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Description of the Ability to Arrange Assessments According Curriculum 2013 on Chemistry PPG SM3T Student

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Abstract
The curriculum 2013 experienced a shift in the assessment process, which is from the assessment of results to the assessment process. In the process of carrying out the assessment, many complaints that arise in the field including the difficulty in determining the assessment of various aspects both cognitive, affective, and psychomotor. Researchers are interested in knowing how the ability of PPG SM3T Chemistry Education's Students as a prospective professional teacher in compiling an assessment based on curriculum 2013. The research purposes were to describe the ability of PPG SM3T Chemistry Education's Students in compiling an assessment based on curriculum 2013. The methode of the research was descriptive with study case involved 16 students of PPG SM3T Chemistry Education in the 2018/2019 school year. The research instrument was in the form of an assessment rubric with 10 aspects of assessment, one of which contained HOTS questions. The results of the data analysis showed that the ability of PPG SM3T Chemistry Education in compiling HOTS questions was classified as less skilled with an average score 67.19% whereas when viewed from all aspects of the preparation of the assessment based on curriculum 2013 it was classified as skilled with an average score 84.89%.

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INTRODUCTION

The curriculum is basically dynamic, so development changes must always be made, so that it can keep up with the development and challenges of the times (Mulyasa, 2016). The current curriculum in Indonesia is the Curriculum 2013 which is a revision of the Education Unit Level Curriculum (KTSP) and has now undergone another revision in several aspects known as the Curriculum 2013 revised edition.

Improvements to the Curriculum 2013 continue to be made, until since 2016 the Education Assessment Standards are regulated in Permendikbud No. 23 of 2016 and are known as the National Curriculum. In this curriculum, the term authentic assessment is no longer explicitly used, but classifies the types of assessment based on the aspects or competencies of knowledge, skills and attitudes assessed. The assessment techniques used are adjusted to the competencies being assessed (Farida, 2017).

The basic characteristics of the curriculum 2013 emphasizes students to play a more active role in the learning process so that there is a shift in conducting assessments. The shift from outcome assessment to process assessment considers attitude, behavior, and morals as an integral part, but still prioritizes the principles and rules of assessment (Kurniasih & Sani, 2016). The principles and rules of assessment require teachers to make an integrated

assessment plan with the syllabus and learning plan (RPP). The government has also set criteria regarding the scope of assessment which includes assessment of the affective, cognitive and psychomotor domains used as the basis for assessing learning outcomes (Kemendikbud, 2016).

Assessment must cover all three aspects, namely aspects of knowledge, skills, and attitudes as a whole and proportionally in accordance with the core competencies that have been determined. According to Supardi (2015), assessment must be carried out thoroughly, taking place during the learning process and after the learning process. Assessment of knowledge aspects (cognitive) can be done by written, oral, or questionnaire exams. Assessment of the skills aspect can be done with practical exams, task analysis and analysis of assessments made by students themselves. Assessment of attitudinal aspects can be done with a list of attitudes that have been adjusted to the core competencies and a list of attitudes (personal observations) on students (Mulyasa, 2013).

The development of the 2013 curriculum focuses the implementation of assessment on various aspects in achieving learning objectives. In achieving learning objectives, teachers are required to develop assessment instruments that must cover all aspects. In the implementation process, teachers do not master the subject matter, and do not understand the concept of assessment and the preparation of assessment instruments. This can be seen from the document analysis which shows that most teachers have not been able to make question items in accordance with the rules for writing standardized questions and have not referred to KD in the preparation of question items, have not made question grids, have not made scoring guidelines, and there is a mismatch between KD with question indicators and question items. Teachers also still emphasize aspects of knowledge mastery even though they realize that in the implementation of a comprehensive assessment it is not relevant to only use assessment instruments that emphasize aspects of knowledge mastery.

