

# Question Analysis Test of High Order Thinking Skills Type on the Final Test Semester of Christian Education and Character Course

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**Abstract:** A good test instrument can improve the quality of the assessment results, namely the profile of students' abilities. The ability of students is a form of mastery of a concept that is obtained when students can think according to their level. The ability to think according to its level is a cognitive process according to Bloom's Taxonomy theory that has been revised, divided into two, namely high-level thinking skills or Higher Order Thinking Skill (HOTS) and low-level thinking skills or Lower Order Thinking Skill (LOTS). However, the focus of this study is the Analysis of HOTS (High Order Thinking Skills) Test Questions in the Final Test of Christian Education Subjects and Character. The results showed that there were no final semester test questions for Christian education and Character subjects included in characteristics of HOTS type (measuring high-level thinking skills) on School sample. This means that none of the questions made contain HOTS characteristics. Since there are no final semester test questions that contain the characteristics of the HOTS Type Question, then these questions are not used again in the final semester of the 2017/2018 academic year test, this has not been used for a long time when testing in class. A condition that proves that until this research was conducted, there were no questions which contained the characteristics/types of HOTS questions. The various basic concepts asked have received good explanations from the teachers (informants), (b) Designing HOTS type test questions. Generally, the teachers already understand it enough, but there are still teachers who do not understand it and design it. The teacher's attitude is related to the need for mastery of question designs that measure students' HOT (High Order thinking) abilities because in designing this problem, there must be mastery of the cognitive processes of students, also the support of related parties. Teachers have high expectations in the future related to the preparation of questions that measure the ability of HOT (High Order thinking) students in school -schools are used as research locus, meaning that the teacher is motivated to rearrange HOTS type questions for later d Test the test according to the stages.

**Index Terms:** High Order Thinking Skills (HOTS); question analysis; Christian education; character

## I. INTRODUCTION

Assessing and evaluating student learning outcomes must be in accordance with the regulation of the Minister of Education and Culture of the Republic of Indonesia Number 66 of 2013 concerning educational assessment standards that provide an explanation that the assessment of education as a process of gathering and processing information to measure student achievement in the form of daily tests, middle tests semester, end of semester test and national exam. These tests are carried out to measure student competency achievement at the beginning, middle and at the end of the semester, the scope of this test includes all indicators that present some Basic Competencies in the semester, all Basic Competences in that semester, and all Basic Competencies in the school year [1].

According to the International Student Assessment Program, Indonesia's ranking in the field of science and literacy in 2008 was ranked 38th out of 41 countries. In 2010, Indonesia was 39th in 41 countries, in 2012, Indonesia was ranked 52nd out of 57 countries, in 2014, Indonesia was ranked 61 of 65 countries [2]. Trends in the International Mathematics and Science Study (TIMSS), for Science, Indonesia ranked 32 out of 38 countries in 1999. In 2008, Indonesia ranked 36th out of 45 countries, in 2011, Indonesia ranked 35th out of 49 countries, and in 2015, Indonesia ranked 40th out of 42 countries.

The results of the international study Program for International Student Assessment showed that the achievement of reading literacy, mathematical literacy, and scientific literacy achieved by Indonesian students was very low. Indonesia's ranking, as well as its literacy achievements in international eyes, means that in general, the ability of Indonesian students is deficient in terms of understanding complex information, theory, analysis, problem-solving; use of tools, procedures, and conduct an investigation. Many factors certainly cause low literacy skills. One of the contributing factors is that Indonesian students are generally poorly trained in solving problems with characteristics such as those with contextual substance, demanding reasoning, argumentation, and creativity in solving them [2].

The initial study in one of the secondary schools in Ambon City, Maluku, Indonesia was done by an interview with the Christian Religious Education teacher. The teacher found it difficult when compiling Christian education test questions that contained aspects of high-level thinking (Higher Order Thinking Skill). Besides, the test questions made by the teacher only exemplified those that had been obtained from colleagues in another secondary school. Also, Christian education teachers often use Test questions taken from the internet without analyzing them. Even the existing test questions have not improved much from year to year, and the curriculum has changed from KTSP to K-13, the questions are still maintained without assessment or evaluation while paying attention to the contents of high-level thinking types (Higher Order Thinking Skill) that fits the recommendations of the 2013 Curriculum assessment in the module on the preparation of questions on Higher Order Thinking Skills / HOTS.

