Analysis of the need to development an authentic assessment instrument on buffer material

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Abstract. The use of authentic assessment is supposed to be able to provide learners with the ability to solve real problems and to give learners the opportunity to think, act and work systematically through processes or results that are consistent with program requirements. This study aims to describe the process of learning chemistry, explaining the assessment instrument used in the process of learning chemistry and to know the problems encountered by teachers in carrying out an authentic assessment. The type of research used is a descriptive evaluation. The subject of this evaluation is the chemistry teacher. The instrument used in this research is the interview. The data were analyzed descriptively. The result of the research shows that the teacher at school has a genuine assessment, but because of the many instruments that teachers have to do, and the time is limited so that the assessment is not maximal, and the number of learners is too high.

1. Introduction
Assessment which is part of learning activity is briefly process for learning promotion and result of learning achievement. The main objective of learning is to determine the extent to which expected learning is reached [1]. It has role in giving an opportunity to the students in presenting their achievement and how well they have been achieved. For teachers, it will be the feedback of teaching process in the classroom [2]. The authentic assessment is much talked and high recommended and strongly emphasized its use in learning process based on curriculum of 2013. This assessment is alternative approach that emphasized into natural learning for being successful in upgrading students capabilities [3]. The existence of an authentic assessment is expected to perform a variety of assessment techniques to measure aspects of attitudes, knowledge and skills [4]. As well as authentic learning requires students to use their knowledge and skills in performing tasks in solving problems that are likely to resemble real context.

The authentic assement is the tool for measuring the overall students learning outcome that will not only represent the final result but also their progress of learning[5]. In fact, there are still teachers who have not fully applied authentic assessment, especially on authentic test, this is due to the availability of time that teachers have limited in making the instrument and the number of rule formats that must be made and incomplete facilities and infrastructure. One of the topics is in the buffer solution, because it is related to daily life both in living bodies and in other applications [6]. Therefore, it is highly need for an instrumentation which is capable of helping the teachers to assess the process and its products. The qualified intrument should fulfill the certain rules appropriated with the function. The development of
an instrument that can measure the achievement of learning objectives has an effect on the progress of the learning process. One of them is through the development of authentic test instruments. Therefore, the authors perceived that it is needed to develop authentic tests related to daily life so that students are able to apply their knowledge in real life. And the students can solve problems that arise in their daily life.

2. Method
The method used in this research is descriptive method. Data are gained from 10 chemistry teachers for class XI of SMA as participants of several schools. The instrument used is interview guidelines to understand the description of chemistry learning, it will explain the assessment that used in learning and to know the problems faced by teachers in completing the authentic assessment. The interview is conducted on January, and the data are collected by doing analysis to the results of interview.

3. Result and discussion

3.1. Description process of chemistry learning
The analysis is done according to observation to chemistry teachers represented that they have conducted the authentic assessment. However, there are still of teachers who used traditional method for assessing the learning achievement. The interview result to the chemistry teachers with authentic and traditional assessment will be shown in figure 1.

![Figure 1. Comparative percentage for authentic and traditional assessment.](image)

According to the figure 1 above, it illustrated that there are lot of teachers still used traditional method for assessment represented by the percentage of 70% and 30% of teachers have done applied the authentic assessment. This phenomenon is caused by lack of teachers understanding to do authentic assessment. In learning of buffer solution, students are provided with enough information explained by teachers, consequently there is lack of students active performance. It produces the learning which is controlled by concept-memorizing, therefore the students are difficult to solve the complex problem during learning [7]. Besides, in applying of authentic assessment, the students are asked to solve a problem by connecting the learning concept into real life theory [8].

3.2. The assessment instrument of chemistry learning
According to the interview results with teachers in several schools, there are still many teachers who used traditional assessment instruments when they assessed of learning outcomes, especially for the questions test given by the teacher after studying the buffer solution. The examples of the usual instruments teachers use in assessing learning outcomes can be seen in figure 2.
3.3. Problem encountered to teachers for conducting authentic assessment

Based on interviews with chemistry teachers, the major problem is in developing authentic assessments can see in table 1. Based on table 1, teachers are not yet effective in conducting an authentic evaluation of this due to several factors, among others are due to a lack of understanding of teachers in creating instrument of authentic assessment and time constraints in making the instruments. In addition, limited examples of authentic evaluation instruments, especially in authentic texts, make teachers lazy in making instruments. Especially to make the instrument need to be well designed [11].

| No | Question                                                                 | Answer | Amount | %  |
|----|--------------------------------------------------------------------------|--------|--------|----|
| 1  | What is the school mrs/mr have done an authentic assessment              | Yes    | 3      | 30 |
| 2  | What mrs/mr have difficulty in assessing learners by doing authentic assessment | Yes    | 6      | 60 |
| 3  | What mrs/mr have difficulty in making authentic assessment instruments  | Yes    | 8      | 80 |
| 4  | What mrs/mr have difficulty in applying authentic judgments             | Yes    | 7      | 70 |
| 5  | How understand mrs/mr about authentic assessments                       | Yes    | 6      | 60 |
| 6  | How the effectiveness of the time allocation that the mrs /mr uses in making authentic assessments ..... | Yes    | 3      | 30 |

The difficulties faced by the teacher are due to the indicators in the assessment which are too numerous to spend time in sorting out these aspects and resulting in incomplete learning process done within one day. In addition, in the process of learning, teachers are not maximized in assessing the process and the results because of the huge number of students they should handle. The number of students who are

**Figure 2.** The example questions test provided in several schools.

Based on figure 2, it shows that the questions test given by the teacher in the school for evaluation of buffer solution materials are questions in the form of multiple choice and description. Teachers only provided examples of problems such as those in textbooks or student worksheets (LKPD) such as questions in the form of understanding and calculation. There is rare application where the teacher provided daily life-related problems with buffer material. In case, the topic of buffer solution is strongly related to daily life [9]. As for some characteristics in making an authentic problem must have some characteristics such as emphasizing on critical thinking skills, focus on important content, focus on ideas or big concepts, rather than small things (facts), lead to problems and questions, focus on the ability produces a quality product or answer is not the correct answer [10].
proportional is as many as 30 students. If more than the criteria, it will produce many things which can disrupt the learning process.

4. Conclusion
Based on the results of interview conducted with participants, it gained information that most teachers have implemented the 2013 curriculum in school. But there are many teachers in the schools still using traditional assessments in the process of learning. It is because the teachers are still poorly understood about the authentic assessment. Furthermore, creating instrument of authentic assessment takes a long time and lack of examples in making authentic assessment instruments especially on authentic question tests. In addition, the limited facilities and infrastructure in the schools, the experience obstacles for teachers were being the problem in performing authentic assessment. Therefore, it is necessary to develop an authentic assessment instrument especially on authentic tests so that teachers do not have difficulty in making authentic test instruments in learning and teaching activities.

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