The 2013 curriculum assessment is seen as having more complexity than the assessment in the previous curriculum, as evidenced by the many complaints that have emerged in the field. This complicated assessment system is not matched by an adequate understanding of most teachers so that it can have an impact on the implementation of Curriculum 2013 (Puspendik, 2014). According to Allen and Friedman (2010), the most complex in learning is the integration of various learning domains, namely cognitive, behavioral and emotional. Meanwhile, according to Retnawati (2015), one of the biggest obstacles for teachers in planning assessments is developing attitude assessment instruments.

The results of the Center for Educational Assessment study literature review show that the average teacher understanding of assessment is less than 60 percent (Puspendik, 2014). Slightly different results were found from the research of the Center for Curriculum and Bookkeeping. According to the results of the study, most teachers quite understand how to assess student learning outcomes, although teachers still have difficulty in conducting attitude assessments, especially in Mathematics, Chemistry, and English subjects (Puskurbuk, 2015). The difference in the findings of these two studies is thought to be due to the implementation of research conducted in different time periods where the Puspendik study was conducted when Curriculum 2013 was still relatively new in schools, while the Puskurbuk study was conducted later in time so that teachers already understood Curriculum 2013 better (Mahdiansyah, 2018).

However, the results of previous research conducted by Hairida (2017) showed that as many as 97.67% of prospective chemistry teachers were skilled in developing traditional assessments (multiple choice and description forms), and as many as 74% of prospective chemistry teachers were skilled in developing alternative assessments. While the results of Istiqomah's (2018) research on assessment design showed that as many as 81.8% of students

were skilled in preparing assessments according to learning materials, and as many as 50.5% of prospective chemistry teachers were not skilled in making HOTS questions.

The teacher education program is a very important basis for prospective educators who can build teacher professionalism. It is important to know the knowledge of a prospective educator because the learning process is a complex endeavor. Education organizers must know what, why and how the learning process can be successful. Spang (2008) explains that there are three components that are closely related to prospective educators, namely knowledge, practice and understanding of students who are educators. Self-preparation of a teacher is very important because the teacher will carry out the mandate of learning which aims to encourage students to be active and better able to develop their potential.

From these problems, the researcher is interested in conducting research with the title "Description of the Ability to Arrange Assessments According Curriculum 2013 on Chemistry PPG SM3T Student" to describe the ability of PPG SM3T Chemical Education students in preparing assessments based on the curriculum 2013. The results of this study are expected to be used as material for improvement for Chemistry Education Students in an effort to improve their ability to compile assessments and as evaluation material for the Chemistry Education Study Program in providing training on the preparation of assessments.

METHOD

The method used in this research is descriptive case study method. Descriptive method is a problem-solving procedure investigated by describing or describing the state of the subject or object of research (a person, community institution, etc.) at the present time based on the facts that appear or as they are (Nawawi, 2012). This method involves in-depth descriptive notes from an individual or group of individuals guarded by an outside observer. The subjects of this study were 16 PPG SM3T Chemistry Education students of FKIP Untan in the 2018/2019 academic year in one cycle.

The procedure in this study consists of 3 stages, namely the preparation stage, the implementation stage and the final stage as follows: The steps taken in the preparation stage include: (1) Formulating research problems, (2) Determining research objectives, (3) Making research instruments, (4) Validating research instruments. Validation was carried out by validators, here carried out by two FKIP Untan Chemistry Education Lecturers. After that, the validity test was carried out using Gregory's content validity technique. To determine the coefficient of this validity, the results of the research from the two experts were entered into a 2x2 cross tabulation consisting of columns A, B, C, and D and then analyzed by calculation according to Gregory as in the table below.

Table 1. Gregory test matrix

		Expert Judge #1	
		Weak Relevance (item rated 1 or 2)	**Strong Relevance (item rated 3 or 4)**
Expert Judge #2	Weak Relevance (item rated 1 or 2)	A	B
	Strong Relevance (item rated 3 or 4)	C	D

After that, content validity was sought using the Gregory formula: $CV = \frac{D}{A+B+C+D}$, with the following information: CV = Content Validity; A = both validators disagree; B = validator 1 agrees, validator 2 disagrees; C = validator 1 disagrees, validator 2 agrees; D= both validators agree.

