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Higher-Order Thinking Skill-Based Learning In Islamic Religious Education Subject

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ABSTRACT: *The Indonesian curriculum is made so that students are able to compete at an international level. However, according to data from several survey institutions, Indonesian education is far behind compared to other countries. It is because the learning pattern is still carried out using the lower thinking skill (LOTS) model. There needs to be a change in the LOTS learning model to become learning based on high-order thinking skills (HOTS). Because of this, this study aims to examine the learning of Islam based on higher-order thinking in senior high schools in the city of Palu. This study uses a qualitative method. Data was collected through direct observation, in-depth interviews, and analysis of written documents in the form of student report cards. Interviews were conducted with school principals, Islamic religious education teachers, and several students. The results of the study show that HOTS-based learning plans in the subject of Islamic Religious Education are prepared based on basic competencies. Indicators of achieving student competence include learning objectives, learning steps based on learning models, and students' cognitive and affective changes. The core learning activities are carried out with a scientific approach, character strengthening, and reflection activities both individually and in groups. Then the implementation of HOTS-based learning also consists of preliminary activities, core activities which include Creativity, Critical Thinking, Communication, and Collaboration), and closing activities. Meanwhile, HOTS-based learning evaluation is carried out with the criteria of measuring students' high-level thinking skills based on contextual problems.*

KEYWORDS: Higher order thinking skill, HOTS, Islamic religious education, learning

INTRODUCTION

The Indonesian government has regulated education based on the 1945 constitution, the National Education System Law, and regional regulations. The functions and objectives of education are clearly stated and arranged in accordance with education standards in Indonesia. Indonesia's education system has several levels, starting from elementary, secondary, tertiary, and higher education institutions. The government or private institutions can operate education, but all educational institutions must follow government regulations and standards. Indonesia also recognized the vocational

education system to meet business and industrial demand. Vocational education is also operated by government and private institutions.

Indonesia's education system has experienced a number of changes in curriculum to adjust the content of education with business and industrial demands. The changes of the curriculum are usually conducted every five years to respond to the development of technology and the need for new skill employment. The changes in the curriculum and education system are expected for Indonesian students will be able to compete with students from other countries. However, in reality, Indonesian students have experienced setbacks, losing their creative thinking and slow development of education quality. The phenomenon is supported by the results of the Program For International Student Assessment (PISA) survey and the Trends In International Match and Science Survey (TIMSS), where Indonesia's education ranking has never been included in twenty countries with education quality.

Therefore, education institutions in Indonesia are expected to have a paradigm shift in the implementation of the teaching and learning process. Previously, most of the learning in Indonesian education institutions was delivered with a teacher-centered approach. After a period, the teaching and learning were delivered with a student-centered approach. However, the quality of education is considered to remain unchanged. As such, teachers are required to be more creative and innovative in presenting subject matter in their teaching process. In response to the phenomena, Indonesian teachers have applied several learning models, such as project-based learning, problem-based learning, learning with a problem-solving approach, inquiry learning, and others. Currently, the Indonesia department of education encourages teachers to apply learning activities that lead to the level of higher-order thinking skills or HOTS within the secondary school level.

The HOTS is considered can help students to construct appropriate and effective arguments to make rational decisions or solutions to certain problems. Furthermore, students also can identify problems and solve them using critical thinking. With this ability, students can solve their own problems and work more effectively, and be close to the real-world context in their future life. In addition, with HOTS, students have metacognitive abilities, namely, the ability to control domains or cognitive aspects. The students are able to know the limits of their memory systems or awareness of the level of knowledge they have, students are also able to use the right strategy, summarize main ideas, carry out periodic self-tests, and students are able to know why and when to use specific strategies.

Even though the HOTS-based learning model has been applied in various subjects within the high school context, the use of HOTS based-learning model in Islamic religious education subjects is limited. Research on the of HOTS based-learning in Islamic education subject is also scarce. In fact, academia and practitioners in Islamic educational institutions need to gain insight into the use of HOTS based-learning model within Islamic education institutions. This study, therefore, is intended to examine the implementation of HOTS based-learning model in teaching Islamic education subjects at the senior high school level. The objective is to provide insight for academia and

practice actors within Islamic education institutions regarding the use of HOTS based-learning in teaching.

