HIGHER ORDER THINKING SKILLS (HOTS) ANALYSIS ON TEACHERS'S QUESTIONS IN THE FINAL EXAMINATION OF BAHASA DAN SASTRA INDONESIA AT PUBLIC HIGH SCHOOL SMA NEGERI 7 MEDAN

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Abstract: Higher order thinking skills is important to apply in learning, particularly in making questions tested to studernts. Higher order thinking skills is a cognitive process which encompasses; analysis, evaluation, and create. In accordance with the 2013 curriculum, the questions made for the high school level must achieve the stage of create of the cognitive process. This research found that the teachers'questions did not include evaluation and create of the cognitive process.
Keywords: *High-Order Thinking Skills, Teachers'questions, Curriculum 2013*

The 2013 curriculum requires an international standard assessment (Directorate of High School Development: 2015). This requires teachers to make tests based on international standards. Such tests may be related to higher order thinking skills, contextual assessment, and PISA (program for international student assessment). If it is seen through the teachers situation at the schools, the requirements do not work as it expected.

The Directorate of High School Development in the International Standard Preparation Guide (2015) explained that most high school teachers only tended to measure low-order thinking skills. Teachers'questions commonly measured recall skills. Teachers focused on theories, not contextual knowledge, of which did not fit to the 2013 curriculum's requirements.

The problem is not only for teachers in Indonesia but in some countries as Abosalem (2016) exposed in the journal Assessment Techniques and Students' Higher-Order Thinking Skills where in 2005-2006 as many as 86% of teachers in Abu Dhabi are still measuring recall skills. The same data was also found in a national survey in Indiana in 2009 by Kiuhara, Graham, and Havekn (in Smith and Szymanski, 2013: 17) where 47% of teachers have not yet assessed high-order thinking skills. This number indicated that teachers need to improve their ability to make high-order thinking skills.

Journal of Higher Thinking Ability Junior High School Students in Jember District in Completing the Standardized Problems of Pisa by Dian Kurniati, Romi Harimkuti and Nur Asiyah Jamil (2016) revealed that from 30 students, there were 18 students classified in the medium level of the higher order thinking skills and 12 students were low level. This indicated that students' high-order thinking skills still have not had satisfactory results.

The questions which have higher order thinking skills in the assessment context based on the cognitive level of the revised Bloom's taxonomy measure the ability to analyze, evaluate, and create. Referring to Sudjana's opinion (2016: 135-136) that the composition between good low-to-high-grade categories has a 3: 4: 3 ratios. The Center for Assessment of Education in the Modeling Module of Higher Order Thinking Skills (2017: 7) describes three cognitive levels: 1) recall (low category), 2) comprehending and application (medium category), and 3) analysis, evaluation and creation (high category).

Lumbanraja (2017) stated that the distribution of taxonomy of Bloom was not entirely distributed equally as the questions were more in the comprehending and application category (40%) and analysis category (8%). Another study's (Amelia, Susanto and Arif ,2015: 3) found that the level of knowledge of Bloom's taxonomy which teachers made the math questions about the

set number material (13.3%) distributing at level C1 (knowledge), 46.7% at level C2 (comprehending), and 40% at C3 level (application). It was concluded that the teacher had not properly distributed all levels of knowledge on the test and the teachers have not incorporated higher order thinking skills (C4-C6).

Based on the 2013 curriculum, the learning system is expected to help students think deeply and creatively toward a material. Therefore, it is required a tool that can improve the student's ability in the higher order thinking. 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 soleve problems everyday life.

Higher Order Thinking Skills

Higher order thinking skills are the application of thought processes to complex situations and have many variables. All students can think, but most of the students need encouragement and guidance for higher order thinking processes (Shiddiq et al, 2015: 159). Higher order thinking skills includes three cognitive processes, namely analysis, evaluation, and creation (Brookhart, 2010: 5). Higher order thinking skills can be interpreted into three meanings 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.

Mc Loughlin and Luca (in Widodo and Sri, 2013: 162) state that higher order thinking means the ability to understand information by applying critical attitudes, evaluation, awareness and problem-solving skills. It requires a lot of cognitive processes. Correspondingly, the higher-order thinking skills of King, Goodson, and Rohani (2004: 1-2) include critical thinking, logical, reflective, meta-cognitive, and creative.

