

DESCRIPTION OF THE ROLE OF GUIDING BOOK IN LEARNING BASED ON ASSESSMENT AS LEARNING

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Abstract. The aim of this research was to describe the Guiding Book which helps implementing assessment as learning. The research subjects were 29 students of Undergraduate Program of Chemistry Education, Universitas Negeri Surabaya. The research methods were questionnaire and documentation method. Questionnaire method was to record student responses to the role of the Guiding Book which helps implementing assessment as learning. The documentation method was to record students' activity in implementing of learning based on assessment as learning. The document used in this documentation method which was assessment as learning based worksheet. The result showed that the percentage of students response was about 81% for the six items, which means that the Guiding Book played a very helpful role in the implementing of learning based on assessment as learning. The result of observations on assessment as learning based worksheet showed that students implemented of learning based on assessment as learning by utilizing or being inspired the contents of the Guiding Book.

Keywords: guiding book, assessment as learning

INTRODUCTION

Based on the assessment approach which was used, it is divided into assessment of learning, assessment for learning and assessment as learning [1]. Assessment of learning is also called assessment for summative purpose or summative assessment [2]. Assessment of learning is the process of collecting and interpreting evidence for the purpose of summarizing learning at a predetermined time, to generate decision about the quality of student learning based on predetermined criteria and marking values which represents quality [3]. Assessment for learning is a range of informal and formal procedures which is carried out by teachers as part of the normal teaching and learning process, teachers' information is used to modify and improve learning and understanding [4].

If the assessment of learning and assessment for learning relies teachers as keys'actors involvement in assessment, then the assessment as learning relies students as keys'actors involvement in assessment [1]. Ministry of Education (2010) described that

assessment as learning is a process of developing and supporting students' metacognitive skill. Students are actively involved in assessment who monitor their learning, take advantage of self feedback, teacher feedback, and peer feedback to determine next steps and set individual learning goals [3].

Assessment as learning requires teachers to shift from knowledge bearers to knowledge guides, which can guide students experience cognitive processes, so that they learn how to monitor learning and make adjustments [5]. Assessment as learning refers to assessment as student's metacognitive skill and literacy [6]. The comparison among students are almost nonexistent [1]. Assessment as learning involves students regularly reflect on their own work and make decisions about how they can play a major role in what they did [1]. Earl and Katz (2006) stated that in assessment as learning contains components which is assessed namely student's thoughts about learning, what strategies they used to support or improve learning, mechanisms in making adjustments and assisting their learning [7]. In

addition, Lee and Mak (2009) stated that implementation of assessment as learning makes students behave proactively in learning, use the results of self-assessment and self-monitor to assess learning progress, reflect on decision making in learning and adjust their thoughts so students can achieve deep understanding and enhance their learning [8].

Based on preliminary study by Muchlis, et al (2019) who suggested there are six steps in implementing of learning based on assessment as learning which are 1) describe the learning strategies have been used so far, 2) describe the results of SWOT analysis related to learning, 3) describe the goals to be achieved, 4) describe plans to improve learning, 5) describe arranged question according to competency for certain topics as self-assessment and peer-assessment activities, and 6) describe question and answer related to learning activities as self-assessment and peer-assessment activities. The six steps in the implementation of learning based on assessment as learning which have been validated by experts [9]. It had been implemented in Inorganic Chemistry III course at the Chemistry Department, Faculty of Mathematic and Natural Sciences, Universitas Negeri Surabaya which succeeded to improve significantly students' learning outcomes [10].

Students must be guided in recognizing their outcomes and learning process, and be actively involved in cognitive and metacognitive processes which requires effective use of formative assessment and feedback as the main actor in their own learning, so that the implementation of assessment as learning can run effectively [11]. Therefore, the six steps of implementation learning based on assessment as learning are suggested by Muchlis, et al. (2019) which requires Guiding Book, a book to help how to implement learning based on assessment as learning. The Guiding Book contains information on how to do SWOT analysis and its example, reading techniques, memorization techniques, learning styles, time management, best tips for studying, concept map and mind map [9]. If students search for these references themselves, it will take several days or more, because there is not only one source. Therefore, theoretically the existence of this Guiding Book is expected to has very helpful role in learning based on assessment as learning. But in reality

is it true? It is this background that underlies this research to describe the role of Guiding Book in the implementation of learning based on assessment as learning.

METHOD

The research subjects consists of 29 students who had programmed Basic Chemistry courses at the Chemistry Department, Faculty of Mathematic and Natural Sciences, Universitas Negeri Surabaya. This research used descriptive research design which described the role of Guiding Book in the implementation of learning based on assessment as learning. The research procedures were 1) the implementation of learning based on assessment as learning which was assisted by the Guiding Book, 2) distributing questionnaire to get students' response to the role of the Guiding Book in the implementation of learning based on assessment as learning, 3) analyzing research documents, 4) describing the role of the Guiding Book in the implementation of learning based on assessment as learning.