Problems related to the preparation of Christian Education test questions of the type of Higher Order Thinking Skill (HOTS) that occur in the high school, illustrate that this HOTS type question was never considered to be included in the preparation of daily test questions, midterm tests, end of semester tests, and school-based school exam. This fact becomes interesting to expand the initial allegations for other secondary schools so that it also provides information that contains whether the test instruments or test questions for Christian education subjects in secondary school have contained the characteristics typical of Higher Order Thinking Skill (HOTS) according to K-13 or not at all. Besides, it is also expected to obtain information about how Christian education teachers understand in preparing test questions that meet the character of the HOTS type.

What is contained in the Higher Order Thinking Skill (HOTS) is a high ability to think of students, this is considered important both for the realization of positive character or behavior. A high mindset or character (analysis, problem-solving, creative, critical) in the end will also lead to positive actions. There is a tendency that negative behaviors (corrupt, dishonest, naughty, fight, and other negative behavior) are born from low thinking skills (not analytical, unable to solve problems, not creative, not critical) [3][4]

Therefore, it is necessary to change the way in assessment and learning. Especially for assessment through tests, teachers have been able to develop test questions that can explore high-level thinking skills (HOTS), enhance creativity, and build students' independence in solving problems. Therefore through the Ministry of Education and Culture, a guideline module for the preparation of HOTS questions was generally made using stimulus. Stimulus is the basis for making questions. In the context of HOTS, the stimulus presented should be contextual and interesting. Stimulus can be sourced from global issues such as information technology, science, economics, health, education then infrastructure. Stimulus can also be lifted from the problems that exist in the environment around educational units such as culture, customs, cases in the area, or various advantages found in certain areas. The creativity of a teacher greatly influences the quality and variation of the stimulus used in writing HOTS questions.

The preparation of HOTS-type questions is important to continue to do and even developed according to the challenges of this modernization era, an era where competition is quite tight, namely competition in the quality of human resources (HR). The quality of national human resources is determined by the quality of education of a nation. Improving the quality of education starts with improving the quality of learning. Improving the quality of learning is also related to the content of test questions with measurable/high reasoning with Christian education and Character subject material which is important, and it is beneficial to the real life of students.

## II. LITERATURE REVIEW

### *The Principle of Higher Order Thinking Skill (HOTS)*

Higher Order Thinking Skill (HOTS) or the ability to think higher is a thought process that requires students to manipulate existing information and ideas in a certain way that gives them new understanding and implications. For example, when students combine facts and ideas in the process of synthesizing, generalize, explain, do hypotheses and analysis, until students conclude. High-level thinking skills can occur when someone associates the newly received information with information that has been stored in his memory, then connects it and rearranges and develops that information so that a goal is reached or a solution of a situation that is difficult to solve.

HOTS questions are measurement instruments used to measure high-level thinking skills, namely the ability to think that does not just recall (recall), restate (restate), or refer without doing processing (recite). HOTS questions in the context of assessment measure ability: 1) transfer one concept to another, 2) process and apply information, 3) find links to various information, 4) use information to solve problems, and 5) examine ideas and information critically [5]. Anderson & Krathwohl classifies the dimensions of the thinking process [6] [7] as follows:

Table 1. Dimensions of the Thinking Process

	Focus	Sub Focus
HOTS	Creating	<ul style="list-style-type: none"> <li>• Create your ideas/ideas</li> <li>• Verbs: construct, design, create, develop, write, formulate</li> </ul>
	Evaluating	<ul style="list-style-type: none"> <li>• Make your own decisions</li> <li>• Verbs: evaluate, evaluate, refute, decide, choose, support</li> </ul>
	Analyzing	<ul style="list-style-type: none"> <li>• Specify aspects / elements</li> <li>• Verbs: compare, examine, criticize, test</li> </ul>
MOTS	Implementing	<ul style="list-style-type: none"> <li>• Use information on different domains</li> <li>• Verbs: use, demonstrate, illustrate, operate.</li> </ul>
	Understanding	<ul style="list-style-type: none"> <li>• Explain ideas / concepts</li> <li>• Verbs: explain, classify, accept, report</li> </ul>
LOTS	Finding out	<ul style="list-style-type: none"> <li>• Recalling</li> <li>• Verbs: remember, register, repeat, imitate</li> </ul>

