The Capability of English Teachers in Constructing Multiple-Choiced-Hots Item Tests in Central Java in 2018

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Abstract. The aims of this research were to find out (1) the ability of English teachers in constructing multiple-choiced-HOTS item tests, (2) the barriers experienced by English teachers in constructing multiple-choiced-HOTS item tests. This research was a descriptive qualitative. The data were collected (1) through document’s noting and (2) interview. The research instruments used were a review sheet for constructing multiple-choiced-HOTS item tests and interview sheet. The findings showed that (1) the capability of English teachers in constructing multiple-choiced-HOTS item tests was 28.3% (C4 23.3%, C5 5%, C6 0%), while MOTS (C3) 1.7%, and LOTS 70% (C1 55%, C2 15%), (2) the barriers experienced by the English teachers in constructing multiple-choiced-HOTS item tests were comprehending the cognitive levels, making indicators, and using interesting and contextual stimuli.

Keywords: HOTS, cognitive levels, indicator
INTRODUCTION

Based on Government Regulation Number 74 of 2008 concerning Teachers, subsection 52 paragraph (1) the main role of teachers include the main activities of planning learning, implementing learning, assessing learning outcomes, guiding and training students, as well as carrying out additional tasks inherent in the implementation of basic tasks. According to Saragih (2008), teacher’s competence is a set of knowledge, skills and behaviors that must be possessed, lived, mastered and actualized by the teacher in carrying out his professional duties. Competencies that must be possessed by a teacher include: pedagogic competencies, personality competencies, social competencies and professional competencies.

One of the competencies that must be mastered by the teacher is pedagogic competence is the ability of the teacher in the learning management of students, some of which consist of evaluating learning outcomes, and developing students to actualize their various potentials. Therefore, according to the explanation above, the teacher must also have skills in evaluating student learning outcomes. This is in accordance with the Government Regulation of the Republic of Indonesia Number 74 of 2008 concerning teachers that teachers are professional educators with the main task of educating, teaching, guiding, directing, training, evaluating, and evaluating students in early childhood education through formal education, basic education, and secondary education.

Regulation issued by the Government of Education 2014, No. 59 concerning 2013 High School Curriculum. Aliyah (in Warisdiono, 2017) states that one of the basic improvements in the curriculum is internal and external challenges. External challenges include the flow globalization and various issues related to environmental problems, technological progress and information, the rise of the creative industry, culture, and the development of education at the level international. Unlimited development of the world requires humans to have various abilities to be able to maintain their lives. Various theories and concepts about the types of skills needed appear, including 21st century skills which include character quality, competence, and basic literacy. The character quality is faith and piety, curiosity, initiative, perseverance, adaptability, leadership, and social and cultural awareness. Competencies that must be mastered are: critical thinking in problem solving, creativity, communication, and collaboration. Basic literacy needed is: literacy, numeracy, scientific literacy, information literacy, technology and communication, financial literacy, and cultural and citizenship literacy.

These abilities are expected to be formed using a variety of ways, one of which is through education in schools on aspects of learning assessment. One of the assessments currently used up to the national final exam is multiple choice questions (objective).

The test items as a means to measure the success of the aspects of knowledge in learning at this time is still not able to foster critical, analytical and logical thinking from students. This is based on the results of measurements from the Program for International Students Assessment (PISA), Indonesia in 2015 ranked 62 of 72 countries (Jennifer Sidharta, 2017). The low student results according to Gufran A Ibrahim (2017) chair of the Reading Writing Literacy Working Group, the Ministry of Education and Culture literacy movement is the difference between the PISA model questions and the questions commonly given by teachers in schools, including each question equipped with illustrations in the form of text, images, graphs, tables and etc. The ability to understand the text in which there is a variety of information is needed, including linking it with various other information.

Efforts to improve students’ ability to solve problems requires skills to find, analyze, create, reflect, and argue or are often referred to as high-level thinking skills. The knowledge of these skills can be done through objective or subjective questions that require reasoning to answer what is known as HOTs (Higher Order Thinking Skills). Higher-order thinking skills require the ability to start from remembering, referring, applying up to analyze, evaluate, or create. Thus the HOTs problem is at the level of analyzing, evaluating, and creating.