The method of data collection were questionnaire method and documentation method. The research instrument was in the form of questionnaire to get students' response to the role of the Guiding Book in the implementation of learning based on assessment as learning. The research documents was student worksheet based on assessment as learning.

The scoring of students' response used scale 1-3 with criteria including very helpful = 2, quite helpful = 1 and not helpful = 0. Then calculating the percentage of students response for each steps of the implementation of learning based on assessment as learning, dividing the total score by the maximum score. The interpretation of the percentage of students' response to the role of Guiding Books in the implementation of learning based on assessment as learning followed the criteria: 0-20 = very unhelpful, 21-40 = not helpful, 41-60 = quite helpful, and 61-80 = helpful, and 81 -100 = very helpful [12]. The six steps of the implementation of learning based on assessment as learning were integrated in the student worksheet based on assessment as learning which were analyzed descriptively to determine whether students

used the content or be inspired by the content of Guiding Book.

RESULT AND DISCUSSION

The percentage of of students' response to the role of Guiding Book in assisting the implementation of learning based on assessment as learning-which contains six items which can be seen in following Table:

Table 1. Recapitulation of the Percentage of Students' response to the Role of Guiding Books in assisting the Implementation of Learning based on Assessment as Learning

No.	Items	Percentage (%)		
		VH	QH	NH
1	The role of Guiding Book in assisting me to describe the learning strategies which have used so far	62,1	37,9	0
2	The role of Guiding Book in assisting me to carry out SWOT analysis	82,8	17,2	0
3	The role of Guiding Book in assisting me to describe the goals be achieved regarding the competency of certain topic	79,3	20,7	0
4	The role of Guiding Book in assisting me to plan learning improvement	75,9	24,1	0
5	The role of Guiding Book in assisting me to make questions and answers regarding the the competency for certain topics as self assessment or peer assessment activity	79,3	20,7	0
6	The role of Guiding Book in assisting me to make questions and answers regarding the learning activities as a self assessment or peer assessment	69	31	0
Average percentage of students' response		74,7	25,3	0

Note:

VH= very helpful, QH= quite helpful, NH= not helpful

The percentage of students' response regarding the role of Guiding Book in assisting the implementation of learning based on assessment as learning which can be seen in Table 2. It showed that the six items got percentage response of 81% or more with criterion very helpful. This means that the Guiding Book had very helpful role in assisting students to implement learning based on assessment as learning. The finding was inline with Dann's (2014) statement that students need to be guided in recognizing their goals and learning processes, and be actively involved in cognitive and metacognitive processes that require effective use of formative assessment and feedback as the main actors in their own learning, so the implementation of assessment as learning runs effectively.

Table 2. Recapitulation of Students' response to the Role of Guiding Books in assisting the Implementation of Learning based on Assessment as Learning

No.	Items	%	Interpretation
1	The role of Guiding Book in assisting me to describe the learning strategies which have used so far	81	very helpful
2	The role of Guiding Book in assisting me to carry out SWOT analysis	91	very helpful
3	The role of Guiding Book in assisting me to describe the goals be achieved regarding the competency of certain topic	90	very helpful
4	The role of Guiding Book in assisting me to plan learning improvement	88	very helpful
5	The role of Guiding Book in assisting me to make questions and answers	90	

	regarding the the competency for certain topics as self assessment or peer assessment activity		very helpful
6	The role of Guiding Book in assisting me to make questions and answers regarding the learning activities as a self assessment or peer assessment	84	very helpful

The first step of implementation of learning based on assessment as learning was describing the learning strategies which have been used so far [9]. This step was important to guide and provide opportunities for each student to do monitoring and critical reflection on their learning [5]. The following was example of an excerpt of student worksheet which showed the first step of implementation of learning based on assessment as learning on Basic Chemistry Course:

(I) The most important reading strategy and I often do almost every reading time is marking a text which is important to me. I make small notes about the points of the reading. My way of remembering subject matter by using pair-linked learning. I have auditory learning style. My tips for effective time management are the first making a list of goals, by sorting tasks that have earlier deadline which must I do. And I text how many time to be required for each task, so that my time is more coordinated. The surefire tips that I have applied are re-learning the materials and study regularly every day. I also make concept map in the form of a network tree who branches off several concepts based on the main concept.

All of these excerpts (I) came from the contents of Guiding Book, but among students have difference learning strategy, because it depends on individual. This means that the Guiding Book really helps students be easier to understand their learning strategy must be used so far. This was inline with the item number 1 which was listed in Table 2. Assessment as learning as students' effort to routinely reflect on their learning [1].