As explained earlier, there are several operational verbs (KKO) which are the same but are in different domains. This difference in interpretation often arises when the teacher determines the KKO domain to be used in writing the indicator indicators. To minimize these problems, the Ministry of Education and Culture classified them into three cognitive levels as used in the UN grid since the 2015/2016 school year. The cognitive level groupings are 1) knowledge and understanding (level 1), 2) application (level 2), and 3) reasoning (level 3).

### *The nature of perception*

Perception is a complex cognitive process that produces a unique picture that may be very different from reality. The perception lies in the introduction which is a unique interpretation of the situation [8] Perception is a complex cognitive process that produces a picture of a unique picture which may be very different from reality. This means that the understanding of a person or group is not only through the process of experience processes but through the process of knowledge and then will produce different images in the environment where he is [9]. The process of forming perceptions as the meaning of observations beginning with the stimulus at the next stage occurs a selection that interacts with interpretation, as well as interacting with closure. In the selection process occurs in someone obtaining information, it will be directly the process of clarifying the message which is considered important and not important. Functional factors that determine one's perceptions come from needs, past experiences and things including personal factors. Perception also includes cognition (knowledge) including the interpretation of objects, signs, and people from the point of experience. Krech et al. suggested that one's perception is determined by two factors, namely the introduction of the past and personal factors.

A person's perception of something can motivate someone to behave and behave according to what he sees both in themselves and the environment in which he is located. It is revealed that perception is the process of one's awareness of the object that exists in the environment and gives it, meaning and usefulness [10]. That way the form of one's perception shows their knowledge, understanding, attitudes, and expectations consciously about the objects that exist in their environment or life. Based on the understanding of perceptions described earlier it can be said that perception is a process of recognition or identification of something by using the senses. Perception is a person's knowledge and view of something specific based on what is observed. Thus a good perception will be able to accelerate acceptance of something while perceptions that are not good will not be in harmony with stimulation or even reject these stimuli.

### III. METHOD

This research is a descriptive type of analysis or document research [11]. Analysis of content or document (content or document analysis) is shown to collect and analyze official documents, documents whose validity and legitimacy are guaranteed to be good including the Class X Final Semester Test Questions. In the process of collecting data that supports research problems correctly and objectively. Several techniques used are observation, interviews, and documentation.

### IV. RESULTS AND DISCUSSIONS

#### *Analysis of Semester Final Test Documents*

Based on the document analysis on the final test of semester X, in the subjects of Christian education and Character for 2017/2018 academic year, it can be summarized in the form of Table 2 below.

**Table 2. Analysis of final test question**

No	School	Question Type	Level Cognitive	Notes
1	Secondary School 1	Multiple Choice, No. 1 - 50	L1 – L2	Without having HOTS
2	Secondary School 2	Multiple Choice, No 1 - 40	L1 – L2	
3	Secondary School 3	Multiple Choice, No 1 – 40 and five essays	L1 – L2	
4	Secondary School 4	Multiple Choice, No 1 - 20	L1 – L2	
5	Secondary School 5	Multiple Choice, No 1 - 50	L1 – L2	