LITERATURE REVIEW

Bloom's Taxonomy Concepts

Taxonomy comes from the Greek taxis, which means arrangement, and nomos means knowledge. Taxonomy is a classification system that shows a hierarchical classification of something or the principles that underlie classification, or it can also mean the study of classification. Taxonomy is a classification system based on scientific research data on the things classified in that systematics. The concept of Bloom's Taxonomy was developed in 1956 by Benjamin S. Bloom, an educational psychologist with the help of colleagues (Munzenmaier & Rubin, 2013). Bloom's taxonomy classifies educational goals or objectives into three domains: cognitive, affective, and psychomotor, and each of these domains are subdivided into more detailed divisions based on their hierarchy (Shaikh, Daudpotta, & Imran, 2021).

Several other terms also describe the taxonomy Bloom as the three domains, which have long been conventionally known as the taxonomy of educational objectives. The domains consist of aspects of creativity, taste, and intention. In addition, the terms reasoning, appreciation, and practice have also been used to describe the domains. (Carter, 1985). At the beginning of the 21st century, Bloom's Taxonomy became the basis for the concept of educational reform called HOTS (Higher Order Thinking Skills). HOTS is defined as a high-order thinking skill that must be presented in students' competencies (Dettmer, 2005; Zaki, Amalia, & Sofyan, 2020). Each test in intellectual abilities in not only terms of memory but also the ability to be able to evaluate, be creative, able to analyze, and think critically about students understanding of a subject to be able to put more emphasis on critical thinking and problem-solving. Higher-order thinking skills are tested not only on memorizing a subject matter but also on the application.

Based on the synthesis of several studies conducted on thinking skills, it is possible to distinguish several skills which are included in the lower-level order thinking skills and which are included in HOTS as shown in table 1 below.

Table 1. Lower and Higher Thinking Skills

Lower Order Thinking Skill	Higher Order Thinking Skill
Cognitive Strategy	Creative Thinking
Understanding	Critical thinking
Concept Clarification	Problem Solving
Differentiate	Making decision
Using Routines	Evaluating
Simple Analysis	Logical Thinking
Simple Application	Metacognitive Thinking
	Reflective Thinking
	Synthesis
	Complex Analysis
	System Analysis

HOTS-Based Learning Model

HOTS in learning does not act as a learning method. However, HOTS is understood as learning that can create students to think with high-order thinking skills, such as the ability to understand, analyze, evaluate, create, and identify a lesson or questions in learning (Afifah & Retnawati, 2019). The learning process as an educator will not be separated from learning strategies because an educator is required to be able to plan learning activities as well as possible so that students are able to achieve optimal learning outcomes.

According to Bloom, HOTS is an abstract ability in the cognitive domain of the educational target taxonomy, including analysis, synthesis, and evaluation (Tanujaya & Mumu, 2020). Another scholar defines HOTS as a process that involves mental, such as classification, induction, deduction, and reasoning (Anggraini, Budiyono, & Pratiwi, 2019). There is also a scholar who defines HOTS as a strategy with high-level thinking processes in which students are encouraged to manipulate information and ideas in certain ways that can give them new meanings and implications (Maslihah, Waluya, Rochmad, & Suyitno, 2020).

From the several theories about the HOTS mentioned above, it can be concluded that the HOTS strategy is a strategy that uses higher-order thinking processes that encourage students to seek and explore information on their own to look for the structure and relationships that underlie it, using available facts effectively and appropriately to solve the problem. This strategy can stimulate students to interpret and analyze previous information so that it is not monotonous.

In conventional learning, the teacher usually supplies students with a lot of information that students have to memorize and remember. However, in HOTS learning model, the teachers teach students how to find sources of information, how to evaluate the information they get, and how they can use this information for themselves and others (Haryanto & Arty, 2019).

HOTS-Based Learning Planning

In the preparation of learning that leads to higher-order thinking skills or HOTS, a teacher can refer to a learning handbook oriented to higher-order thinking skills. The use of HOTS in teaching preparation must meet the characteristics of HOTS learning. The characteristics of HOTS teaching plan include the availability of basic competencies, indicators of competency achievement, the use of operational verbs, formulation of learning objectives, determine learning model steps, formulation of top core activities (GPA, student characteristics, scientific approach, strengthening character and literacy, and formulating a closing activity (Julien & Barker, 2009).