The second step of implementation learning based on assessment as learning was describing the results of SWOT analysis related to learning. The following was example of an

excerpt of student worksheet which showed the second step of implementation of learning based on assessment as learning on Basic Chemistry Course:

(II) Strengths.

Strong in calculations. Careful. Always submit assignments on time. Able to study all day. Self-confident. Study diligently. Talented in the exact sciences. It is not easy to give up when faced with difficult problems. It is easy to get focus on learning math material

Weakness

Weak at memorizing. Difficult to understand English literature. Sometimes I can only focus in quiet area. Lack of concern for the surrounding environment. Less than optimal in learning English. I am afraid to express opinion. I have lower skill in English. I don't like reading long text.

Opportunities

Every Saturday night and Sunday night I feel calm in studying because the next day there is no lecture. I have parents who always provide solutions for my problems. I can offer solutions for other people who complain about something. Quiet evening are the perfect atmosphere for me to study. I have an old study habit, whether reading or doing exercise, it can train my skills. I have devices such as laptops and cellphones to search higher order thinking skill/HOTS questions regarding stoichiometry material.

Threats

Sometimes my laptop experiences blue screen and slow loading. Home conditions are often not conducive which can break my focus. There is no comfortable place to do online lecture. Technological changes do not threat my position, but make me learn hard to follow technology. There are several friends as group members classified very passive when we get assignments, they make me do all duties alone. I have internet network constraints.

The excerpt (II) differed from the example given in the Guiding Book. The results of SWOT analysis certainly be different among students, because it depends on individual. The content of excerpt (II) was inspired by the example of SWOT analysis in the Guiding Book. Lee & Mak (2009) asserted that one of the main strategies in implementing assessment as learning is providing overview, feedback in the context of diagnostics which can help students understand their strength and weakness. This SWOT analysis was useful for

assisting students to determine strategy that have been used in learning until improve what they do right now [13].

The following was example of an excerpt of student worksheet which showed the third step of implementation of learning based on assessment as learning on Basic Chemistry Course:

(III) Student Worksheet on Stoichiometry

Grade above 90. I want to get grade above 90 on stoichiometry in the Basic Chemistry course. I really understand the stoichiometry concept and its application, able to solve problems regarding stoichiometry. I can finish the tasks regarding stoichiometry correctly, carefully, and on time. I want to be active during lectures, especially stoichiometry. I can ask, answer, and argue. Able to analyze problems regarding stoichiometry. It is very easy to solve the problems of stoichiometric reactions.

Student Worksheet on Periodic System of Elements

I want to learn the periodic system of elements so that be able to understand the material well, to be more careful in doing quizzes or questions. I hope to get grade above 85 on this material. I want to be able to finish assignments well, carefully, and on time.

Student Worksheet on Chemical Bonding

I want to finish assignments on time. I want to be active in class. I want to get above average grade. I want to train my critical thinking skill.

The excerpt (III) showed that the goals to be achieved were not only grades, but also related to their learning process, for example being active during lectures, solving problems of stoichiometry reactions, doing on questions carefully and on time, and learning to train critical thinking skill. Students' learning process was inspired by the contents of Guiding Book. Lee and Mak (2009) asserted that one of the main strategies in implementing assessment as learning is developing and identifying learning objectives and criteria for success. Rowe (2012) stated that steps of the assessment as learning model were 1) discussing learning outcomes with students, 2) creating criteria for various tasks that need to be completed and skills that need to be learned or mastered by students. The setting of goals is useful for students to choose what strategies can support their learning, and their mechanism in making adjustments [7].

The fourth step of implementation learning based on assessment as learning was describing plans for improving learning. The following was example of an excerpt of student worksheet which showed the fourth step of implementation learning based on assessment as learning on Basic Chemistry Course:

(IV) My way of reading use scanning method. In memorizing chemistry, I use the acrostic technique. Based on the results of identifying my activities related to the Guiding Book, I have visual learning style. I do time management by dividing goals into smaller pieces. The surefire tips that I have applied in learning are the first, reviewing the material after learning, studying regularly, taking important notes, being active in lectures, over-viewing the material before starting class, asking questions about what I don't understand, doing assignments carefully. I often make mind maps.

My plans to be prepared joining periodic table of elements lecture was implementing reading techniques critically or in detail, then make important notes of material. Then I discuss with my peers. For important material, I will mark the module. For the memorization technique, I will use the technique of stringing the words and the acrostic technique. For my learning style, I have visual learning styles. In studying, I prefer to study at night because it will be easier to understand the material, I study every day. Make material notes regularly so that no material is left behind, I finish the assignments on time. After understanding the material, I will try to summarize the material into mind maps.

