

## AN ANALYSIS OF COGNITIVE LEVEL USED IN ENGLISH SEMESTER TEST ITEMS OF SMPN 2 BANGKINANG

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### ABSTRACT

*The purpose of this research was to analyze the cognitive level used in English semester test items of SMPN 2 Bangkinang from the seventh grade up to ninth grade. The cognitive level used in each items was classified measure the percentage to find the comparison referred to bloom's taxonomy in finding the right answer. Kind of this research was survey research which only analyzed what was in the field area. In this research, the researcher collected 150 English semester test items. Each class the researcher 50 items. The test were in form of multiple choices. Then, all of the items were classified based on its classification. By classifying the items, the researcher found that there were 32 items categorized into remembering (Remembering/C1) with the percentage of 21,3%, there were 61 items categorized into understanding (Applying/C3) with the percentage of 21,3% and there were 25 items categorized into analyzing (Analyzing/C4) with the percentage of 16,7%. From the results of this research it could be concluded that the cognitive level used in English semester test items of SMPN 2 Bangkinang at seventh grade up to ninth grade were classified in the level of "Understanding (C2)" with the percentage of 40,7% and the level of the difficulty of the test was in the middle level.*

**Key word: Bloom's Taxonomy, Test, Items Analysis**

### ABSTRAK

Tujuan dari penelitian ini adalah untuk meneliti butir-butir soal yang digunakan dalam ujian semester bahasa inggris SMPN 2 Bangkinang dari kelas tujuh sampai kelas sembilan, yang mana tingkat kemampuan berfikir yang digunakan dalam meneliti butir-butir soal tersebut dikelompokkan menurut Taxonomy Bloom. Setelah dikelompokkan, kemudian di analisa untuk mencari jalan keluarnya sehingga mudah memberikan pelatihan kepada guru, setelah itu baru mengukur presentase nya untuk perbandingan sebagi patokan yang dibuat oleh Taxonomy Bloom dalam menemukan jawaban yang benar. Jenis penelitian ini adalah survey yang hanya memaparkan apa yang ada di lapangan. Dalam penelitian ini peneliti mengumpulkan 150 butir soal ujian semester bahasa inggris dari kelas tujuh sampai kelas sembilan. Tiap kelas peneliti menggunakan 50 soal. Jenis butir-butir soal tersebut adalah pilihan ganda. Kemudian semua butir-butir soal tersebut dikelompokkan sesuai pengelompokkannya. Setelah dikelompokkan, peneliti menemukan ada 32 soal yang dikelompokkan pada tingkat kemampuan mengingat (Remembering/C1) dengan persentase 21,3%, 61 soal yang dikelompokkan pada tingkat kemampuan memahami (Understanding/C2) dengan persentase 40,7%, 32 soal yang dikelompokkan pada tingkat kemampuan menerapkan (Applying/C3) dengan persentase 21,3%, dan soal yang dikelompokkan pada tingkat kemampuan menganalisa (Analyzing/C4) dengan persentase 16,7%. Dan dari penelitian ini dapat ditarik kesimpulan bahwa tingkat kemampuan SMPN 2 Bangkinang pada kelas tujuh sampai kelas Sembilan adalah termasuk dalam kelompok: **mengingat (Understanding/C2)** dengan persentase 40,7% dan tingkat kesulitan soal berada pada level sedang dengan ketentuan persentase sebesar 30%.

**Kata kunci: Taxonomi Bloom, Tes, Analisa soal.**

## 1. INTRODUCTION

Test was one of important elements in completion of study. It meant that it was very important aspect to determine the successful study for the students as a goal in learning. By testing, teachers were able to know the learning ability of the students had. As quoted from Arikunto (2005) test was a tool or procedure that is used to measure something with the ways and rules which have been determined. In other word, test was a tool to know whether the students were able to achieve the target stated in the syllabus and lesson plan as a rule and guide for the teacher in learning process and students' passing grade. It was also used to evaluate whether test construction made by teachers has been understood by the students.