Anderson’s new Bloom Taxonomy (2010) in the cognitive domain consists of six levels, remembering, understanding, applying, analyzing, evaluating, and creating. This Krathwohl revision is often used in formulating learning goals that we often know as the C1 to C6 terms. The first three levels of the new Bloom Taxonomy by Krathwohl, namely remembering, understanding, and applying are LOT, while the next three levels, namely analyzing, analyzing and creating are HOT. Heong (2011) states that HOT is one component of the ability to think creatively and think critically. Rofiah (2013) states that HOT is a thought process that does not merely memorize and re-convey known information. HOT is the ability to connect, manipulate, and transform knowledge and experience already possessed to think critically and creatively in an effort to determine decisions and solve problems in new situations.

Education Quality Assurance Institution or as known as LPMP has jobs to train teachers to achieve the above competence. The writer is a trainer of the EQAI in Central Java and the main job is to teach teachers who participate in the trainings. One subject of the training was constructing multiple-choiced-HOTS item tests. This kind of competence is very important to be mastered by teachers in conducting the tests for their students. The teachers in the training are those who have been teaching English for more than one year. A few of them have been teaching more than ten years. Their
competence in constructing HOTS is important as they will teach students using 2013 curriculum.

The criteria for HOTs include: (1) measuring high-level abilities by minimizing aspects of memory or knowledge by maximizing the ability to find, analyze, create new methods, reflect, predict, argue, and make the right decisions, (2) based on contextual problems, (3) attractive stimuli, and (4) not routine in the illustration or question. Based on the discussion above, this research is aimed at finding out the ability of the English teachers in constructing multiple-choice-HOTS item tests. It is also aimed at finding out the barriers experienced by English teachers in constructing multiple-choice-HOTS item tests.

PROBLEMS

Based on the previous discussion, the problems that arise to be used as the basis of this study are (1) What is the capability of English teachers in constructing multiple-choice-HOTS item tests? (2) What are the barriers experienced by English teachers in constructing multiple-choice-HOTS item tests?

METHOD

The method used in this study uses a descriptive qualitative approach by describing the result of the HOTS item tests constructed by the English teachers joining the training in September 2018. The test items constructed by the teachers are analyzed using check-list derived from a module constructing HOTS test items by the Ministry of Education 2017. The list comprises whether or not the test items use (1) interesting stimuli, (2) contextual stimuli, (3) measuring logical cognitive (analyses, evaluation, creating), (4) inferential answer, and (5) the basic competence, indicator and the test items are related.

The training lasted for three days, whereas, it took only one day for the constructing the HOTS test items. The subjects in this study were 30 English teachers in Junior High Schools in different cities in Central Java, most of whom have experienced in teaching more than one year, aged between 23 years to 57 years. They were English teachers participating in English training on 2013 Curriculum at Education Quality Assurance Institution, or known as Lembaga Penjaminan Mutu Pendidikan (LPMP) of Central Java in September 2018. The location of the research was in Semarang, Central Java. The data were collected (1) through document’s noting and (2) interview. The research instruments used were a review sheet for constructing multiple-choice-HOTS item tests and interview sheet.

Each teacher made two multiple test items. There were 30 respondents in this research, that made it 60 test items to be analyzed.

RESULTS

The sixty item tests constructed by the teachers are analyzed using the check-list adapted from a module of constructing HOTS item tests by the Ministry of Education 2017. The complete check list is as follows:

<table>
<thead>
<tr>
<th>No.</th>
<th>Aspects</th>
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<tbody>
<tr>
<td>1</td>
<td>The question uses an attractive stimuli (new, encouraging students to read).</td>
</tr>
<tr>
<td>2</td>
<td>The question uses contextual stimuli (pictures/graphics, text, visualization, etc., and in accordance with the real world).</td>
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| 3   | The question measures cognitive level of reasoning (analyzing, evaluating, creating) which in its solving is characterized by one or more stages of the following thinking process:  
  • Transfer one concept to another  
  • Process and implement information  
  • Seek links from a variety of different information  
  • Use information to solve problems  
  • Critically review ideas and information. |
| 4   | The answer is implied on the stimuli. |
| 5   | The Basic Competence, Indicators of Competence Achievement and the test items are related. |

