

## **The Realization of HOTS on Summative Test Items Designed by English Teacher Group Discussion**

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### **ABSTRACT**

*HOTS is becoming trending topic in 21<sup>st</sup> century. There are three main components of HOTS namely transfer of knowledge, critical thinking and problem solving (Brookhart, 2010: 5-8). Teachers are demanded to stimulate students' critical thinking nowadays. One of the ways is by providing tests based critical thinking. This study is conducted to analyze the realization of HOTS on test items designed by Teachers English Group Discussion (MGMP). The writer employed descriptive qualitative study. The writer took data from summative tests in the first semester which were made by MGMP. The data covered summative tests from the seventh grade, eight grade and the ninth grade. The writer analyzed the data by using Bloom's Taxonomy as the theoretical framework. There are six levels of cognitive which was revised by Anderson and Karthwoel (2001). Those are remembering, understanding, applying, analyzing, evaluating and creating. The result of the study showed that all of the test items were integrated among LOTS, MOTS and HOTS. Although, they had different percentage. It is revealed that lower-order thinking skills are covering the skill of remembering, understanding, and applying dominates compared to the higher-order thinking skills. Obviously, in the level of higher-order thinking skills, there is only one skill, the skill of analyzing represented on the test items while the skills of evaluating and creating are not found.*

**Keywords:** *HOTS, Summative, Test Items, English Teachers Group Discussion*

### **INTRODUCTION**

Education is becoming challenging in the 21<sup>st</sup> century. Education cannot be set conventionally. It happens because time is changing. Therefore, the education does the same. In the 21<sup>st</sup> century, globalization inevitably contributes to the rapid transformation of human life in all areas; one of the areas is education (Duman & Karagoz, 2016). Education in the 21<sup>st</sup> century should provide soft skills and hard skills. Education should be able to prepare young generations to meet their adult roles in the future by developing a range of knowledge and skills. Those knowledge and skills are not limited to the mastery of subject matters and its application, but it should include the skills which are demanded by the 21<sup>st</sup>-century life such as critical thinking, problem-solving, communication, collaboration, and self-management (Council, 2013). The four magical C competences

should be possessed by students to face the global era.

Critical thinking is becoming the focus nowadays. Teachers are demanded to stimulate students to think critically and creatively. Teachers should implement and integrate the critical thinking process in the teaching learning process. As a result the students will be accustomed in their daily activities. Curriculum 2013 is motivated students to think creatively and critically. One of the competencies in curriculum 2013 is to develop creativity, curiosity, the ability to questioning to make students think critically in order to have smart and long life learning (Permendikbud, 2013). The higher order thinking skills can assist students in improving logical and reasoning skills, analysis, evaluation, and creation. This ability will certainly help students to solve problems everyday life.

Critical thinking is a style of thinking that demonstrates cognitive processes such as reasoning, analyzing and evaluating (Akin et al., 2015). On the other hand, based on Conklin (2012), creative thinking is a higher-order thinking skills that is characterized by inventing and synthesizing. In 21st century, creative thinking is as important as critical thinking to be prepared. Higher order thinking skills have three main domains namely, as transfer, as critical thinking skills, and as problem solving (Brookhart, 2010: 5-8). Higher order thinking skills as transfers means that students actively process them by noticing relevant new information. Then, the students arrange them into related units and then combine new information with previous information. As critical thinking skills imply that students can apply judicious judgments and produce a critical idea. While as problem solving means that students are expected to be able to solve problems with creative solutions effectively.

The term critical thinking is associated with the term HOTS (Higher Order Thinking Skills). The term HOTS (Higher Order Thinking Skills) is closely related to cognitive level by Bloom (1956). Bloom (1956) defines six cognitive levels. The cognitive level includes simple thinking skills to the complex one. It combines knowledge dimension and cognitive process. There are six levels of cognitive proposed by Bloom (1956). Those are from the lowest level knowledge, comprehension, application, analysis, synthesis and evaluation. On the other hand, Karthwohl (2001) revised the bloom's taxonomy.