Furthermore, Anderson and Krathwohl added that operational verbs listed in planning must be a category of cognitive processes that are at a high level of ability (Krathwohl, 2002). Moreover, this must be listed in the Basic Competency components, Competency Achievement Indicators (GPA), Learning Objectives, and Learning

Activity Steps. Anderson and Krathwoh (2016) made the HOTS operational verbs or higher-order thinking skills in the cognitive domain as depicted in table 2 below.

Table 2. Operational Verbs in HOTS

Analyzing (C4)	Evaluating (C5)	Creating (C6)
Analyzing	Comparing	Abstracting
Auditing	Concluding	Arranging
Solving	Evaluating	Animating
Affirming	Directing	Gathering
Detecting	Criticizing	Categorizing
Diagnosing	Weighing	Coding
Selecting	Deciding	Combining
Detailing	Separating	Arranging
Nominating	Predicting	composing
Diagraming	Clarifying	Building
Correlating	Assigning	Tackling
Rationalizing	Interpreting	Connect
Testing	Maintaining	Assembling
Enlightening	Detailing	Creating
Exploring	Measuring	Correcting
Charting	Summarizing	Designing
Concluding	Proving	Planing
Finding	Validating	Dictating
studying	Testing	Increasing
Maximizing	Supporting	Clarifying
Instructing	Choosing	Facilitating
Editing	Projecting	Forming

Furthermore, the indicators of higher-order thinking skills are analyzing, evaluating, and creating. All of these indicators must be included in the steps in the learning process in the classroom.

Implementation of HOTS-Based Learning

Learning is an interactive process between students and teachers and learning resources in a learning environment (Lau et al., 2018). Learning is assistance provided by the teacher so that students can gain knowledge and master the material, and form attitudes and beliefs in students. In other words, learning is a process to help students learn well. Implementation of learning with the character of higher-order thinking skills according to the Higher-order Thinking Skills Oriented Learning Guidebook, the steps of learning activities must be adapted to the learning model used by teachers.

Besides that, in making steps for learning activities that direct students to higher-order thinking skills, the teacher must formulate preliminary activities, which include orientation, motivation, and apperception. Core activities must be formulated based on

Competency Achievement Indicators (GPA), scientific approach, 4C (Creativity, Critical Thinking, Communication, Collaboration), and literacy. In contrast, the closing activities must include reflection activities, providing feedback, follow-up activities, and material information for the next meeting (Mooij, 2007).

Learning activities based on higher-order thinking skills include active thinking, formulating problems, examining complex problems, developing ideas, seeking information from various sources, thinking critically and solving problems creatively, evaluating, and making conclusions (Kwangmuang, Jarutkamolpong, Sangboonraung, & Daungtod, 2021). It is known that the characteristics of HOTS-based learning are critical thinking, creativity, being able to make decisions and being able to solve problems. However, the application and habituation of HOTS characters to students cannot be made suddenly and instantly. Getting used to HOTS requires a holistic strategy from teachers. Teachers cannot assign students with HOTS-type measurements and assessments at the end of learning without doing the learning first. HOTS must be carefully designed according to the context of students and teaching materials. Teachers should have a far-sighted view, and teachers should already have an overview of what kind of results are desired, then what kind of assessment evidence must be fulfilled to obtain these results, and what kind of learning design is appropriate.

Among the learning designs to get to these characters are as follows: first, creative learning with methods using mind maps, brainstorming, modular brainstorming, developing products, etc. Second, critical thinking and making decisions using discussion methods, debates, seminars, cooperative and collaborative learning, case studies, etc. Third, solving problems with problem-solving learning methods, inquiry learning, discovery methods, etc.

HOTS-Based Learning Assessment or Evaluation

The term assessment, or in English known as evaluation, is not a new term for people who are engaged in the field of education and teaching (Black & Wiliam, 2003). A teacher will not be separated from assessment activities in carrying out their professional duties. The aim is to determine whether the participants have mastered an educational, teaching, or training program. The assessment is also understood as the process of gathering information through measuring, interpreting, describing, and interpreting evidence from measurement results (Downing, 2003). In addition, assessment can also be interpreted as an activity that will provide various information on an ongoing and comprehensive basis about the results that students will achieve.

Assessment is a process of monitoring a series of learning activities centered on the learning process in the classroom to monitor activities at any time in order to gain a thorough understanding so that they can determine the next steps for selecting learning strategies. Based on the scholars' opinion above, assessment is concluded as a process of gathering information as a whole which will be carried out continuously to determine the ability or success of students in learning by assessing the results of student performance both individually and in group activities.