Newman and Wehlage (in Widodo and Sri, 2013: 163) also revealed that higher order thinking requires students to manipulate information and ideas by changing meanings and implications, such as when students combine facts and ideas to synthesize, summarize, explain, and conclude or interpret. Based on some expert opinions above, it is concluded that higher order thinking skills encourages students to be able to synthesize, summarize, clarify, and summarize issues with active, critical, logical, creative, reflective, and meta-cognitive thinking. This thinking technique is the cognitive process at the top three levels of the revised version of Bloom's taxonomy, which are analysis, evaluation, and creation.

Benefits of Higher order Thinking Skills

Learning and assessment which regularly apply high-order thinking skills, the teachers will see the benefits the students gain in the future. Some research whih have been done by experts showed the application of higher order thinking skills have a very positive impact on the learning process. The benefits of higher order thinking skills (Brookhart: 2010) are given as follow.

1) Increase student achievement

The use of tasks and judgments that require intellectual and critical thinking skills are associated with student's achievement progress. The progress are shown in various learning outcomes, such as standard test scores. Wenglinsky (in Brookhart, 2010: 10) describes his research on students' ability relationships in large-scale measurements and teaching that emphasize higher order thinking skills, projects, and problem solving. Wenglinsky reports that teaching that emphasizes reasoning is associated with increasing values in all tests at various grade levels. Newmann, Bryk, and Nagaoka (in Brookhart, 2010: 11) explained that students who receive teaching through higher order thinking skills can solve problems by organizing their knowledge and experience, able to elaborate their statements or opinions, and to complete non-familiar tasks.

2) Increase student motivation

Several studies have shown that teachers are responsible for higher order thinking skills using tasks and judgments. These things need understanding and critical thinking to improve student motivation as well as student achievement. Students will not be interested or motivated by abstract

material and abstract teaching. Students will be interested in thinking about particular or detail things which make them motivate to learn. Higher order thinking skills increases their interest in mastering their ideas. Students will think more fun than just remembering (Brookhart, 2010: 12).

Basic Principles of Assessment of Higher-Order Thinking Skills

Doing and making a higher order thinking assessment requires three basic principles that will help teachers assess high-order thinking skills (Brookhart, 2010: 25).

1) Using the introductory material

Students are allowed to use material resources that can help students to think. Teachers can also provide stimulus that can assist students in solving problems such as pictures or tables.

2) Using novelty materials

The novelty material means the student's test materials have not been worked on in classroom teaching. Using novelty material means students must really think, not just remember the materials that are already done.

3) Seperately present cognitive complexity and difficulties

A test that measures higher order cognitive processes does not mean that tests are including difficult category. The integrity of the cognitive process describes to what extent the students' thinking process. The difficult test can be realised through unfamiliar questions to measure student's insights.

Results and Discussion

Based on analysis of research data in the Odd Semester Final term of Bahasa dan Sastra Indonesia Class X and XI 2017/2018 SMA Negeri 7 Medan is obtained the results as follows.

Tabel 1 Grouping Questions Based on Bloom's Taxonomy

Class	Remember	Comprehend	Apply	Analysis	Evaluate	Create
X	PG: 4, 17, 19	PG: 1, 2, 3, 5, 6, 7, 9, 14, 16, 18, 20 Exercise: 2, 3, 5	PG: 15 Exercise: 1	PG: 8, 11,12, 13 Exercise: 4	-	-
XI	PG: 16, 19, 20 Exercise: 2, 4	PG: 3, 4, 5, 6, 7, 8, 9, 10, 13, 14 Exercise: 1	PG: 1, 2, 11, 12, 15, 17, 18 Exercise: 3, 5	-	-	-

The result of analysis is found 20 % questions containing higher order thinking skill in class X, while class XI does not find questions containing higher order thinking skill. The question categories are distributed as follow: low category in class X is 12%, medium is 68% , and there are fourteen questions are comprehension and two questions are application which is 20% high category. The questions in the class XI consists of 20% cognitive process remember (low category) and 80% cognitive process of comprehend and apply (medium category). There are eleven questions about comprehension and nine questions about application.

Here are exemplars of the questions in the class X in the terms of thinking process of remembering and comprehending

4. Bahasa yang digunakan untuk membujuk atau mempengaruhi orang lain dalam teks negosiasi disebut bahasa ...
   a. Deklaratif
   b. Imperatif
   c. Persuasif
   d. Interogatif
   e. Alternatif
7. "60 ribu kemahalan, Bang. 45 ribu saja ya? Saya beli dua baju, Bang."
   Dalam jual-beli, kalimat di atas termasuk ke dalam struktur ...
   a. Permintaan
   b. Penawaran
   c. Pemenuhan
   d. Pembelian

e. Persetujuan

Question number four is classified as a category of remembering because students only need to remember what terms are used to induce influence on others in the negotiating text. Question number seven is categorized as the cognitive process of comprehending because it asks students to classify the appropriate structure.