In the revised version, Anderson & Krathwohl (2001) describe the aspects of thinking skills from lower-order thinking skills to higher-order thinking skills in the revised version taxonomy as follows. The first lowest cognitive level under the term lower-order thinking skills is remembering. It involves the ability to retrieve relevant knowledge from long-term memory. The second cognitive level under the term lower-order thinking

skills is the skill of understanding. It involves the ability to construct meaning from instructional messages including oral, written, and graphic communication. The last cognitive level under the term lower-order thinking skills is applying. It involves the ability to execute or implement a procedure to solve problems and apply knowledge to the actual situation. In addition, the cognitive levels under the term higher-order thinking skills are analyzing, evaluating and creating. Analyzing is the ability to break the material into its constituent parts and determine how the parts relate to another and overall structure or purpose. Evaluating is the ability that involves making a judgment based on particular criteria and standards. Creating is the ability to put elements together to form a coherent or functional whole, reorganize elements into a new pattern or structure. Higher order thinking skills includes three cognitive processes, namely analysis, evaluation, and creation (Brookhart, 2010: 5).

One of the ways to stimulate students' critical thinking is by giving assessment. The assessment can be in the form of formative or summative test. A previous study conducted by Wardany (2017) analyzed test that given to ten grader in Senior high school. The result indeed too many lower-order thinking skills involved. While higher-order thinking skills is less than lower-order thinking skills. Another previous research was carried out by Ramadhana et.al (2018). They investigated the realization of Bloom's taxonomy on English Test Items made by English teachers of Senior High School in Padang. The test items which were analyzed were from grade XI in the academic year 2016/2017. The result was that it was found that 33 % of HOTS-based questions were found in the Midterm test and 17 % of HOTS questions were found in the semester test. From those two previous research, it can be drawn a conclusion. It shows that the distribution of question items which are oriented on HOTS is still low. Therefore, the stimulation of critical thinking to students is still more concern. Actually teachers have discussion forum which is called as MGMP (Musyawarah Guru Mata Pelajaran). This forum will facilitate teachers to design and create questions items based on HOTS. As a result, students will be stimulated to think critically since the questions made by their teachers are HOTS oriented. Teachers Group Discussion (MGMP) also provides summative test in the form of semester test (PAS).

The ability of students to think critically and creatively can be assessed by doing assessment. One of the instruments to do the assessment is by doing test. There are two types of assessment namely formative and summative assessment (Brown : 2004). Summative assessment is to conducted to evaluate student learning and teachers teaching after a teaching period (Anthony J & Susan M, 2005). It has clear evaluation criteria.

Summative assessment is that teacher wants to find out what the students can remember about the course material so that a mark can be determined. It lets the teacher sum up” what the students have learned, or to make judgment (Luo Shaoqian, 2003). The examples of summative tests are final exams, semester exam, mid-term test and school final exam. Teacher’s group discussion has a big part to compose summative test in the form of semester test.

On the other hand, formative assessment is done to give feedback to students. Formative assessment is the investigation, evaluation and analysis of record of daily students’ learning activities. It is the use of systemic evaluation in curriculum development, teaching and learning so that these three process are improved in any one process (Bloom, et al., 1971). The main purpose of formative test is to help teachers to guide students' learning Its criteria usually is not so clear, and does not have to pass the test to complete assessments (Anthony J & Susan M, 2005). It provides for the teacher with more detailed, a continuous feedback, and a comprehensive understanding of what help students need so that teachers can decide to use what kind of teaching methods according to the different students’ need. The examples of formative tests are daily test, chapter test, daily assignment, project test and product test.

Based on the problem presented, this writer intends to investigate the realization of HOTS on the summative test items made by teacher group discussion in the Rembang regency. The writer wants to know how HOTS is realized on each test items in the summative test written by Teacher group discussion in Rembang regency. The results of the present study are expected to help English teacher as well as government to evaluate the implementation of HOTS, specifically in the area of students’ assessment.

## **METHODOLOGY**

The writer employs descriptive qualitative method. Taylor (2016) stated that qualitative method refers to the broadest sense to research that produces descriptive data. This type of research does not use statistical data and also formulas. The statistical data is only using simple percentages. Qualitative research focuses on quality which relates to concept, theories, meaning and characteristic that attached to the subject of the research. The source of data comes from summative tests designed by English Teacher Group Discussion (MGMP) in Rembang regency. The data collection of the research comes from the first semester tests designed by MGMP. They are semester test for the seventh, eighth and ninth graders. The writer collects three types of semester test from any levels. Each

test has the same composition. It includes 40 questions in the form of multiple choices and 5 questions in the form of short objectives essays.