The 5 (five) schools chose to do the test with multiple choice questions, and the form of questions like this did not conflict with the form of the questions suggested in the HOTS preparation module by the Ministry of Education and Culture's 2017 Directorate General of Primary and Secondary Education, and the form of questions like this is generally a matter of -always in each stage of the test such as daily tests, midterm tests, end of semester tests, school-based National Exams, and National Exams. In the multiple choice test questions that are directly related to HOTS type questions, it can be seen in the cognitive level aspect or dimension of the thinking process to be measured when the test questions are made; and then the cognitive level column shows that the odd semester X semester test questions overall. Moreover, Even 2017/2018 Academic Year is questions that are of no type / HOTS character, because they are in the Cognitive Level one (L1) and Cognitive Level two (L2), this is in accordance with the explanation in the HOTS preparation module by the Director General of Primary and Secondary Education The Ministry of Education and Culture in 2017 states that the questions are in the cognitive level one (L1) and the cognitive level two (L2) are questions that are not HOTS type, while the questions that are in the cognitive level three (L3) are questions that type / character HOTS, because this level is the level of reasoning that shows high-level thinking ability (HOTS), because to answer pa questions da level 3 (L3) students must be able to remember, understand, and apply factual, conceptual, and procedural knowledge and have high logic and reasoning to solve contextual problems (real situations that are not routine). Reasoning ability includes the dimensions of the thinking process of analyzing (C4), evaluating (C5), and creating (C6). In the dimension of analyzing thinking processes (C4) requires the ability of learners to specify aspects/elements, describe, organize, compare, and find implicit meanings. In the dimension of evaluating thinking process (C5) requires the ability of students to form hypotheses, criticize, predict, assess, test, justify or blame. From the data and brief explanation above, it can be concluded that there are no final semester test questions for Christian education and Character subjects which contain characteristics of the HOTS type (measuring high-level thinking skills) in the five high schools / vocational schools.



### *Teacher's Perception of the Characteristics of HOTS Type Questions in the Final Tests for Christian Education and Character Course*

Teacher's Perceptions of the Characteristics of HOTS Questions in the Final Test for Christian education subjects and Characteristics can be various perspective. How much Christian education teachers use HOTS type questions in the final semester testing process, this is conveyed by the informants that they no longer make and use HOTS type questions. For Christian education teachers, these questions have their level of difficulty as they contain cognitive aspects of C4, C5, and C6, even though the teacher has made and used these questions, but the feedback is that students cannot correctly answer HOTS-type questions. Whereas for students in facing HOTS test questions, they find it difficult to answer, because the questions require students' analytical skills, evaluations, and student creations. The desire of the teachers not to use HOTS-type questions is also because there is no benefit/benefit. This can be seen from the reasons for teachers who feel that they have not been willing to use HOTS questions for so long. The question is what the benefits relate to students' ability to solve HOTS-type questions; the answer is of no benefit because most students are not able to provide correct answers to the test questions made by the teacher. Students' inability to think about making HOTS type questions was not desirable when they took tests in the class including the final semester test.

The issue that is quite interesting to explore further is related to the presumption of teachers who from the beginning have claimed the ability of students in their schools. This means that the existence of the school illustrates that the quality of students is not so good, so the ability of students is limited or low. The assumption that teachers like this also have a reason, because he was the one who handled these students from the beginning was in school, so he had the assumption that his students were not capable. However, that does not mean he does not want to use HOTS test questions; these questions will be used later. In the aspect of knowledge and understanding of Christian education teachers about HOTS, it can be seen that the informant can also explain according to his knowledge about HOTS as a level of thinking ability that someone has such as there are people who have better-thinking skills (smart or smart), compared to people who have the ability thinking weak. Besides the question of what HOTS students are, also by informants can be explained by an opinion that HOTS students are high-level thinking skills possessed by students. While the questions about HOTS test questions are related to the first and second questions, the informants have the opinion that HOTS type questions are questions designed by the teacher to test students' high thinking skills when the test takes place.

In addition to the aspects of understanding in the preparation of test questions, it was explored about whether the informants designed the questions that measured the ability of HOT (High Order Thinking) students, how to design HOTS test questions, and whether the informants had been included in training or seminars or socialization about HOTS this and practice in preparing HOTS type test questions? So the conclusion is that most informants have designed HOTS type questions, HOTS type questions that are designed at that time are those that refer to the thinking process which according to Bloom's Taxonomy is on the cognitive aspects of C4 to C6, of course, the design they have done is correct. This shows that some teachers have been able to design HOTS type test questions at that time but were not continued to date with the reasons given. On the other hand, in designing the HOTS type test questions, informants generally understood it well, but there were still Christian education teachers who did not understand it thoroughly, because he had never done the preparation of test questions with HOTS type, so there was a need for party support. School in facilitating teachers in the exercises for preparing such questions. Also, the informants have also never attended training/workshop/seminars/socialization on the preparation of HOTS type questions. This is of concern to all parties because the teacher still needs a better understanding of designing the HOTS-type questions going forward. In the aspect of the Christian education Teacher's Attitude about the Final Semester Test Design Type HOTS shows that the need for mastering the design of questions that measure students 'HOT (High Order thinking) abilities, such as students' cognitive levels.