The assessment components or questions can be made to be in accordance with indicators of higher-order thinking skills. The assessment components or questions must use operational verbs that encourage students to develop the ability to analyze, evaluate and create (Jideani & Jideani, 2012). In making questions or conducting evaluations and assessments, all questions must meet the HOTS characteristics which include measuring higher-order thinking skills based on contextual problems and using various forms of questions.

METHODOLOGY

This study uses a qualitative method (Nurdin, Stockdale, & Scheepers, 2013) to investigate the implementation of the use high order thinking based-learning model in teaching Islamic religious education at a State Senior High School in Palu City, Indonesia (Nurfaiqah, Nurdin, & Alhabsyi, 2022; Rahmawati, Nurdin, & Pettalongi, 2022). Data were collected through direct observation in the case field and in-depth interviews with teachers and school principals. Written materials were also analyzed to understand the strategy used in the HOTS implementation to teach Islamic religious subjects in the school. Data analysis consists of several procedures, which include reduction and verification techniques with various data sources (Zaid, Pettalongi, & Nurdin, 2022). The reduced data is then analyzed, reflecting on the theoretical concepts used in this study. Finally, the results were presented based on thematic issues found in the data (Nurdin, Scheepers, & Stockdale, 2022), which show the study's insight relating to the use of higher-order thinking skill strategy in teaching Islamic religious subjects within the state high school.

RESULTS AND DISCUSSION

The implementation of Islamic Religious Education was carried out in accordance with Indonesian curriculum instructions. However, the implementation of the learning strategy has to be continuously improved from time to time in accordance with the demands of an increasingly developing era. Planning, implementation, and assessment of Islamic religious education was found has been practiced with stages that consist the HOTS characteristics. The finding of this study is presented and discussed in the following sections.

HOTS-Based Learning Planning in Islamic Religious Education

In the preparation of learning plans that led to higher-order thinking skills, the teachers in the school referred to the learning handbook oriented to higher-order thinking skills provided by the Education Department. The handbook guide teaching preparation that meets the characteristics of HOTS learning. The preparation of learning plan includes basic competencies, Competency Achievement Indicators (GPA), uses appropriate operational verbs, formulates learning objectives, determines the steps of learning activities based on learning models, formulates core activities based on competency achievement indicators, scientific approach, 4C (Creativity, Critical Thinking, Communication, Collaboration) and strengthening character and literacy, and finally formulating closing activities which include both individual and group reflection activities.

We found that in teaching Islamic religious education subjects, the teachers have properly prepared lesson plans in accordance with higher-order thinking skills as required by the characteristics that have been described previously. The indicators of higher-order thinking skills include analyzing, evaluating, and creating. Lesson plans made by teachers of Islamic religious education subjects contained indicators of higher-order thinking skills. Some relevant operational verbs were used, including words explaining, mentioning, identifying, reading, memorizing, explaining, and illustrating. However, some of the operational verbs were still at a low level of thinking which can be considered the lesson plans made by Islamic religious education yet to direct students to high-level thinking skills.

The results of the analysis of basic competency, GPA, learning objectives, and steps of learning activities in the lesson plan showed that the learning strategy tends to focus on the cognitive domain, such as critical thinking and democracy. Some material included marriage in Islam and faith in the day after. Based on the identification, it was found that there were thirteen verbs on critical thinking and democracy, and the verbs were categorized as high-level thinking skills, namely C4, C5, and C6. In the topic of marriage in Islam, there were thirteen operational verbs at the level of high-level thinking skills, which include C4, C5, and C6. Furthermore, in the topic of faith on the last day, there are ten operational verbs at the level of high-level thinking skills, which include C4, C5, and C6. The verbs at the C4 level were concluding, analyzing, find and describe. The verbs at the C5 level were evaluating and criticizing, and the verb at the C6 level included presenting.

From the findings, it can be understood that the use of operational verbs at the HOTS level was more dominant. It illustrates that the plans prepared by Islamic religious education teachers were considered as plans that meet HOTS characteristics. From the interviews, it was also found that the teaching plans prepared by Islamic religious education teachers have met the HOTS standard. The finding is in accordance with previous studies (e.g. Fischer, Bol, & Pribesh, 2011) that in preparing a HOTS learning lesson plan, it must include several components, including identity, learning objectives, learning material, learning models and methods, steps of learning activities, including media, and assessment.