In this research, the writer will analyze the data based on the revised Bloom's taxonomy. After the test items were obtained, they were analyzed based on cognitive processes of LOTS and HOTS. These indicators of LOTS cover some skills namely remembering, understanding and applying while the indicators of HOTS cover some skills including analyzing, evaluating, and creating. The result of the analysis will be calculated in the form of percentages. The formula of the percentage is as follows.

$$P = n/N \times 100 \%$$

P = percentage

n = number of questions based on the indicator found in the test items

N = the total number of test items

After finding out the frequencies and types of thinking skills represented on the test items, the researcher described qualitatively the finding further.

## ANALYSIS AND DISCUSSIONS

The writer took the data from the first summative tests designed by the English teacher group discussion (MGMP). The writer took tests from any level including the seventh, eighth and ninth graders. Each test consisted of 40 questions in the form of multiple choices and 5 questions in the form of short objectives essays. The writer analyzed each test by using the revised Taxonomy Bloom as the theoretical framework. The writer analyzed and classified each test items into six levels of cognitive process including remembering, understanding, applying, analyzing, evaluating and creating. The findings can be seen in the followings table.

**Table. 1**  
**The Frequency and Percentage of Cognitive Skills on Summative Test Items in The Seventh Grade**

Cognitive Skills	Levels	Item Test	Numbers	Percentages
Creating	HOTS			
Evaluating				
Analyzing		16,17,18,20,22,27,37,40,41,43	10	22%

Cognitive Skills	Levels	Item Test	Numbers	Percentages
Applying	LOTS	8,35,36,38,39	5	11%
Understanding		5,7,11,12,14,15,19,26,44,45	10	22%
Remembering		1,2,3,4,6,9,10,13,21,23,24,25,28,29,30,31,32,33,34,42	20	44%

Based on the table 1, it shows that all the lower-thinking skills (LOTS) are covered on the summative test items sets in the seventh graders. On the other hand, higher order thinking skills (HOTS) are represented on the test items set which only cover one level cognitive skills. It is analyzing. Meanwhile, cognitive skills in the level of evaluating and creating didn't appear. There are 20 questions (44%) which are classified as remembering skills. It is dominant skill which mostly appears in the English summative test items for the seventh graders. On the other hand, there are 10 questions (22%) which belong to understanding skills. And there are 5 questions (11%) which are categorized as applying skills. And the last cognitive skill which appears in the test items is analyzing. There are 10 questions (22%).

The writer also analyzed types of questions which mostly appear on each cognitive skills. It can be seen in the following table.

**Table 2.**

**Cognitive skills Demonstrated on the Test Items in The Seventh Grade**

Cognitive Skills	Indicators	Examples of Test Items																				
Creating																						
Evaluating																						
Analyzing	Students are able to draw specific information / conclusion explicitly	<p><i>Questions number 22-23. Look at the Jhony's Time Table!</i></p> <p><b>Jhony's Time Table</b></p> <table><tr><td>Practice s</td><td>Mo n</td><td>Wednes day</td><td>Frid ay</td><td>S a t</td></tr><tr><td>Basket ball</td><td>√</td><td>√</td><td>√</td><td>√</td></tr><tr><td>Voley ball</td><td>√</td><td>X</td><td>√</td><td>X</td></tr><tr><td>Tennis</td><td>X</td><td>X</td><td>X</td><td>X</td></tr></table> <p>1. Jhony .....plays Tennis</p> <p>A. Never</p> <p>B. Always</p> <p>C. Seldom</p> <p>D. Sometimes</p>	Practice s	Mo n	Wednes day	Frid ay	S a t	Basket ball	√	√	√	√	Voley ball	√	X	√	X	Tennis	X	X	X	X
Practice s	Mo n	Wednes day	Frid ay	S a t																		
Basket ball	√	√	√	√																		
Voley ball	√	X	√	X																		
Tennis	X	X	X	X																		