Dealing with the explanation above, there were some test models commonly used in school setting. They were multiple choice items and essay. Slameto (2001) stated that kinds of test that could be seen from the implementation and the result of the test, they were written test and oral test. In written test, there were two kinds of test, they were an essay and objective or multiple choice test. From these test models, multiple choice items was the most common used in measuring students' performance.

Moreover, before giving the test, teacher should know students' cognitive level. According to Bloom (1956) explained that the cognitive process organized begin from the simplest one, remembering what have been held, to the most difficult things are deciding the value and worth of an idea. In line with that statement, Anderson & Krathwohl (2001) stated that the higher order learning processes were multiple phases and that the student drew upon elements from many sources, piecing them together, crafting a novel structure or pattern relative to prior knowledge. It meant that the cognitive level of the

students were resulted from the simplest one and then gotten from many resources to add their knowledge.

Then, the cognitive level dimension contained six categories: remember, understand, apply, analyze, evaluate, and create. Taxonomy was about the cognitive process and placed a structure around the topic which was useful for the teacher in order that they could apply the level of cognitive process to the items test that they gave to the students. In addition, taxonomy would help make sense of the curriculum, plan instruction, and design assessment and ultimately improved their teaching quality in order that they could give an appropriate learning process to the students that were appropriate with the curriculum and the level of the students.

Due to the importance of analyzing semester test items, the researcher decided to conduct a study of teachers' competence in constructing the test items based on the level of taxonomy bloom varied in the test items. The information gotten from this research would be the consideration in improving quality of test construction in order to measure students' performance in English.

Based on the explanation above, the researcher conducted a research with the title, "An Analysis of Cognitive Level Used in English Semester Test Items of SMPN 2 Bangkinang".

## 2. METHOD

The purpose of this research was to analyze the semester test items at the first grade students of SMPN 2 Bangkinang. The kind of this research was survey research by conducting descriptive study. Arikunto (2010) states that *penelitian deskriptif ini merupakan penelitian yang benar-benar hanya memaparkan apa yang terdapat atau terjadi dalam sebuah kancah, lapangan, atau wilayah tertentu*. It meant that in this research was kind of

simple research which was only described what was inside an object simply without need to change it or manipulate it. In this research, the researcher collected the data qualitatively by analyzing the cognitive level used English semester test items of SMPN 2 Bangkinang.

The survey design has two kinds; the first was "at one point in time" (cross-sectional), and the second, "study over time" (longitudinal). In this research, the researcher conducted "at one point in time (cross-sectional)". Creswell (2005:355) stated that cross-sectional designs consisted of particularly type that matches to this research is related to program evaluation. Program evaluation was a survey that provides useful information to decision makers. In this study, an analysis of cognitive level used in English semester test items of SMPN 2 Bangkinang were measured by analyzing the English semester test items as an evaluation.

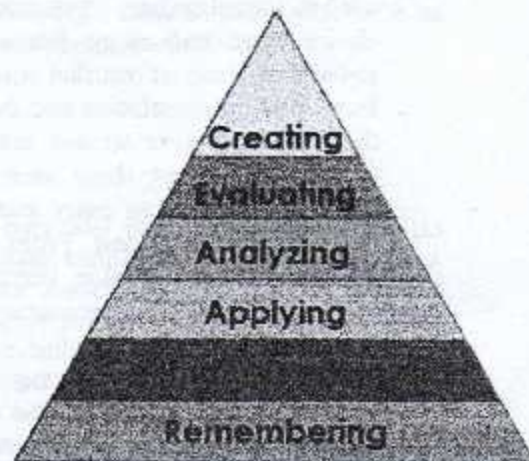
The research was done at SMPN 2 Bangkinang. The researcher conducted the research for the students at the seventh grade up to ninth grade. In this research, the targeted of the population is English teachers of SMPN 2 Bangkinang at the first grade up to third grade. The populations were consisted of six teachers. Then, a sample was a subgroup of the target population that the researcher planed to study for generalizing about the target population (Creswell,2005). In taking the sample of this research, the researcher used stratified random sampling. According to Ross (2005) stated that stratification did not imply any departure from probability sampling - it simply required that the population be divided into subpopulations called strata and that probability sampling be conducted independently within each stratum.