Implementation of HOTS-Based Learning in Islamic Religious Education

Learning activities in Islamic education subjects in the school included preliminary, core, and closing activities. The learning activities were interconnected with each topic in the Islamic education subject, and they were integrated. Before carrying out the core activities, the teacher first conducted preliminary activities to prepare students to participate in the implementation of learning in the classroom. After carrying out the core activity, the teacher then closed the learning activity.

In the Indonesia curriculum of 2013, it has been stated that the steps of HOTS implementation in teaching and learning activities must be adapted to a learning model. Besides that, the steps of HOTS implementation must support students in higher-order thinking skills. As such, a teacher must formulate preliminary activities, which include orientation, motivation, and apperception. Core activities must be formulated based on

Competency Achievement Indicators (GPA), a scientific approach based on 4C (Creativity, Critical Thinking, Communication, Collaboration), and strengthening students' character education. Meanwhile, the closing activities included reflection activities, providing feedback, follow-up activities, and information on material for the next meeting.

Learning activities based on higher-order thinking skills include being active in thinking, formulating problems; examining complex problems; developing ideas; seeking information from various sources; thinking critically and solving problems creatively; evaluating, and making conclusions.

In the learning process, the characteristics of higher-order thinking skills can be seen in the core activities. Namely, the learning method chosen by the teacher contains elements of critical thinking, creativity, communication, and collaboration. The three materials taught by Islamic religious education teachers which were composed of various learning methods. Among these learning methods are the numbered head learning method containing communication and collaboration, and the drill learning method containing communication and collaboration. The elements of creative thinking, communication, and collaboration were implemented during the teaching of Islamic teaching material.

When viewed from the point of view of applying higher-order thinking skills, the learning activities have fully included the components and characteristics of HOTS skills. The preparation of learning steps that apply HOTS was practiced according to the thinking skills oriented in the learning handbook. The high-level thinking skills was included in the steps of the learning activities listed and be adapted to the learning communication. Besides that, in the steps for learning activities that direct students to higher-order thinking skills, the teacher formulated preliminary activities, which include orientation, motivation, and apperception. Core activities were formulated based on competency achievement indicators (GPA), scientific approach, 4C (Creativity, Critical Thinking, Communication, Collaboration), and strengthening character education. Meanwhile, the closing activities included reflection activities, providing feedback, follow-up activities, and material information for the next meeting.

Evaluation of HOTS-Based Learning in Islamic Religious Education

Each stage of learning was closed with an evaluation activity. The evaluation process is an important variable for providing learning feedback to teachers. In conducting the evaluation, the teachers of Islamic religious education prepared practical questions for students to work on in the classroom, which led to indicators of measuring higher-order thinking skills. We found that the questions in components of HOTS were in accordance with indicators of higher-order thinking skills. The item components used operational verbs, which supported students in the ability to analyze, evaluate, and create. In making the questions for assessments, all the questions have met the HOTS characteristics, which were designed according to the content of Islamic education subject.

Based on the results, it was also found that the assessment of learning outcomes made by teachers of Islamic religious education had led to indicators of measuring higher-

order thinking skills. The items in each practical question have used operational verbs that are n accordance with the level of high-order thinking skills. However, most of the operational verbs were considered low-level. Only a few operational verbs were integrated with questions that characterized the level of high-level thinking skills. Such questions that used operational verbs included in the form asking students to mention, explain, give examples, relate, give critical views, and give opinions on a certain topic. Based on the interviews with teachers, it was found that the HOTS-based assessment on Islamic Religious Education in the State Senior High School had fulfilled the HOTS characteristics and the students have the ability of higher-order thinking skills.

CONCLUSION

The implementation of a high-order thinking skills based-learning model implemented at a State Senior High School in Palu city, Indonesia, has resulted in an increase of students' ability to solve problems independently when they study Islamic education subject. The students used their critical thinking in solving various topics while they learned various topics in Islamic teaching. As such, the students increase their understanding of Islamic teaching and implement it in their daily life. Their competency in Islamic education impacts their character and spirituality. However, the teachers of Islamic education subjects still need to improve their knowledge and skills regarding how to implement HOTS effectively and efficiently

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