Cognitive Skills	Indicators	Examples of Test Items
	Students are able to analyze a family diagram based on the given situation	<p>2. Hello, my name is Shadam Effendi. I live in a small family. My father is Surahmat Effendi. He is a teacher. My mother is Alida Effendi. I have two brothers. They are Nizam and Ilham. My father is a villager. He lives in Sluke Village. My grandfather is Mr. Sutrimo and My grandmother is Sulastri. They have three children. They are Mr. Sudrajat, Mrs. Sundari and my father.</p> <p><b><u>Create a family tree (a family diagram) based on the text above and give label (name) for each!</u></b></p>
Applying	Students are able to apply/use correct expression based on the given situation	<p>3. Rani woke up late this morning. She woke up at 6.15 a.m. Unfortunately, she also missed her regular bus. She arrived at school late.</p> <p>What is Rani going to say if she enters her classroom?</p> <p>A. I am happy for coming late B. I am sorry for coming late C. I am thanking for coming late D. I am greeting for coming late</p>
	Students are able to use correct expression based on the given situation	<p>4. You are a new student in a school. After that, you will introduce yourself in front of the class.</p> <p><b><u>Please, write down your self-introduction completely!</u></b></p>
Understanding	Students are able to find specific information in the text	<p><i>A dialogue for questions number 11-12</i></p> <div style="border: 1px solid black; padding: 5px;"> <p>Ketut : Hello, what's your name Asep : Hi, my name is Asep. And you? Ketut : I am ketut. I am from Bali. And where do you come from? Asep : I am from Bandung. I am a new student here. I moved to bali last month. Ketut : Oh, welcome to Bali. Maybe we can make friends. Asep : Sure. Thank you. My father is a doctor. He got job promotion to Bali last month Ketut : Wow, that's great. My father is an engineer</p> </div> <p>5. Where does Asep come from.....</p> <p>A. Bali B. Bandung C. Jakarta D. Semarang</p>

Cognitive Skills	Indicators	Examples of Test Items
	Students are able to find reference	6. “ <u>My</u> father is an engineer”. The word “ <u>my</u> ” refers to.... A. Asep’s father B. Ketut’s father C. The writer’s father D. The reader’s father
Remembering	Students are able to fill the blank by choosing the correct expression	7. <i>Yoga and Fitri are talking in the classroom</i> Yoga : Good morning, Fitri Fitri : Good morning, Yoga Yoga :.....(1)..... Fitri : I am fine. Thanks. And you? Yoga : I am good. Thank you A. How are you? B. How do you do? C. What’s up? D. What’s the matter?
	Students are able to identify things in a certain place	44. Please, mention things you can find in your bedroom! 45. Please, mention things you can find in your school bag!

From the Table.2 the writer could draw conclusion that. Test items which mostly appear in the level remembering are about identifying and recalling knowledge about expressions. On the other hand, test items which deal about finding information which is stated clearly in the text. It is categorized as test items in the level understanding. Test items which is classified in the level cognitive of applying are dealing with applying or using correct expressions based on the given situation. The last cognitive skill which appears in the test item is analyzing. In this level, students are able to draw conclusion or analyze the text by using their own words. The writer concluded that summative test items for the seventh grade designed by MGMP are using LOTS and HOTS level. LOTS includes cognitive skills in the level of remembering, understanding and applying. HOTS includes only cognitive skill in the level of analyzing. There is no test items in the level of evaluating and creating. The composition HOTS test items is 22%. And it is categorized as good questions. It happens because ideally the composition of HOTS in the test items should be 10 – 20%.

After that the writer analyzed summative test items for the eighth graders. And here is the result. It can be seen in the table below.



**Table. 3**  
**The Frequency and Percentage of Cognitive Skills on Summative Test Items in The Eighth Grade**

<b>Cognitive Skills</b>	<b>Level s</b>	<b>Item Test</b>	<b>Num bers</b>	<b>Percenta ges</b>
Creating	HOTS			
Evaluating				
Analyzing		12,3,7,11,45,16,17,19,21,24,32,44,34,40,37,39	16	36%
Applying	LOTS	2,14,15,18,20,22,23,28,45	9	20%
Understandi ng		5,6,13,8,9,31	6	13%
Rememberi ng		1,4,42,10,41,25,26,27,29,30,33,35,36 ,38	14	36%

From the table 3, the writer can draw conclusion as follows. The percentages of test items which belong to remembering skill is 36%. There are 14 item tests which are categorized as remembering skill. On the other hand, there are 6 item test (13%) which are classified as understanding skill. And there are 20 item tests (20%) which belong to applying skill. In short, there are 29 test items which belong to LOTS (Lower Order Thinking Skill). And the MGMP mostly use remembering skills in the item tests. There are 16 test items (36%) which are categorized as HOTS (Higher Order Thinking Skills). And those item tests belong to analyzing skill. The writer found that there are no item tests which belong to evaluating and creating skills.

Furthermore, the writer also analyzed types of test items which emerge on the summative test of the Eighth graders. And here is the result.