The excerpt (IV) showed that what they planned was inspired by the contents of Guiding Book, although it differs among students because depends on individual. The Guiding Book provides alternative options for planning to improve their learning. This planning was very useful because strategies they used which can support learning and what mechanism they used can select and improve learning [5].

The fifth step of implementation learning based on assessment as learning was describing questions which were arranged according to competencies for certain topics as self-assessment and peer-assessment activities. The following was example of an excerpt of student worksheet which showed the fifth step of implementation learning based on assessment as learning on Basic Chemistry Course:

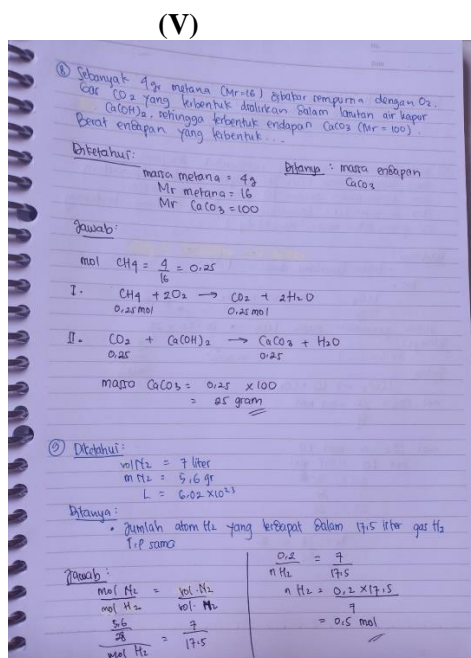


Figure (a) Example of Self-Assessment Activity

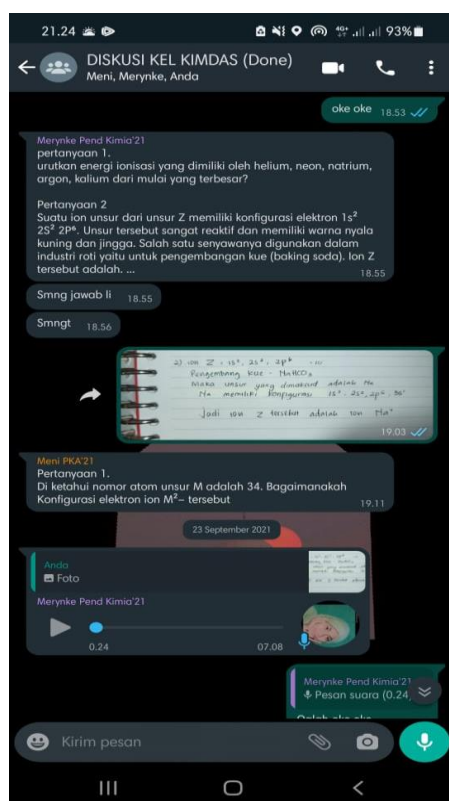


Figure (b) Example of Peer-Assessment Activity

The excerpt (V) Figure (a) showed that students carried out self-assessment activity regarding questions which were arranged according to competencies on Stoichiometry. Excerpt (V) Figure (b) showed that students carried out peer-assessment activity regarding questions which were arranged according to

competencies on Periodic System of Elements. This self-assessment and peer-assessment activities were also inspired by Guiding Book, namely that one of the good tips for learning was re-learning the material had been discussed, before the material would tested [9]. Repeating the material had been learned which can be done through self-assessment or peer-assessment. Self-assessment has many benefits which are increasing individual motivation and encouraging students to improve their learning [14]. Peer-assessment can be interpreted as peer-feedback [15] so that students can give each other feedback to improve their learning.

The sixth step of implementation learning based on assessment as learning was describing questions and answers related to learning as self-assessment and peer-assessment activities. The following was example of an excerpt of student worksheet which showed the sixth step of implementation learning based on assessment as learning on Basic Chemistry Course:

(VI) Which parts of the plan have I worked? Overviewing material before starting class, doing assignments carefully and seriously, taking important notes, being active in lectures.

Which parts of the plan have not I worked? Re-learning the material has been discussed, asking about what I do not understand, study regularly.

Is my learning strategy appropriate enough? It is appropriate if it is done based on the schedule. I do not follow the schedule in learning strategies, I can not manage my time, so I do not have enough time for answering questions.

Students' plan in learning and the sixth step were inspired by Guiding Book, so that when students did self-assessment and peer-assessment easier to be achieved the goals.

CONCLUSION

The research result showed that the percentage of students' response were 81% or more of the six items, it means that the Guiding Book played a very helpful role in the implementing of learning based on assessment as learning. The observation of student worksheet based on assessment as learning showed that students implemented learning based on assessment as learning by utilizing the contents of Guiding Book or being inspired by the contents of Guiding Book.

It should be considered that Guiding Book contains additional topic regarding how to arrange good questions to assist Students in self-assessment and peer-assessment activities.

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