For this reason, the importance of activities that bring together experts in an effort to train teachers to be skilled in designing HOTS-type test questions, this becomes a firm attitude from all informants about the knowledge that has been possessed by experts will be very useful if shared with religious teachers Christian so that later he can skillfully produce test questions with HOTS type. However, the informants became disappointed if in designing HOTS type questions they did not get support from related parties such as the Office of Education, the Office of the religious area and the school. This disappointment is because it will discourage the teachers to master the design of HOTS type questions and at the same time do not have a positive impact on improving the ability of students with challenges in the future. In the aspect of Christian education Teacher's Expectation on the HOTS Final Test Type Design Test, it was seen that generally the informants were expecting the drafting of questions that measured the ability of HOT (High Order thinking) students and schools going forward, meaning that the informants involved in this study were motivated to rearranging these HOTS type questions to later be tested in tests according to the stages. Of course, the drafting of HOTS type test questions requires the readiness of Christian education teachers. Christian education teachers who continue to practice and broaden their knowledge about HOTS itself so that they can design the HOTS type test questions well and professionally. In line with that, the expectation of the support of various related parties is very large. Christian education teachers cannot alone improve their professional abilities, so they need help from various parties to facilitate teachers with various development activities by training teachers to have the ability to design and develop HOTS type test questions.

### **V. CONCLUSION**

Based on the analysis of documents and requirements regarding the fulfillment of a HOTS test type, it can be concluded that there were no final semester test questions for Christian education and Character subjects which included the characteristics of the HOTS type (measuring high-level thinking skills) in the five high schools / vocational schools. This means that none of the questions made contain HOTS characteristics. Christian education teacher's perceptions of HOTS final semester test type design in Class X High School / Vocational School in Sirimau Subdistrict, Ambon City, Maluku, Indonesia in terms of informant knowledge, informant understanding, informant attitudes and informant expectations about the HOTS type final test design questions as summarized as follows ( 1) knowledgeably, the basic concepts asked have received a good explanation from the teachers (informants), (2) Designing the HOTS type test questions is generally the teachers already understand enough, but there are still teachers who have not understood

it and designed it, (3) The attitude of the teacher is related to the need for mastery of the question design that measures the ability of HOT (High Order thinking) students, because in designing this problem, there must be mastery of students' cognitive processes, also the support of related parties, (4) The teacher has hope great future is related to the preparation of questions that measure the ability of HOT (High Order thinking) students in all regions schools are used as research locus, meaning the teacher is motivated to rearrange HOTS type questions to be tested on the test according to the stages.

In the future, the analysis of HOTS type tests on Christian education and Student Characteristics should be started from a test document that already contains the form of a qualifying question as a HOTS type, this is done so that the analysis process will correctly dissect the contents of the test questions and be associated with HOTS test type design requirements. Moreover, also in the analysis process can provide a decision that the HOTS type question is not feasible or cannot be said as a HOTS type or vice versa. Also, it can also determine how much HOTS type presentation in a test document matches the stages. The analysis of the HOTS type test in the Christian education Map and Characteristics in the future must also relate to the learning process that encourages the creation of high-level thinking skills of students (high order thinking skills). The simple question is how students can think higher if there is no process of forming their thinking skills becomes high. This can happen if the learning process also supports it. So that it is not just the evaluation of learning outcomes students in high-level demand to answer questions with high-level criteria, but because they are accustomed to processing in learning models that familiarize them and form high-level thinking skills. For that reason, it is necessary to think about models, strategies, methods, techniques and learning approaches such as what and how to apply them appropriately to support the creation of HOT (high order thinking) abilities of students. There should be workshop forms, seminars or socialization about the process of designing or compiling HOTS / type questions to Christian education teachers at all levels of education (elementary, middle and high school, even students at universities), so that they also have knowledge that true and trained to later be able to design or compile a HOTS type problem properly.

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