

IMPLEMENTATION OF HIGHER ORDER THINKING SKILLS (HOTS) QUESTIONS BASED ON THE REVISED BLOOM TAXONOMY IN CLASS V THEMATIC LESSONS AT MI WALISONO KEBONROWOPUCANG

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Abstract

This research was conducted to describe the implementation of the formulation of the Higher Order Thinking Skills (HOTS) questions based on the revised bloom taxonomy in the Thematic subjects of Class V at MI Walisongo Kebonrowopucang. This research method used is descriptive with a qualitative approach. Data collection techniques used are interviews, observation, and documentation. The results of this study indicate: (1) the implementation of the formulation of the Higher Order Thinking Skills (HOTS) questions based on the revised bloom taxonomy only on aspects of C1, C2, and C3; (2) implementation of the formulation of the revised Bloom's Taxonomy-based Higher Order Thinking Skills (HOTS) only covers the main areas of Indonesian Language, Mathematics, Science, Social Studies, and Citizenship Education; (3) the success and inecapaness of the specified goals regardless of supporting factors or inhibition in implementation of the formulation of the revised Bloom's Taxonomy-based Higher Order Thinking Skills (HOTS) on the Thematic Learning class V. Thus, there is a need for improvement efforts, so that the implementation of the preparation of HOTS questions can be carried out optimally.

Keywords: preparation of questions, higher order thinking skills, revised bloom taxonomy, thematic lessons.

A. Introduction

The 21st century learning system is a learning where learning that is currently being developed requires educational institutions to adopt a teacher-centered learning approach to a student-centered learning approach. In simple terms, it can be interpreted as learning that provides 21st century experiences to students, namely the 4Cs which include: (1) Communication (2) Collaboration, (3) Critical Thinking and problem solving, and (4) Creative and Innovative. So the thinking-oriented learning which is currently commonly called High Order Thinking Skill (HOTS). (Larson & Miller, 2011; He, & Hu, 2008).

According to Bloom's Taxonomy which has been revised by Anderson and Krathwohl cognitive processes are known to be two, namely higher order thinking skills or often with Higher Order Thinking Skills (HOTS), and lower order thinking skills (LOTS). Low-level

thinking skills involve the ability to remember (C1), understand (C2) and apply (C3) while in higher-order thinking skills involve analysis and synthesis (C4), develop (C5), and create or creativity (C6).

One way to determine whether students already have higher-order thinking skills or not is to know the assessment or evaluation. Evaluation is an ID activity to see whether a program that has been planned has been achieved or not and can also see the level of efficiency of its implementation. The purpose of this evaluation is to find out whether the objectives that have been formulated have been achieved or not and whether the subject matter taught in class is appropriate. To be able to carry out an evaluation, of course, a tool is needed. The tools used in this evaluation activity can be referred to as evaluation instruments. The test is one type of evaluation instrument that can be used to determine the ability of students to absorb the lessons given by the teacher.

Here, teachers play an important role in training students to have higher-order thinking skills that need the 2013 curriculum. In order to have higher-order thinking skills (HOTS), teachers can provide HOTS-based test questions to train students. Higher Order Thinking Skill (HOTS) based test questions can help students develop higher order thinking skills. Anderson & Krathwohl (2001) put forward indicators to measure higher order thinking skills including analyzing (C4), discovery (C5), and creating (C6). Problems that involve higher-order thinking processes are complex and have many solutions, so it can be said as a type of HOTS question, one of which is an open-ended question (Nisa et al., 2018). Open end questions produce various kinds of answers based on the experience and knowledge of each student. These questions will describe students' higher order thinking skills. The fact is that currently very few teachers develop HOTS-based questions (Budiman & Jailani, 2014). Whereas working on HOTS characteristic questions can train students in developing their thinking skills (Budiman & Jailani, 2014). Whereas working on HOTS characteristic questions can train students in developing their thinking skills (Budiman & Jailani, 2014). The forms of tests that can be used to measure HOTS are multiple choice and description (Brookhart, 2010; Nitko & Brookhart, 2011; Kubiszyn & Borich, 2013).

Based on the explanation above, it can be concluded that the importance of higher-order thinking skills and the need for instruments that can measure these abilities, it is necessary to apply a quality HOTS assessment instrument. The application of the HOTS assessment instrument aims to obtain and produce a valid and reliable HOTS instrument to measure students' HOTS. The HOTS assessment instrument that will be applied in this study is in the form of test questions based on the revised version of Bloom's taxonomy on thematic subjects for class V. The indicators used are adapted from indicators of critical and creative thinking skills, namely fluency, flexibility, analysis, and evaluation.