Based on the explanation above, there were six teachers as population in this research. Those teachers were taken from first grade up to third grade. Each grade

was consisted of two teachers. The populations were selected with tossing coin. The coin marked with capital letter and number. Two teachers in one grade should choose capital letter or number. Then, after coin was tossed and the opened coin was a number, she would be the sample of this research and did the same for the next grade. In conducting this research, the researcher used multiple choice tests made by the English teachers. It aimed at finding out the semester test items especially for final examination by giving some tests in term of multiple choices relate to the English items.

In analyzing the data, the researcher used the cognitive level based on the Taxonomy Bloom's classifications whether the test items were in the level of remembering, understanding, applying, analyzing, evaluating, or creating.

**Figure 1 Revised Bloom's Taxonomy**



### 3. FINDING AND DISCUSSIONS

#### A. Finding

This research was about to analyze the cognitive level used in English semester test items of SMPN 2 Bangkinang. Furthermore, in conducting this research

the researcher referred to the question in the formulation of the research was: "How was the cognitive level used in English semester test items of SMPN2 Bangkinang?". Then, the result of this research was answered based on the question given.

The setting of this research was done at SMPN 2 Bangkinang which involved all of the students at SMPN 2 Bangkinang at the seventh grade up to ninth grade. Then, this research was done on November 30<sup>th</sup> 2013 by collecting the English semester test items of SMPN 2 Bangkinang at the seventh grade up to ninth grade. The items were about 150 items, there was 50 items taken from each class. Kind of the items were multiple choices.

After collecting the English semester test items, then the researcher analyzed the items based on the revised of Bloom's Taxonomy whether each item was categorized into remembering, understanding, applying, or analyzing. In analyzed the data, the researcher was helped by the researcher's advisor to make it correct in determining the cognitive level of each item. After that the researcher calculate each level into percentage (C1 = remembering, C2 = understanding, C3 = applying, C4 = analyzing), how many percent used in the level of remembering, percentage used in the level of understanding, percentage used in the level of applying, and percentage used in the level of analyzing. In calculating the data the researcher referred to the cognitive level percentage of Bloom's Taxonomy (1971) stated that the percentage of **Remembering (C1)** was 40%, the percentage of **Understanding (C2)** was 30%, the percentage of **Applying (C3)** was 20-30%, and the percentage of **Analyzing** was 10%. By considering that this research was done in the level of junior high school, the researcher only took four cognitive levels as mentioned above. The brief calculations were in the following:

1. The total of C1 were 32 items

$$\frac{32}{150} \times 100\% = 21,3 \%$$

2. The total of C2 were 61 items

$$\frac{61}{150} \times 100\% = 40.7\%$$

3. The total of C3 were 32 items

$$\frac{32}{150} \times 100\% = 21.3 \%$$

4. The total of C4 were 25 items

$$\frac{25}{150} \times 100\% = 16.7 \%$$

For the clearer information, it could be seen on the table below:

**Table 1**  
**The Percentage of Cognitive Level Used in English Semester Test Items of SMPN 2 Bangkinang**

N o	Cognitive Level	Number of Questio ns	Percenta ge
1	Rememberin g (C1)	32	21.3%
2	Understandi ng (C2)	61	40.7%
3	Applying (C3)	32	21.3%
4	Analyzing (C4)	25	16.7%

## B. Discussions

This research was done on November 30<sup>th</sup> 2013 at SMPN 2 Bangkinang. The researcher only analyzed the cognitive level used in English semester test items of the school at the seventh grade up to ninth grade. The English semester test items were consisted of 150 items by collecting 50 items of the seventh grade, 50 items of the eighth grade, and 50 items from the ninth grade. Kind of the items were multiple choices.