The result of test item test analyses is as follows:

1. Among the sixty test items, there are 36 out of 60 (60%) item tests use an attractive stimuli (new, encouraging students to read).
2. Among the sixty test items, there are 37 out of 60 (62%) item tests use contextual stimuli (pictures/graphics, text, visualization, etc., and in accordance with the real world).
3. Among the sixty test items, there are 17 out of 60 (28.3%) item tests use The question measures cognitive level of reasoning (analyzing, evaluating, creating) which in its solving is characterized by one or more stages of the following thinking process:
   • Transfer one concept to another
   • Process and implement information
   • Seek links from a variety of different information
   • Use information to solve problems
• Critically review ideas and information.

In details, there was 17 test items or 28.3% (C4 23.3%, C5 5%, C6 0%), that is categorized as HOTS (Higher Order of Thinking Skills), there was 1.7% categorized as MOTS (Medium Order of Thinking Skills), or that belongs to application (C3) and LOTS there were 40 test items (70%) are categorized as LOTS (Lower Order of Thinking Skills), or that belongs to recalling (C1 55%) and comprehending (C2 15%),

4. Among the sixty test items, there are 33 out of 60 (55%) item tests, the answer is implied on the stimuli.

5. Among the sixty test items, there are 24 out of 60 (40%) item tests, there is a relation among the Basic Competence, Indicator of Competence Achievement and the test items.

DISCUSSION

1. The first aspect (The question uses an attractive stimuli; new, encouraging students to read). The analyses shows that there there were more than 50% of the test items use an attractive stimuli, the following test item represent such kind of aspect.

Study the four notices to answer the question.

Based on the four notices, we know that . . .

A. Visitors can come into the school area from any gate of the school.
B. Visitors of the school do not need to report to the school guard.
C. Visitors are allowed to sit at the main office.
D. Visitors can not entrance freely.

In the contrary, the following test item does not have an attractive stimuli.

I love my teacher. He is mr Prekhanto. He always smile to me. He helps students in learning English. He is never angry with his student.

Mr. Prekhanto is . . .

A. clever
B. responsible
C. patient
D. friendly

2. Among the sixty test items, there are 37 out of 60 (62%) item tests use contextual stimuli (pictures/graphics, text, visualization, etc., and in accordance with the real world).

The following is an example of a test item that use contextual stimuli, in the form of a text in accordance with the real worlds.
Read the following text to answer the question.

Text 1

My House
This is my house. I am happy living there because it is clean and tidy. There are two bedrooms in my house. One is my bedroom where I sleep alone and the other one is my parents’. Our living room is near the bedrooms. There is a sofa there where we usually sit on watching television. Right in front of the sofa, there is a table with a beautiful vase on it. We also can see our family picture hanging on the wall in the living room. That is the kitchen. My mother often cooks delicious meals there. At the corner, there is a bathroom where we take a bath everyday. There is a garden behind my house. It has a lot of plants. They are green. There is also a bench. My parents and I usually sit there after gardening together.

Text 2

My School
This is my school. It has many rooms. There are headmaster office, teacher room, and science laboratory. Beside, there is a computer laboratory near the staff room. At the corner, there is a school medical room. The students can take a rest for a moment when suddenly they feel not well. My school has also a library where the students read many kinds of books and magazine.

From the text we learn that the intention of the writer in describing the text is ...
A. In text one, the writer expresses his pride. While in text two, the writer expresses his criticism
B. Both in text one and two, the writer expresses his pride
C. To introduce his house and his school
D. To make the two buildings stand out

In the contrary, the following test item does not have a contextual stimuli. The dialogue suddenly appears without any context. Then the test does suddenly has to answer a question below the dialogue. There is no instruction before the dialogue.