In line with this description, the researcher will describe how the implementation of the preparation of higher order thinking skills (hots) questions based on the Bloom's revised taxonomy in class V thematic subjects at Mi Walisongo Kebonrowopucang and what are the supporting and inhibiting factors for the implementation of the preparation of higher order thinking skills (hots) questions. based on Bloom's revised taxonomy on thematic subjects of class V at Mi Walisongo, Kebonrowopucang.

This research method uses descriptive with a qualitative approach. The approach taken by the researchers in this study is a qualitative research approach, namely research procedures that produce descriptive data in the form of written or spoken words from the people and actors

observed.¹ The data subjects involved in data collection for this study were teachers of class V A and V B MI Walisongo Kebonrowopucang. The data collection instruments used in this study were observation, interviews and documentation. This instrument was used to collect data on the implementation of the preparation of higher order thinking skills (hots) questions based on the revised bloom taxonomy in the thematic subjects of class V at Mi Walisongo, Kebonrowopucang. The data analysis technique used in this research is the Miles and Humberman analysis technique which suggests that the data analysis technique is carried out interactively and directly continuously until it is complete, so that the data is saturated. The steps of the data analysis technique include: data collection, data reduction, data presentation and conclusions or verification.

B. Discussion

Based on data collection from this study, in the implementation of the preparation of higher order thinking skills (hots) questions based on the revised bloom taxonomy on thematic subjects of class V at Mi Walisongo, Kebonrowopucang, the principal of MI Walisongo Kebonrowopucang held a workshop to develop the development of the HOTS assessment instrument for teachers of Madrasah Ibtidaiyah who includes several materials including: KD analysis according to cognitive level, preparation of grids as learning assessment instruments, rules for preparing multiple choice questions and rules for compiling essay questions. After the activity was held, each teacher practiced what were the signs regarding the preparation of the revised bloom taxonomy-based HOTS questions, including the fifth grade teacher of MI Walisongo Kebonrowopucang. In the preparation of HOTS questions based on Bloom's revised taxonomy on thematic subjects of class V at Mi Walisongo, Kebonrowopucang, there are several steps including:

1. Analyzing the existing KD in the Thematic subjects of class V which can be made HOTS questions

First, the fifth grade teacher chooses KD Thematic subjects that can be made HOTS questions. Not all KD models can be made HOTS questions. KD only covers the main areas of Indonesian Language, Mathematics, Science, Social Studies, and PKN. Fifth grade teachers can independently analyze KD which can be made HOTS questions on thematic subjects.

2. Arranging a grid of questions

The HOTS question writing grid aims to help fifth grade teachers in writing HOTS items in Thematic subjects. In general, the grid is needed to guide teachers in:

- a. choose KD that can be made HOTS questions
- b. choose the main material related to KD to be tested
- c. formulate question indicators,
- d. determine the cognitive level, the fifth grade teacher in the preparation of questions on thematic subjects only on aspects of C1, C2, and C3 only.

¹ Lexy Maloeng, *Qualitative Research Methodology*, (Bandung: Pemuda Rosda Karya, 2006), p. 4.

3. Choose an interesting and contextual stimulus

The stimulus used encourages students to read the stimulus. Interesting stimuli are generally new, have never been read by students. While contextual stimulus means a stimulus that is in accordance with the reality in everyday life, is interesting, encourages students to read.

4. Write the question items according to the question grid

The questions are written in accordance with the rules for writing HOTS items. The rules for writing HOTS items are somewhat different from the rules for writing items in general. The difference lies in the material aspect, while the construction and language aspects are relatively the same. Each question item is written on a question card, according to the attached format.

5. Create scoring guidelines (rubrics) or answer keys

Each HOTS item written is equipped with a scoring guide or an answer key. The scoring guide is made for the form of description questions. While the answer keys are made for the form of multiple choice questions, complex multiple choice (true/false, yes/no), and short entries on Thematic subjects for class V.

However, from these steps, there are supporting and inhibiting factors in the preparation of questions based on Bloom's revised taxonomy on thematic subjects of class V at MI Walisongo Kebonrowopucang, namely:

1. Supporting Factors

- a. There was a workshop activity held by the principal of MI Walisongo Kebonrowopucang.
- b. There are new regulations in the preparation of questions to match the HOTS questions based on the revised Bloom's taxonomy.
- c. There was enthusiasm from the teachers of class V A and V B MI Walisongo Kebonrowopucang.