The value of content validity 0 – 0.19 can be described as very low; 0.2 – 0.39 as low; 0.4 – 0.59 as medium; 0.6 – 0.89 as high; and 0.9 – 1.0 as very high (Sugiyono, 2015).
Based on the results of validation carried out by two experts, the average content validity value is 0.75 which is categorized as high and declared valid. Furthermore, the average content validity value for the assessment review rubric instrument is 1.0 which is categorized as very high and declared valid.

The steps taken at the research implementation stage include: (1) Determining the research schedule, (2) Collecting data on Chemistry lesson plan documents, (3) Conducting research by analyzing the assessment sheet using an assessment rubric. The assessment rubric used in this study was made by researchers who had been validated by experts in the form of a checklist (√).

The steps taken in the final stage of the research include: (1) Describe the results of data processing into the discussion, (2) Compile a research report, (3) Draw conclusions. The data collection technique used in this research is observation technique. Observation is done by observing the assessment sheet. The data collection tool in this study is an assessment rubric. The assessment rubric is used to assess the assessment instruments made by students. The results of observations of student assessment sheets were analyzed with the following steps: (1) Scoring each aspect of the skill of compiling assessments, (2) Summing up the overall score of the aspects observed, (3) Averaging the total skill score of each student (4) Changing the score into the expected percentage value with the formula:

$$Percentage\ value = \frac{\sum score\ of\ each\ aspect}{\sum maximum\ score\ of\ each\ aspect} \times 100$$ (Purwanto, 2010) ,

(5) Determine the average overall skill score of students in each aspect as follows:

$$Average = \frac{Total\ score\ percentage}{Sample\ number}$$ (Kemendikbud, 2017) ,

(6) Converting the percentage score into the level of achievement in preparing the assessment using the following criteria:

Table 2. Percentage conversion criteria for assessment review score

Formula	Category
91-100	Highly skilled
81-90	Skilled
71-80	Skilled enough
≤ 70	Less skilled

(Kemendikbud, 2017)

RESULTS AND DISCUSSION

The author analyzes the assessment using an observation sheet referring to the assessment writing guidelines and has been modified by the researcher. The assessment instrument consists of 10 aspects of assessment. All aspects assessed from the review, the average value of the lesson plan is 84.61. This shows that the ability of PPG SM3T Chemistry Education students in preparing assessments based on the 2013 Curriculum is classified as skilled. The following graph 1 also shows that 43.75% of students are in the skilled category in preparing assessments. A recapitulation of the percentage of the number of students based on the category of the level of achievement of the ability to compile assessments can be seen in Figure 1.

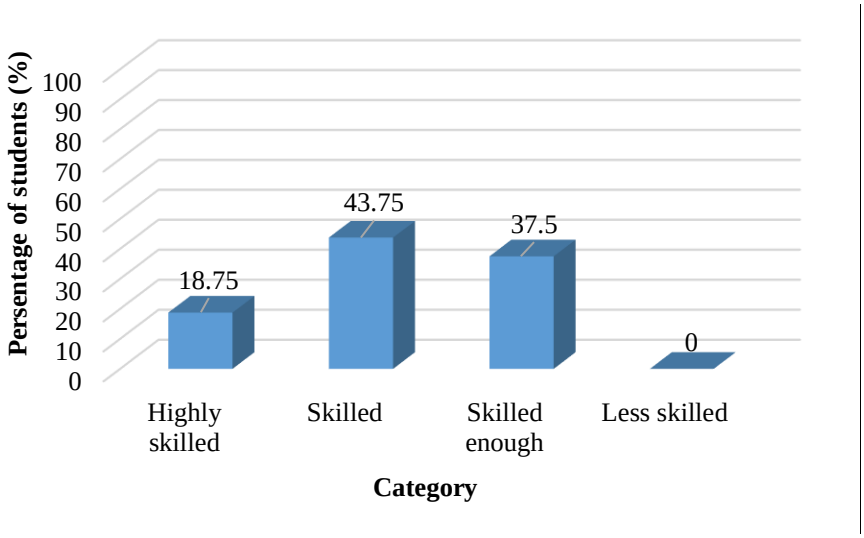

Figure 1. Percentage of the number of students based on the achievement level category of the ability to compile assessments