The process of comprehending and applying of the questions in the class XI are given below.

13. Berikut yang termasuk ke dalam contoh kalimat aktif intransitif ialah ...
    a. Ayah mengirimi nenek kado pada hari ibu tahun lalu.
    b. Sulaman itu dibuat oleh Sumartini saat perang melawan Belanda.
    c. Budi berlari pagi setiap hari.
    d. Sandiaga memasak ayam dengan bumbu masakan khas italia.
    e. Basri mencangkul tanah untuk menanam padi.
11. Bentuk penulisan daftar pustaka yang tepat di bawah ini adalah ...
    a. Burhannudin, S. 1990. *Teori Akuntansi dan Pengembangannya dalam Jurnal*. Jakarta: Bina Aksara.
    b. Burhannudin, S. 1990. *Teori Akuntansi dan Pengembangannya dalam Jurnal*. Jakarta. Bina Aksara.
    c. Burhannudin,. S. 1990. *Teori Akuntansi dan Pengembangannya dalam Jurnal*. Jakarta: Bina Aksara.
    d. Burhannudin, S. 1990, *Teori Akuntansi dan Pengembangannya dalam Jurnal*. Jakarta. Bina Aksara.
    e. Burhannudin, S. *Teori Akuntansi dan Pengembangannya dalam Jurnal*. 1990. Jakarta: Bina Aksara.

Question number thirteen is categorized as a cognitive process of comprehending because it asks students to choose examples of intransitive active sentences. Question number eleven categorized cognitive processes application because it asks students to implement the procedure of writing a bibliography.

Module of Preparation of Higher Order Thinking Skills (2017: 7) by the Education Assessment Center divides into three categories of thought processes, namely remembering (low category), comprehending and applying (medium category), and analyzing, evaluating, and creating (high category). Levels of various cognitive processes are then applied to the test with a balanced composition. The composition between the categories of low, medium, and high has a ratio of 3: 4: 3 (Sudjana, 2016: 135-136). Based on this description, the Odd semester Final Exam of bahasa dan sastra Indonesia Class X and XI SMA Negeri 7 Medan 2017/2018, there are 25 questions. The good composition are seven questions at low category, eleven questions at medium category, and seven questions at high category.

At the high school, questions are designed using six levels of thought processes, that is, to remember, to comprehend, to apply, to analyze, to evaluate, and to create (Kemendikbud, 2013: 14). So, a good question for the high school level uses the six cognitive processes. The questions in the Final Exam of bahasa dan sastra Indonesia Class X and XI 2017/2018 SMA Negeri 7 Medan have not inserted six cognitive processes. Questions do not yet contain higher order thinking skills in accordance with the criteria a good question which fit to the 2013 curriculum.

The application of higher order thinking skills in school has a very positive impact. The benefits of higher order thinking skills can improve student achievement and can increase student motivation (Brookhart: 2010). Newmann, Bryk, and Nagaoka (in Brookhart, 2010: 11) explain that students who receive higher order thinking can solve problems by organizing their knowledge and experience, able to elaborate their statements or opinions, and to complete non-familiar tasks.

Higher order thinking skills increase their interest in mastering their ideas. Students will think more fun than just remembering (Brookhart, 2010: 12). Students who are trained to think higher order have a high level of motivation in learning. Students are also more creative in solving a problem. They learn how to create something, how to give positive advice or assessment, and how to organize something. These activities will make students feel the knowledge they understand can be useful in everyday life.

Teachers need to expand the scope of cognitive processes in the questions tested to students. As the 2013 curriculum requirements, the questions should cover up to the level of creation. A wide variety of questions can also give a clearer picture of the students' abilities. Varied questions are also very helpful in stimulating students to improve their skills so that they can answer all the questions well.

Conclusions

Based on the data on the final exam of the odd semester class X and XI SMA Negeri 7 Medan 2017/2018 concluded that the questions have not entirely put higher order thinking skills, including the cognitive process of create. The questions composition is 12% of cognitive processes remember (low category), cognitive process comprehending and applying (medium category), 20% cognitive analysis process (high category). The final exam of the odd semester of class XI have questions composition: 20% of cognitive processes remember (low category) and 80% of cognitive processes comprehending and applying (medium category).

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