{pbi}) by Sudijono (2013) that was used in this validity analysis.
3. Reliability is the degree of consistency between two scores of measurement results on the same object, even though using different measuring tools and different scales. The reliability of one of the measuring instruments used to measure two or more objects so that they have the same results. The formula KR-20 by Arikunto (2009) that was used in this reliability analysis.
4. Difficulty index of the test items is the opportunity to correctly answer a question at a certain level of ability which is usually expressed as an

index. The greater the index of difficulty obtained from the calculation results, it means the easier the question is. The formula Difficulty index (P) by Prasetyo (2013) that was used in this difficulty index analysis.

5. Discriminating index is the ability of items where the score can discriminate between students from the high group (mastering the material) and students from the low group (less mastering the material). The formula Discriminating index (D) by Sudijono (2013) that was used in this discriminating index analysis.
6. The distractor function of the test items determines how well the wrong choice can outwit the test takers who do not know the available answer keys. The more test takers choose the distractor, the more it can perform its function correctly. The formula Distractor index (IP) by Arikunto (2012) that was used in this reliability analysis.
7. Qualitative Analysis is carried out based on the rules of writing questions. This research is usually carried out before the test items tested. The aspects that is consider in this qualitative research is each questions is examined in terms of subject, construction, and language.
8. Taxonomy Bloom has the cognitive aspects that include the activities of the mind. There are 6 (six) levels of thinking processes in the cognitive aspects of Bloom's taxonomy, starting from the lowest level to the highest level, namely Remembering (C1), Understanding (C2), Applying (C3), Analyzing (C4), Evaluating (C5), and Creating (C6).