In this assessment review instrument, there are 10 components/aspects measured. Two of them, namely the ability to make HOTS questions that are classified as insufficient and the ability to make answer keys that are in accordance with cognitive questions are classified as sufficient. This shows that these aspects need improvement so that they can be used. A recapitulation of the percentage score of each aspect of the assessment review based on the category can be seen in Table 3.

Table 3. Percentage score of each assessment aspect by category

No	Component/Aspect of the lesson plan	% score	Category
1	Indicators made according to KD	84,37	Skilled
2	Learning objectives according to IPK	96,87	Highly skilled
3	Assessment instruments according to learning materials	96,87	Highly skilled
4	Assessment instruments cover all aspects	93,75	Highly skilled
5	Appropriateness of the technique used	81,25	Skilled
6	Appropriateness of the form of assessment with the technique	96,87	Highly skilled
7	Contains HOTS questions	67,19	Less skilled
8	The suitability of the answer key with cognitive questions	73,44	Skilled enough
9	Suitability of scoring guidelines with the key	82,29	Skilled
10	The sentence structure on the assessment instrument is easy to understand	84,37	Skilled

The purpose of the Teacher Professional Education program, as stated in the Regulation of the Minister of Education and Culture Number 87 of 2013 (as a replacement for Permendiknas No. 8 of 2009) is to produce prospective teachers who have competence in planning, implementing, and assessing learning, following up on assessment results, mentoring, and training students and conducting research, and being able to develop professionalism on an ongoing basis (Nurwardani, 2018). Learning planning made in the form of lesson plans that contain learning evaluations must be adjusted to the applicable curriculum. The assessment sheet made is an assessment sheet based on the 2013 revised curriculum 2017.

Based on the results of data analysis regarding the preparation of assessments based on the 2013 curriculum, it is known that the research subjects in this case, namely PPG SM3T Chemistry Education FKIP Untan students in the 2018/2019 academic year as a whole have received information on how to make assessments based on the 2013 curriculum when attending undergraduate lectures, various workshops and internet sources.

Indicators Made According to KD

Competency achievement indicators are elaborated from Basic Competencies (KD) which are a description of Core Competencies (KI) in each subject. The preparation of assessment instruments is determined by the operational verbs in the KD and the formulated competency achievement indicators. Operational verbs on indicators can also be used for determining test items (questions/questions). Indicators of achievement of learning competencies from each basic competency are references used to conduct assessments (Morrison, et.al, 2011).

Table 4. Indicators made according to KD

Skill indicator	Total students					%	Category
	4	3	2	1	0		
Indicators made according to KD	14	2				96,87	Highly skilled

The results of data analysis on the aspect of describing indicators based on basic competencies using operational verbs obtained a percentage score of 84.37%. This percentage shows that students' ability to describe indicators in accordance with basic competencies is classified as skillful. This shows that most students know the requirements for preparing good indicators so that the operational verbs used are in accordance with their cognitive level.

Learning Objectives According to IPK

Learning objectives can be organized to cover all basic competencies (attitude competence, knowledge competence and skill competence) that refer to indicators (Fadlillah, 2014). The results of the analysis of the learning objectives component include two important points, namely first, learning objectives are stated in the form of a description that provides an overview of the learning process. Second, learning objectives must contain competencies to be achieved by students along with assessment techniques.

Table 5. Learning objectives according to IPK

Skill indicator	Total students					%	Category
	4	3	2	1	0		
Learning objectives according to IPK	14	2				96,87	Highly skilled

Overall, based on the results of data analysis, a percentage of 96.87% was obtained in the highly skilled category. Based on the results of data analysis, it shows that most of the learning objectives made by students have met the requirements, but there are some that do not include attitude competencies and assessment techniques.