Mother : Oh, my God, what a messy room! Angga come and get your football!
Angga : But … Mom! it’s Nindia’s football
Mother : Whose guitar is on the table?
Angga : It’s Nindia’s
Mother : Whose dirty shoes are under the chair?
Nindia : They are Angga’s, Mom
Mother: And that bag on the floor?
Nindia : It’s mine. But the hat and the racket on the chair are Angga’s, too
Mother : And whose messy children are you?
Nindia & Angga : of course…. Mommy’s

What should the children respond to their mother?
They should respond by …
A. Giving gratitude
B. Expressing love
C. Asking apology
D. Giving thanks

3. The question measures cognitive level of reasoning (analyzing, evaluating, creating). Among the sixty test items, there are 17 out of 60 (28.3%) item tests use The question measures cognitive level of reasoning (analyzing, evaluating, creating) which in its solving is characterized by one or more stages of the following thinking process:

- Transfer one concept to another
- Process and implement information
- Seek links from a variety of different information
- Use information to solve problems

While most of the test items measure LOTS, as many as 70% of them. Here are examples of the test items constructed by the teachers to measure each cognitive level.
### a. Recalling (C1)

I just got a new toy from my uncle. My uncle is a sailor. He bought me a robot when he sailed abroad. My robot is very nice. It is about twenty five centimeters tall. The color of the robot is brown. The robot has strong body. It has two big red eyes. Its two strong legs are covered with blade boots. My robot can be moved with to medium sized batteries. After inserting the batteries we push the button behind is neck. The robot will moves its left and right foot in turn. It will move its two arms in turn two. However, the robot could not bend its feet and it moved forward only.

From the text we know that ...

- A. the robot can’t move backward
- B. the robot’s feet are bendable
- C. the robot can’t move at all
- D. the robot has no arms

The options and the answer are stated in the text, so by recalling the information, the testee will be able to answer the question.

### b. Comprehension level (C2)

**Nia**: So I just tasted the cake made by my mom.
**Ina**: Do you like it? How was the taste?
**Nia**: Yes, I like it! It was ....

- A. overcooked
- B. bitter
- C. tasty
- D. burnt

The test item measures the comprehension. The testee needs comprehension of the word ‘like’ with the positive meaning of the option, which is clearly identified as C (tasty), because the other options have negative meanings.

### c. Application (C3)

**Andi**: Good morning madam.
**Mrs Ani**: Good morning Andi. Why are you late?
**Andi**: I’m sorry mam. ... 
**Mrs Ani**: Never mind for this time but please don’t repeat it again, Okay?
**Andi**: Okay mam thank you.

What is the suitable expression that should Andi say in dialogue?

- A. Because I woke up early.
- B. Because I forgot to do my homework.
- C. Because my mother was going to market.
- D. Because I should take my little brother to his school first.

The test item needs the testee to apply expression of reasoning, using because .... The context is not very complicated, it does not need the testee to connect different kinds of information. It is categorized as Medium Order of Thinking Skill (MOTS).

### d. Analyses (C4)

**Read the following text to answer the question.**

**Text 1**

My House

This is my house. I am happy living there because it is clean and tidy. There are two bedrooms in my house. One is my bedroom where I sleep alone and the other one is my parents’. Our living room is near the bedrooms. There is a sofa there where we usually sit on watching television. Right in front of the sofa, there is a table with beautiful vase on it. We also can see our family picture hanging on the wall in the living room. That is the kitchen. My mother often cooks delicious meals there. At the corner, there is a bathroom where we take a bath everyday. There is a garden behind my house. It has a lot of plants. They are green. There is also a bench. My parents and I usually sit there after gardening together.
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My School

This is my school. It has many rooms. There are headmaster office, teacher room, and science laboratory. Beside, there is a computer laboratory near the staff room. At the corner, there is a school medical room. The students can take a rest for a moment when suddenly they feel not well. My school has also a library where the students read many kinds of books and magazine.

From the text we learn that the intention of the writer in describing the text is ...

A. In text one, the writer expresses his pride. While in text two, the writer expresses his criticism
B. Both in text one and two, the writer expresses his pride
C. To introduce his house and his school
D. To make the two building stand out.

To answer this test item, the testee needs to compare the social function of the two texts. In this test, the indicator of the test is to compare the social functions of different texts. Thus this test belongs to level C4 (Analyases). It is categorized as HOTS test item.

e. Evaluation (C5)

Read the two text, and complete the dialogue.

