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Preliminary study of authentic assessment that focus on self assessment and portfolio assessment using problem based models in senior high school

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Abstract. The use of process-based assessment instrument by teachers is not yet implemented effectively. Most of teachers have used written test and oral test in the form of mid-semester and end-semester test well, but the process aspects such as skills and attitudes have not been implemented optimally. Therefore, it is necessary to do research to analyze the assessment process provided by teachers. This initial research was conducted in one of the high schools in Padang City, namely SMAN 15 Padang. Data analysis techniques used are tabulation and percentage. The data obtained from an assessment process conducted by teacher are around 80% results-based assessment and 20% process-based assessment, wherein the results-based assessment are more dominant than the process-based assessment. Skills indicators assessed in this study include: doing practicum (K1), conclude the results of the practicum (K2), make a presentation (K3), apply new knowledge (K4), and solve problems and questions (K5). While attitude indicators assessed in this study include: curious (A1), confidence (A2), responsibility (A3), discipline (A4), conscientious (A5), cooperation (A6). Suggestions raised based on the results of preliminary research that process-based assessment especially skills and attitudes need special attention by conducting further research to develop a process assessment instrument

1. Introduction

Education is a process in developing all the potential possessed by human resources to deal with the development of Science and Technology. One of the factors that determines the progress of a nation is the quality of education quality possessed by human resources. Therefore, it is necessary to improve the quality of education so that existing human resources can develop the potential they have from various fields of education.

Education covers a variety of fields of science, one of which is Natural Sciences (IPA). IPA which is part of the field of science studies about nature and everything in it. Physics is also an IPA branch that studies natural phenomena and phenomena related to matter and energy^[1]. Physics as one of the subjects learned at the high school level has the aim of forming students from the various expected competencies, namely attitudes, knowledge and skills. These three aspects of competence are expected to develop in a balanced manner to have attitudes and skills to live in the community along with the development of science.



All kinds of business have been carried out by the Government through the Ministry of Education and Culture in the hope that the competence of students to be more cooperative and good. The government also expects education quality to increase. One of the efforts carried out by the government is to improve the curriculum, so that the applicable curriculum is the 2013 curriculum of the Education Unit Level Curriculum (KTSP).

The 2013 curriculum expects a learning system that can produce good quality learning. To measure the quality of learning, there needs to be a supportive assessment system. Educational assessment standards are criteria regarding the scope, objectives, benefits, principles, mechanisms, procedures, and assessment instruments of students' learning outcomes that are used as a basis for assessing student learning outcomes^[2].

Festiyed (2015)^[3] explains that assessment is the right term for the assessment of students learning processes. In addition, assessment is also an activity of collecting evidence that is carried out intentionally, systematically, and continuously and is used to assess the competence of students. Assessment should be done by educators not only focusing on assessment of learning, but also on assessment for learning and assessment as learning.

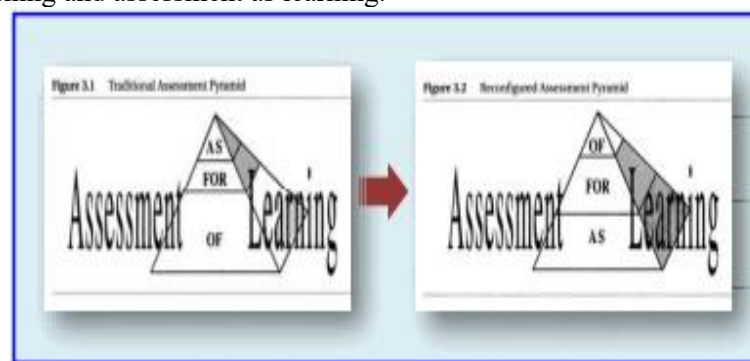


Figure 1. Pyramid Assessment Approach

Based on Figure 1, it can be seen that prior to the 2013 curriculum, the most dominant assessment was assessment of learning compared to assessment for learning and assessment as learning. However, in the 2013 curriculum the government hopes that the assessment will be focused on assessment for learning and assessment as learning rather than assessment of learning.