Assessment Instruments According to Learning Materials

There are two points in identifying learning materials contained in the lesson plan, namely conformity with the scope of material contained in the GPA and written in the form of items that contain factual, conceptual, procedural and metacognitive material. Based on the results of data analysis, the ability of students to create learning materials based on the 2013 curriculum is 96.87%. This shows that the ability of students is classified as very skillful.

Table 6. Assessment instruments according to learning materials

Skill indicator	Total students					%	Category
	4	3	2	1	0		
Assessment instruments according to learning materials	14	2				96,87	Highly skilled

The results of data analysis, most of the assessment instruments made by students are appropriate and divide them into knowledge content that is factual, conceptual, procedural and metacognitive and attach them back to the lesson plan attachment. While there are some students who do not include submaterials and the material written in the learning material is still incomplete.

Assessment Instruments Cover all Aspects

The results of the analysis of the assessment instrument components that cover all aspects of competence obtained a percentage of 93.75%. This shows that the ability of students to make assessment instruments that cover all aspects of competence is classified as highly skilled.

Table 7. Assessment instruments cover all aspects

Skill indicator	Total students					%	Category
	4	3	2	1	0		
The assessment instrument covers all aspects	13	2	1			93,75	Highly skilled

Based on the analysis, most students have been able to write assessment instruments that cover cognitive, affective, and psychomotor aspects appropriately and completely. While two students wrote the research instrument correctly but incompletely, and one student did not include it in the lesson plan and did not write it specifically in the lesson plan attachment.

Appropriateness of the Technique Used

The results of data analysis on the aspect of assessment techniques used obtained a percentage of 81.25%. This shows that the ability of students to make appropriate assessment techniques is classified as skillful.

Table 8. Appropriateness of the technique used

Skill indicator	Total students					%	Category
	4	3	2	1	0		
Appropriateness of the technique used	5	10	1			81,25	Skilled

Based on the results of the analysis, five students used the assessment techniques correctly and appropriately, ten other students incorrectly used skill assessment techniques/there were mistakes in writing performance/performance/practice and project techniques, while one other student wrote correctly only on attitude assessment techniques. Overall, students were able to make assessment techniques based on the 2013 curriculum.

Appropriateness of Assessment With the Technique

The results of the analysis of the components of the assessment form with the assessment techniques used obtained a percentage of 96.87%. This shows that the ability of students to make a form of assessment that is in accordance with the learning material is classified as very skillful.

Table 9. Appropriateness of assessment with the technique

Skill indicator	Total students					%	Category
	4	3	2	1	0		
Appropriateness of assessment with the technique	14	2				96.87	Highly skilled

Based on the results of the analysis, most students wrote the form of assessment in accordance with the assessment techniques used, some students were wrong in the form of

knowledge assessment and several other students were wrong in the form of skills assessment.

Contains HOTS Questions

The results of the analysis on the aspect of HOTS questions obtained a percentage of 67.19% which is classified as less skilled. This shows that students' ability to load HOTS questions is classified as less skillful. In the assessment sheet, there are still questions with levels C1 (knowing), C2 (understanding), and C3 (applying) while there are still few questions with levels C4 (analyzing), C5 (evaluating) and C6 (creating).

Table 10. Contains HOTS questions

Skill indicator	Total students					%	Category
	4	3	2	1	0		
Contains HOTS questions	3	6	6	1		67.19	Less skilled

Based on the analysis of three students who made all HOTS questions in the form of descriptions and multiple choices. Six other students contained more than 50% HOTS questions, six other students made LOTS questions rather than HOTS questions, while one student did not make HOTS questions and the level of questions made was only up to applying (C3).

Based on the 2013 curriculum implementation technical guidance worksheet, it states that the preparation of HOTS questions is at least 10% of the total number of questions. Thus, HOTS questions can measure the ability to transfer one concept to another, process and apply information, find links from different information, use information to solve problems, and critically examine ideas and information.