In conducting this research, the researcher referred to the Bloom's Taxonomy cognitive level with the purpose was to analyze the cognitive level used in English semester test items of SMPN 2 Bangkinang. By knowing the cognitive level of English semester test items of SMPN 2 Bangkinang, the researcher could be able to know whether the test items were appropriate with the percentage requirements of Bloom's Taxonomy or not. Then, the researcher thought that this research needed to be analyzed because the result of this research would be a measurement for the teacher in constructing the good items and measuring their students' ability in mastering the English subject rightly.

Furthermore, the researcher would like to help the reader in understanding term of Bloom's Taxonomy and its classification. Forhend (2005) defined that Bloom's Taxonomy was a multi-tiered model of classifying thinking according to six cognitive levels of complexity. In this research, the researcher referred to Bloom's Taxonomy Revised, the six cognitive levels were **Remembering**, **Understanding**, **Applying**, **Analyzing**, **Evaluating**, and **Creating**.

Referring to the explanation above and the previous information that this research was conducted in junior high school, the researcher limited the level of cognitive only for four categories, they were **Remembering (C1)**, **Understanding (C2)**, **Applying (C3)**, **Analyzing (C4)**. First of all was **Remembering**, in this level there were some words that usually used in the question, such as *where, what, why, which, when, how, etc.* the sample question were *Who spoke to Mr. Thomas at the library yesterday?*, *How many people came to Dina's party yesterday?* Secondly, the words usually used in **Understanding** questions were *to be (is, are), which, what, can, do/does/did, etc.* For the sample questions were *What was the main idea of the text?*, *Can you*

*explain why Tony got sick yesterday based on the previous story?* Thirdly, the words usually used in **Applying** were *who, what, do, does, which, can, etc.* For the sample questions were *Do you like reading a comics?*, *How can you spell the difficult words in English?* Fourthly, the words usually used in **Analyzing** were *what, why, which, can, etc.* For the sample questions were *What was the another assume of the statement above?*, *Which statement was not true based on the text?*

Dealing with the explanation above, the researcher analyzed and calculated the data by referring the Bloom's Taxonomy percentage. The ideal items should be appropriate with its percentage of each level. The percentage of **Remembering (C1)** was 40%, the percentage of **Understanding (C2)** was 30%, the percentage of **Applying (C3)** was 20-30%, and the percentage of **Analyzing** was 10%. After that the researcher firstly classified the 150 items from the first grade up to third grade, then the researcher got that there were thirty two (32) items were categorized into **Remembering (C1)** with the percentage of 21.3%, there were sixty one (61) items were categorized into **Understanding (C2)** with the percentage of 40.7%, there were thirty two (32) items were categorized into **Applying (C3)** with the percentage of 21.3% and there were twenty five (25) items were categorized into **Analyzing (C4)** with the percentage of 16.7%.

Based on the result of the data above, it could be seen that the cognitive level used in English semester test items of SMPN 2 Bangkinang was not appropriate with the ideal items percentage by Bloom's Taxonomy where the ideal percentage of **Remembering (C1)** should be 40% on the other hand the result of that level was 21.3%, the ideal percentage of **Understanding (C2)** should be 30% on the other hand the result of the data for that level was 40.7%, the ideal percentage for **Applying (C3)** should be 20-30% on

the other hand the result for that level was 21.3%, and the ideal percentage for **Analyzing (C4)** should be 10% on the other hand the result for that level was 16.7%. It was indicated that the cognitive level used in English semester test items of SMPN 2 Bangkinang were not all the level appropriate with the Taxonomy percentage only in the level of **Applying (C3)** was appropriate with the criteria with the percentage of 20-30% with the result of the data was 21.3%. Then, the level of **Understanding (C2)** was the higher one with the percentage of 40.7%. It showed that the English items of SMPN 2 Bangkinang were not suitable with the criteria of Taxonomy percentage. It was important for the teacher to reconstruct the items for the better one.

Finally, the researcher could conclude that the cognitive level used in English semester test items of SMPN 2 Bangkinang were categorized into "**Understanding**", it could be seen from the analysis of the items that the researcher took from the first grade up to third grade which had been done before and then calculated the percentage and made it in the form of chart.

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