Assessment of learning is carried out after the learning process is completed to find out the learning outcomes of students after following the learning process. The form of assessment is in the form of daily tests, midterms, semester exams, school exams and national exams.

Assessment for learning and assessment as learning are carried out during the learning process. But the second difference is assessment for learning is done by educators to improve and facilitate the needs of students. The form of assessment is in the form of class assignments, presentations, and quizzes. While assessment as learning is an assessment that involves students actively, namely students learn to assess themselves or give an assessment of their peers honestly.

Based on the results of observations conducted at one of the high schools in the city of Padang, which is SMAN 15 Padang, it was found that educators have tried to carry out learning in accordance with the applicable curriculum, such as educators have made several learning tools needed. However, some learning tools that have been designed by educators are still not able to increase motivation and empower students as a whole. One of the uses of assessment instruments is still dominant in assessment of learning, namely assessment of knowledge competencies, so that assessment of attitude and skills competencies is less optimal.

To overcome the above problems, there needs to be an effort made to achieve competencies better and more complex. One effort that can be done to overcome these problems is the optimization of the assessment instruments used.

The development of self assessment and assessment portfolio is one alternative solution so that the three assessment components, namely assessment as learning, assessment for learning and assessment of learning in physics learning can be carried out optimally to achieve competencies in knowledge, attitudes and skills.

The purpose of this study was to describe the results of the assessment analysis used by educators in physics learning, then the development of Authentic Assessment That Focus on Self Assessment and Portfolio Assessment Using Problem Based Models in Senior High School.

2. Method

This research is the initial stage of development research or Research and Development (R & D). The subjects of this study were Physics educators and students of Padang 15th grade high school. Data collection instruments are questionnaires and questionnaires regarding assessments conducted by educators for aspects of attitudes and skills.

Data analysis techniques for need analysis questionnaires using a Likert scale. It aims to determine the extent to which educators and students accept or reject the statement given. The Likert scale is in the form of a statement whose answer is in the form of an approval scale or rejection of the statement given^[4]. The respondent's answer scale which is qualitative is converted into an ordinal scale^[5]. The conditions for converting for that statement, 1 = strongly disagree, 2 = disagree, 3 = agree, 4 = strongly agree.

The category of needs analysis is obtained by calculating the score obtained from each respondent. The score of each respondent is obtained by the equation:

$$S_k = \frac{\sum X_i}{X_{max}} \times 100\% \quad (1)$$

Where:

S_k : score is obtained

X_i : score of each respondent

X_{max} : maximum score from the questionnaire for each indicator

Questionnaire analysis to assess the needs analysis of each indicator using the provisions in Table 1.

Table 1. Categories of Needs Analysis

Interval (%)	Category
0 – 20	Not Good
21 – 40	Poor
41 – 60	Good Enough
61 – 80	Good
81 – 100	Very Good

(modified from Riduwan ^[6])

3. Results and Discussion

The results of the study were obtained from the analysis of the assessment sheets used in SMAN 15 Padang. In the needs analysis assessment sheet on attitude aspects, the indicators analyzed included: curiosity (A1), confidence (A2), responsibility (A3), discipline (A4), thorough (A5), cooperation (A6)