A teacher or prospective teacher is required to understand and use more comprehensive assessment techniques and methods. Thus, the assessment of learning outcomes must be comprehensive, which includes cognitive, affective and psychomotor assessments. Through the analysis of assessment data, most students have conducted a comprehensive assessment of learning outcomes. Students choose observation techniques in affective and psychomotor assessment as well as written tests in the form of descriptions and multiple choice in cognitive assessment.

The Suitability of the Answer Key With Cognitive Questions

The results of data analysis on the suitability component of the answer key with cognitive questions obtained a percentage of 73.44%. This shows that the ability of students to make answer keys that match cognitive questions is quite skillful. Most students do not make answer keys, especially on multiple choice questions.

Table 11. The suitability of the answer key with cognitive questions

Skill indicator	Total students					%	Category
	4	3	2	1	0		
Suitability of the answer key with cognitive questions	9	3	1		3	73.44	Skilled enough

Based on the results of the analysis, there are nine students writing the answer key according to the question, three other students make the answer key according to the question but incomplete because the LKPD does not include the answer key. One other student made the answer key correctly but incompletely, this could have been missed during the process or indeed the questions made were easy so they did not need an answer key, while the other three students did not make an answer key.

Suitability of Scoring Guidelines With Key

Scoring guidelines are divided into three aspects, namely cognitive, affective, and psychomotor aspects. Based on the analysis of the assessment sheet, the percentage of scoring guidelines that match the answer key based on the three aspects is 82.29%. This shows that the ability of students to design scoring guidelines that match the answer key for each aspect is categorized as less skilled.

Table 12. Suitability of scoring guidelines with key

Skill indicator	Total students					%	Rata-rata	Kategori
	4	3	2	1	0			
cognitive aspects	3	6	2		5	53.12		Less skilled
affective aspect	14	2				96.87	82.29	Highly skilled
psychomotor aspects	14	2				96.87		Highly skilled

Based on the results of the analysis of cognitive scoring guidelines, it is still categorized as less skillful with a percentage score of 53.12%. The results of the analysis that three students made scoring guidelines clearly and in detail, six students made scoring guidelines clearly but the guidelines for description questions were still not detailed, two students included scoring guidelines but were still unclear and scoring guidelines on LKPD were not made, while five students did not make cognitive scoring guidelines.

Meanwhile, the percentage of scoring guidelines that are in accordance with the answer key for affective aspects and psychomotor aspects is 96.87%. This shows that the ability of students to design scoring according to the answer key for affective aspects and psychomotor aspects is classified as very skillful. It can be seen from most students writing affective and psychomotor scoring guidelines clearly and in detail, while there are some students who are still wrong in making affective and psychomotor scoring guidelines so that it is confusing to understand them.

The Sentence Structure on the Assessment Instrument

The results of data analysis of the sentence structure component in the assessment instrument obtained a percentage of 84.37%. This shows that the students' ability to compose sentence structures that are easy to understand is classified as skillful.

Table 13. The sentence structure on the assessment instrument

Skill indicator	Total students					%	Category
	4	3	2	1	0		
Sentence structure on the assessment instrument	6	10				84.37	Skilled

Based on the results of the analysis, six students have compiled a sentence structure that is easy to understand and clear question writing, no ambiguous language and in accordance with EYD guidelines. The other ten students have some wrong words and there is ambiguous language using local language. This may be an error in writing and not double-checked by students.

CONCLUSION

Based on the results of data analysis, it can be concluded that the ability of PPG SM3T Chemistry Education Students FKIP UNTAN in preparing assessments based on the 2013 curriculum is classified as skilled with an average of 84.89%.

RECOMMENDATIONS

Based on the research results and conclusions, several things are suggested, namely: 1) For students, it is hoped that they can improve their ability to make HOTS questions by attending training or workshops on the 2013 revised curriculum in order to develop their competence as a preparation for becoming a professional educator; 2) For further research, it is hoped that it can be refined and reduce the weaknesses that exist in this study, namely by interviewing students about the obstacles to preparing assessments based on the 2013 curriculum so that the data obtained can be more accurate.

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