**Table 4.**  
**Cognitive skills Demonstrated on the Test Items in The Eighth Grade**

<b>Cognitive Skills</b>	<b>Indicators</b>	<b>Examples of Test Items</b>
Creating		
Evaluating		
Analyzing	Students are able to find out the sentence implication	Randy: “.....” Eka : “You should wear your hat and sacr”. What does Randy probably say.... A. The baby is sleeping B. It’s a really dark night C. I can’t hear what you say

Cognitive Skills	Indicators	Examples of Test Items
		D. It's very cold outside
Applying	Students are able to apply / use correct notice based on the given situation	In the library, what rules should we obey... A. Read the book loudly B. Return the book to bookshelves after reading C. Bring your food inside and throw it in the rubbish bin D. chit chatting and singing are allowed in the library
Understanding	Students are able to arrange the jumbled words into a correct sentence	Arrange the following words in correct order! Children – in – the – yard – you – see – can – the - ?
Remembering	Students are able to recall memories about certain expression by filling in the blank	Desy: "What do you think of my new hat?" Lina: ..... The suitable expression to complete the dialogue is..... A. I want to buy another one B. I think It's trendy and stylish C. I need to buy a hat like yours D. I'm sorry to hear that, dear
	Students are able to recall memories about specific modals by filling in the blank	Driver.....park here. There is no parking sign here. The suitable modal of obligation is..... A. Must B. Mustn't C. Can D. Can't

The last analysis done by the writer is analyzing summative test items in the ninth grade. Here is the result.

**Table. 5**  
**The Frequency and Percentage of Cognitive Skills on Summative Test Items in The Ninth Grade**

Cognitive Skills	Levels	Item Test	Numbers	Percentages
Creating	HOTS			
Evaluating				
Analyzing		3,7,9,11,12,13,17,18,19,22,23,26,28,43	14	31%
Applying	LOTS	5,14,15,20,25,36,37,38,39,40,44	11	24%
Understanding		6,10,16,29,30,31,32,41,42,6	10	22%

Remembering		1,2,4,8,21,24,33,34,35,45	10	22%
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Based on the Table.5, the summative test items in the ninth grade cover both LOTS and HOTS. The MGMP who designed the test applied analyzing skill to indicate HOTS. There are 14 test items (31%) which are classified as analyzing skills. Meanwhile there are 68% of test items which are categorized as LOTS. There are 11 test items (24%) which are classified as applying skill. There are 10 test items which cover both understanding and remembering skills. In short, the MGMP wanted to stimulate students' critical thinking by allocating 31% HOTS questions.

Furthermore, the writer also analyzed typed of question which may appear based on the cognitive skills. And here is the result.

**Table 6**  
**Cognitive skills Demonstrated on the Test Items in The Ninth Grade**

<b>Cognitive Skills</b>	<b>Indicators</b>	<b>Examples of Test Items</b>
Creating		
Evaluating		
Analyzing	Students are able to draw conclusion after reading a text	From the text above, we can conclude that... A. uncooked rice is useless to dry a cell phone B. Plugging the charger when the cell phone is wet C. we do not remove the battery before drying the wet cell phone D. uncooked rice can absorb the moisture of the wet cell phone
Applying	Students are able to use label in specific situation	By reading the above text (Food label), the readers will notice.... A. what they should do in side effect problems B. when the product is forbidden safely C. where to store the product safely D. where the product is sold
Understanding	Students are able to arrange the jumbled words into a good sentence	Arrange the following words into a good order a. have – the – laid – eggs – plenty – hens – of b. I – when – book – was – came – he – reading - my
Remembering	Students are able to recall memories about specific expressions	Lisa: Rio, what do you think if we make a website about fashion? Rio: <b><u>I don't think it is a good idea.</u></b> Lisa: why?

Cognitive Skills	Indicators	Examples of Test Items
		<p>Rio: it really takes time</p> <p>The underlined sentence expresses...</p> <p>A. Disappointment</p> <p>B. Hope</p> <p>C. Agreement</p> <p>D. Disagreement</p>

## CONCLUSION

Regarding thinking skills represented on the test items designed by English teacher group discussion (MGMP) in Rembang regency, it is revealed that lower-order thinking skills covering the skill of remembering, understanding, and applying dominates compared to the higher-order thinking skills. Obviously, in the level of higher-order thinking skills, there is only one skill, the skill of analyzing represented on the test items while the skills of evaluating and creating are not found. Thus, it is suggested that in the near future, an evaluation is needed to evaluate the test items made since the proportion of lower-order thinking skills as well as higher-order thinking skills are not proportional and whether those test items can be sufficient to promote higher-order thinking skills to the students.

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