2. Inhibiting Factor

- a. A little time for the preparation of HOTS questions.
- b. Lack of understanding of teachers in the preparation of HOTS.
- c. Students who have not been able to adjust to HOTS questions.

The Higher Order Thinking Skills (HOTS) question is a question that tests the level of higher order thinking skills, namely the ability to not only remember, restate, or refer without processing. (Dirjendikdasmen, 2017: 3). Fanani (2018) suggests that the HOTS assessment measures questions that have cognitive level criteria of analyzing (analyzing-C4), evaluating (evaluating-C5), and creating (creating-C6). The higher order thinking test according to Bloom's Taxonomy (Nugroho, 2018) after the revision are questions of type C4 (analyzing questions), C5 (evaluation questions), C6 (creating questions).

Arikunto (2001) describes the three types of questions as follows:

1. Problem analysis

Problem analysis is a question that requires students' ability to analyze or describe a problem to know its parts.

2. Evaluation questions

Evaluation questions are questions related to assessing, drawing conclusions, comparing, contrasting, criticizing, describing, distinguishing, explaining, deciding, and interpreting.

3. About creating.

The problem of creating is a question that requires students to come up with new ideas, products or ways. Problems that provoke students to design, construct, plan, and discover something new.

From the information above, the teacher must know and implement the basic principles in carrying out the assessment, including:

1. Sahih, is data that shows the ability to be measured starting from the level of thinking to be measured, what content is used to measure it, and what kind of results you want to get from students.
2. Objective, the assessment is carried out based on predetermined procedures and clear criteria so that it is in accordance with the objectives to be achieved.
3. Accountable, the assessment that has been carried out can be accounted for for the results in terms of procedures, techniques, results, and objectives.²
4. Open, everything that will be done before students must know the start of learning procedures, learning criteria, and the results of the assessment itself.
5. Clear, that is, students understand what is being asked in the question or question both in terms of the questions and appearance that is easy to understand.³

The HOTS assessment requires learning to make use of information and ideas by changing their meaning and implications. This is like when learning combines facts and ideas and then synthesizes, generalizes, explains, hypothesizes, or concludes.⁴ Therefore, in learning, students must be able to understand, interpret, analyze, and interpret the information received.

The characteristics of HOTS as expressed by Resnick include non-algorithmic, complex nature, multiple solutions (many solutions), involving variations in decision making and interpretation, application of multiple criteria (many criteria), and being effortful (requires a lot of effort). HOTS questions are highly recommended for use in various forms of classroom assessment. To inspire teachers to follow HOTS questions at the education unit level.

The Ministry of Education and Culture in detail describes the characteristics of the HOTS questions as follows:⁵

1. Measuring higher order thinking skills. Higher order thinking skills are not the ability to remember, know, or repeat, and problem solving skills, here are some problem solving skills, including (a) the ability to solve familiar problems. (b) the ability to evaluate the strategies used to solve problems. (c) find new solution models.
2. Based on contextual problems.

HOTS questions are assessments based on real situations in everyday life, where students are expected to be able to apply learning concepts in class to solve problems. Here,

² Zainal Fanani, "Higher Order Thinking Skills (HOTS) Problem Development Strategy in the 2013 Curriculum", *Edudeena*, 1 (January 2018).hlm.80-81

³ Zainal Fanani, "Problem Development Strategy...",hlm.81-83

⁴ Indra Mulyaningsih, "Development of bad 21 learning with HOTS (High Order Thinking Skills)", (Proposal: IAIN Sheikh Nurjati Cirebon, 2018) 4-5

⁵ Zainal Fanani, "Problem Development Strategy...", p. 63-68

students need skills, including: relate, interpret, apply, and integrate knowledge in classroom learning to solve problems in real contexts.

3. Not rutik (not familiar).

The HOTS assessment is not a regular assessment given in class. The HOTS assessment is not used repeatedly on the same students as the memory assessment (recall), because the HOTS assessment has never been done before. The HOTS assessment is an unfamiliar assessment that guides learning to really think creatively, because the problems encountered have never been encountered or done before.

4. Using various forms of questions. Various forms of questions in a test kit (HOTS questions) as used in PISA. Aims to be able to provide more detailed and comprehensive information about the abilities of students. This is important for teachers to pay attention to so that the assessment carried out can guarantee objective principles. This means that the results of research conducted by teachers can describe the abilities of students according to the actual situation.