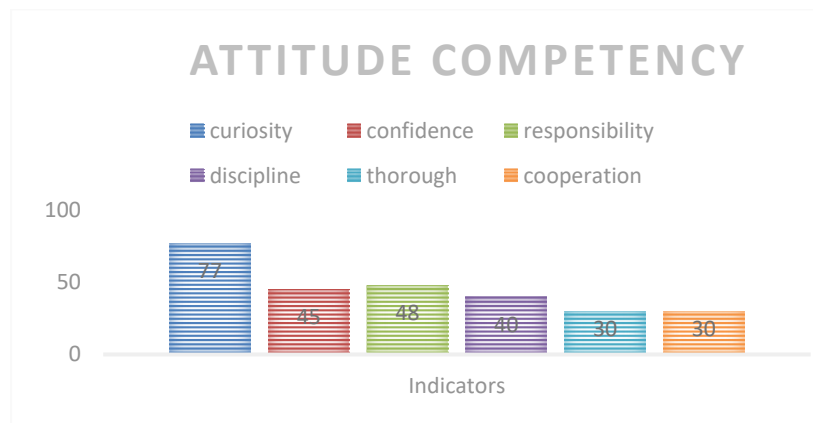


Figure 2. Graph of Attitude Aspect Analysis

Figure 2. Shows that one of the six indicators analyzed has a percentage above 70% in the indicator of curiosity, this means that students have a great curiosity and interest in physics. But the other five indicators only get a percentage of less than 50%, this means that students have a high level of curiosity at the beginning, but students do not explore the existing knowledge.

In the needs analysis assessment sheets on aspects of skills, indicators analyzed include: practicing (K1), concluding the results of practical work (K2), making presentations (K3), applying new knowledge (K4), and solving problems and problems (K5).

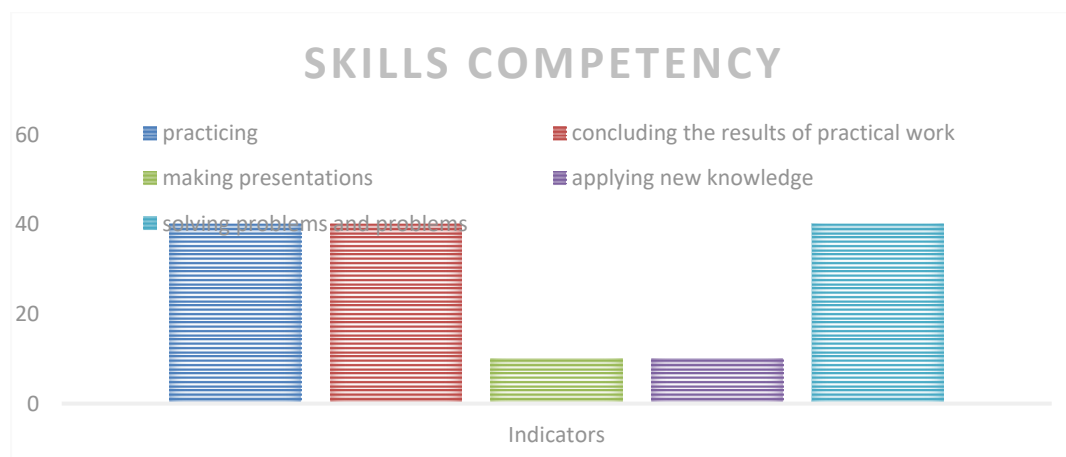


Figure 3. Graph of Skills Aspect Analysis

Figure 3. Shows unsatisfactory results, the five indicators analyzed got a percentage below 50%. This happens because in the aspect of skills less attention is given specifically by educators. The skill competencies of lower students are also due to laboratories that are rarely used during the learning process. The skill aspect is one of the ways to train students' soft skills in the material. It is expected that students will not only understand the theory but apply the application of the theory they have understood.

The data obtained from an assessment process conducted by educators is around 80% results-based assessment and 20% process-based assessment, wherein the results are more dominant from the process assessment. It can be concluded that educators are more dominant in assessment of learning, namely assessment of knowledge competencies, so assessment for learning and assessment as learning are assessments of attitudes and skills that are less optimal. For this reason, further research is needed on the process-based assessment instrument, namely assessment for learning and assessment as learning. With the aim of knowing teaching and learning activities, especially efficiency, activity and productivity.

4. Conclusion

After analyzing the assessment instrument, it was found that the assessment conducted by educators was not in accordance with the demands of the 2013 curriculum. This is because educators are still dominant in assessment of learning, rather than assessment for learning and assessment as learning. The skill competencies of lower students are also due to laboratories that are rarely used during the learning process. Based on this, it is necessary to develop Authentic Assessment That Focus on Self Assessment and Portfolio Assessment Using Problem Based Models in Senior High School.

Acknowledgment

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