Text 1

Mark Elliot Zuckerberg is an American computer programmer and internet entrepreneur. He is the co-founder of Facebook, the famous social media. His name was in the list of 100 wealthiest and most influential people in the world since 2010 by Time magazine. About his physical appearance, Mark’s body is 170 centimeters tall with the weight 76 kilograms. His hair color is red and his eyes are blue. Mark Zuckerberg was born on 14th May 1984 in New York, USA. Mark Zuckerberg has married to Priscilla Chan and they have one daughter named Maxima Chan Zuckerberg.

Text 2

Lawrence “Larry” Page is one of the most influential people in the world. Page is an American computer scientist and an Internet entrepreneur. He was a co-founder of Google with his friend, Sergey Brin, in 1998. Now, he plays a role as the chief executive officer (CEO) of Alphapets, Google’s parent company. In November 2016, he becomes the 12th richest person in the world. Larry Page was born on 26th March 1973 in Michigan. The color of his hair is dark brown and his skin is fair. About his family, a research scientist named Lucinda Southworth is his wife. Now, he is a father of two children.

Dialogue

Roy : Hei, Gabriel. Do you know Larry Page?
Gabriel : Yes, I know. He is a co-founder of Google.
Roy : So, is he same as Mark Elliot Zuckerberg?
Gabriel : Yes, I think he almost same in their carrier. But there are some different things from them.
Roy : What do you think the writer’s point of view about the people he writes?
Gabriel : In my opinion, he ...

A. He describe the two people with the purpose of expressing his pride.
B. He introduces the two different people based on their successful carrier.
C. The writer intends to immitate the success of the two people he describes.
D. He identifies the two people out of some other successful people in the world.

In answering this test item, the testee should be able to relate different information, in different forms of texts. The testee should also evaluate what the writer of the test thinks about the people he describes. Therefore, it belongs to ‘Evaluation’ (C5). It is an example of a HOTS test item.

f. Creating (C6)

There is no such kind of test item constructed in this category.

4. Among the sixty test items, there are 33 out of 60 (55%) item tests, the answer is implied on the stimuli. The example of C5 test above test item has this aspect. The answer is implied on the stimuli. The answer is not clearly stated in the stimuli.

5. Among the sixty test items, there are 24 out of 60 (40%) item tests, there is a relation among the Basic Competence, Indicator of Competence Achievement and the test items.
The following is an example that the participant cannot indentify the proper basic competence for the test items. What the test item should be constructed should comprise cognitive level only, but some participants were not able to differentiate between cognitive and skill competence.

This is what a participant broke down the basic competence into an indicator of the test item.

| 3.11 | Present | 3.11 comparing social functions, text structures, and linguistic elements of some oral and written recount personal texts by giving and requesting information related to personal experiences in the past, short and simple, in accordance with the context of their use. | Presented recount text students can summarize implied information in the text correctly. |

The basic competence (on the left), is ‘comparing ...

the indicator the participant construct is summarizing implied information from a text. It belongs to ‘grabbing meanings’ from context. It does not belong to cognitive aspect, but it belongs to another aspect, that is skill aspect (Basic competence with the code of 4..., not 3...).

CONCLUSION AND RECOMMENDATION

Conclusion

Based on the analyses above, it can be summarized that

1. The capability of English teachers in constructing multiple-choiced-HOTS item tests was 28.3% (C4 23.3%, C5 5%, C6 0%), while MOTS (C3) 1.7%, and LOTS 70% (C1 55%, C2 15%).
2. The barriers experienced by the English teachers in constructing multiple-choiced-HOTS item tests were comprehending the cognitive levels, making indicators, and using interesting and contextual stimuli.

Recommendation

1. For the next training.
   Based on the barriers faced by the English teachers in the study, there is a need of adding the time allocation for the subjects of comprehending the cognitive levels, making indicators and using interesting contextual stimuli. It will strongly needed that there is a special training for the English teachers in constructing HOTS test items, what will include the competence stated above.
2. The result of this study does not represent the overall English teachers in Central Java, as the respondents are some English teachers who have relatively little experience in constructing HOTS test items. The study may result differently when the respondents take different circle of English teachers in Central Java. To be precise, the respondents are taken from the committee of English teachers forum from each city in Central Java or commonly called MGMP.