There are several alternative question forms that can be used to write HOTS items (which are used in the PISA exam model), as follows: multiple choice, complex multiple choice, short or complete entries, short or short answers, descriptions.

Examples of some of the characteristics that HOTS⁶ questions need to have are in the following table:

Characteristics	Description
Providing Motivation	Inviting students to be mentally involved
Is a real situation	Invites students to visualize the situation according to the real condition (authentic)
Does not provide pictures	Train students to make visualizations
Using the word "you"	Invite students to be personally involved
Requires decision making	Train students to make decisions

Kreathwohl's new taxonomy (2002: 214) in the cognitive domain includes remembering, understanding, applying, analyzing, evaluating and creating. The results of this sixth revision of cognitive domains in learning are known as C1 to C6. In this research, the researcher Evaluation Synthesis Analysis Application Comprehension Knowledge Creating Evaluating Analyzing Applying Understanding Remembering 6 using Bloom's Taxonomy which has been revised.

⁶ Ridwan Abdullah Sani, HOTS-Based Learning (Tangerang: Tira Smart, 2019), p.267.

In the following, an explanation of each cognitive domain will be described.

1. Remembering (C1)

Remembering is retrieving knowledge from long-term memory. In this case, remembering is an attempt to regain knowledge, both newly acquired and long acquired. Remembering includes recognizing and recalling activities.

2. Understanding (C2)

Understanding is constructing the meaning of the learning material, including what is spoken, written and described by the teacher. Understanding relates to building an understanding from various sources such as messages, reading and communication. Understanding includes the activities of interpreting (interpreting), exemplifying (exemplifying), classifying (classifying), summarizing, concluding (inferring), comparing (comparing), and explaining (explaining).

3. Apply (C3)

Applying is using or applying a procedure in certain circumstances. Applying refers to a cognitive process that utilizes or uses a procedure to carry out an experiment or solve a problem. Applying includes the activities of executing (executing) and implementing (implementing).

4. Analyze (C4)

Analyzing means breaking down material into its constituent parts and determining the relationship between the parts and determining the relationship between these parts and the overall structure or purpose. The ability to analyze is a type of ability that is demanded from learning activities in schools. Various subjects require students to have good analytical skills. Analyzing includes differentiating, organizing, attributing activities.

5. Evaluate (C5)

Evaluating is making decisions based on criteria or standards. Evaluation is related to the cognitive process that provides an assessment based on existing criteria and standards. Evaluating includes checking and critiquing activities.

6. Create (C6)

To create is to combine parts to form something new and coherent or to create an original product. The difference between creating and other categories of cognitive thinking is in other categories such as understanding, applying, and analyzing students work with previously known information, while in creating students work and produce something new. Creating activities include generating, planning, and producing activities.

Based on Bloom's Taxonomy which has been revised, memorizing and recalling information is classified as low-level thinking while analyzing, synthesizing and evaluating as higher-order thinking (Dori and Zohar, 2013: 147). The same thing was also expressed by Sani (2015: 4), Bloom's Taxonomy is considered the basis for higher-order thinking. Three cognitive aspects which include remembering (C1), understanding (C2) and application (C3) are part of lower-order thinking skills (LOTS). Meanwhile, the other three cognitive aspects which include analysis (C4), evaluation (C5), and creation (C6) are part of higher order thinking skills (HOTS). In this case, the higher the category in the cognitive domain achieved by students, the more difficult their thinking abilities will be.

C. Concluding Remarks

From the results of the research above, it can be concluded that the implementation of the preparation of higher order thinking skills (hots) questions based on the revised bloom taxonomy in the thematic subjects of class V at Mi Walisongo Kebonrowopucang only covers aspects of C1, C2, and C3; (2) implementation of the formulation of Higher Order Thinking Skills (HOTS) questions based on the revised bloom taxonomy only covers the main areas of Indonesian Language, Mathematics, Science, Social Studies, and PKN; (3) Supporting factors in the preparation of the Higher Order Thinking Skills (HOTS) questions based on the revised bloom taxonomy, namely: the existence of workshop activities held by the principal of MI Walisongo Kebonrowopucang, the existence of new regulations in the preparation of questions to match the hots questions based on the revised bloom taxonomy and the existence of the spirit of the VA and VB MI Walisongo Kebonrowopucang class teachers. The inhibiting factors are: little time for preparation of hots questions, lack of understanding of teachers in preparing hots and students who have not been able to adjust to hots questions.

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