

# Analysis of Higher Order Thinking Skills (HOTS) Based on Bloom Taxonomy in Comprehensive Examination Questions

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## **Analysis of Higher Order Thinking Skills (HOTS) Based on Bloom Taxonomy in Comprehensive Examination Questions**

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**Abstract:** The study aims to examine the distribution of questions in the Higher Order Thinking Skills (HOTS) category on the comprehensive examination of the Biblical Major at the IAKN Manado Theology Study Program, with the indicator for the Higher Order Thinking Skills (HOTS) questions based on the revised Bloom's Taxonomy. A descriptive method with a qualitative approach was applied. Data which was sourced from the comprehensive examination of Biblical Major at Theology Study Program of IAKN Manado, then analyzed using an interactive analysis model by Miles and Huberman, including data condensation, data display, verification, and conclusion. Analysis of questions was according to the revised Bloom's Taxonomy by Anderson & Krathwohl (2001). The results indicated that the comprehensive examination questions of Biblical majors at the Theology Study Program were taken from 15 courses with a total of 100 questions. Of the 100 questions, it was found that 9 courses contained HOTS questions and 6 courses contained questions classified in the MOTS and LOTS categories. Specifically, the percentages in each cognitive level were as follows, C6 at 1%, C5 at 16%, C4 at 23%, C3 at 38%, C2 at 8% and C1 at 14%. Thus, the HOTS level achieved 40%, the MOTS level reached 38%, while the LOTS level got 22%. It was concluded that the comprehensive examination questions of the Biblical Major at the Theology Study Program of IAKN Manado were dominated by the HOTS questions, although they were not evenly distributed in all questions of the subjects tested. The results of this study can be used as a reference in the preparation of exam questions for all subjects, so that the test administrator team or educators can determine the quality of each question made. Furthermore, the test administrators will also be able to map the categories of questions based on HOTS, MOTS, and LOTS, therefore the exam questions quality can be improved which affects the increase of students' higher-order thinking skills (HOTS).

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### **Introduction**

Education is an important part in efforts to produce qualified human resources which prioritize students' ability in developing their potential to gain knowledge, skills, personality, and religious spiritual qualities needed both in oneself as individual and in social life as a community (Palar, 2020). It is in line with the concept of education stated in Act number 20, year 2003 which affirmed that education is a responsive and organized effort to create a learning atmosphere and learning process, so that students can actively improve their potential to have the strength of religious spiritual, self-control, personality, intelligence, noble character, and skills needed by themselves, society, nation and republic (President of the Republic of Indonesia, n.d.) The above definition illustrates that education is a means of shaping human resources, including higher education.



Law Number 12 Year 2012, mentions several goals of higher education, including: developing student potential in realizing human beings who believe and fear the Almighty God and who are noble, healthy, knowledgeable, capable, creative, independent, skilled, competent, and cultured for the benefit of the nation; and producing graduates who master the branches of science and/or technology to fulfill the national interest and increase the nation's competitiveness (Law no. 12 of 2012, n.d.). This goal is strengthened further by establishing the Regulation of the Minister of Education and Culture of the Republic of Indonesia Number 22 of the Year 2020 on the Ministry of Education and Culture's Strategic Plan. The goal is to improve the quality of learning, the relevance of higher education, and the quality of lecturers and academic staff. Responding to these goals, higher education must transform in implementing education which is relevant to the dynamics in society and the development of science and technology by focusing on the capacity and quality increase of educational processes and management (Sujarwanta, 2021).

One of the efforts that can be made to support achieving these goals is by developing a curriculum, including efforts to develop an evaluation system. Evaluation becomes one measure of whether educational goals are achieved or not. In learning activities, it is an activity to identify the achievement of designed programs, valuable or invaluable, efficient or inefficient. Evaluation is an assessment process to make decisions using a set of measurement results and guided by the established goals (Basuki & Hariyanto, 2014). Conforming to that, evaluation is also defined as a process or stage of comparing and measuring learning outcomes in accordance with predetermined standards, so that the learning success level can be revealed (Susilo, 2018). Arifin in Sigit Pramono (2014) states that evaluation is a process to describe students and to weigh them in terms of value and meaning. Data and information on the assessment results is a piece of evidence that can be used to measure educational programs' success (Majid, 2013). The concept of evaluation is not only centered on the established educational goals, but also directed at the formation of students' abilities to be able to think critically, creatively, and innovatively, and to solve more complex problems (Ahmad & Sukiman, 2019). *Evaluation* is also a step and an effort to improve the learning process quality in higher education, as stated in Permenristekdikti number 14 Year 2015 Article 39 Paragraph 2d, namely "conducting periodic monitoring and evaluation activities in order to maintain and improve the quality of the learning process" (Minister of Research, 2015).

Higher order thinking skills or HOTS is needed at this stage However, students still need it. The description can be seen in an international result study called the Program for International Student Assessment (PISA) disclosing that the achievement of reading literacy, mathematical literacy, and scientific literacy of Indonesian students is still very low including aspects of (1) understanding complex information; theory, analysis, and problem solving; (3) using of tools, procedures and problem solving; and (4) investigation process (Widana, 2017). It is also illustrated in the research of Adila Sabir et al. (2021) stating that the ability of students in Indonesia is deficient in understanding complex information, solving problems, using tools (procedures), and the process of conducting investigations. In agreement, the research by Arnindia via Mawardi, et al. (2020) explained that the difficulties in solving HOTS-loaded questions were caused more by students who were less able to understand the material used in the exam questions, hence they were unable to answer the questions correctly. Low thinking skills were also due to the few HOTS group textbook questions. It is also described in the research of Sriyanti, et al. (2022) explaining that HOTS type questions in Mathematics need to be improved. The exercises in the textbook have not been evenly



distributed in supporting the students' higher-order thinking skills. Surprisingly, it was found that the higher order thinking skills were only at the C4 level, not at the C5 and C6 levels.

Research concerning the HOTS category on exam questions, all of school exams, national exams, and college entrance exams has been widely performed. However, research on HOTS questions is more dominated by exam questions of each subject. One of them is the research of Iffa & Fakhruddin, n.d., which analyzes students' HOTS in completing the Physics National Examination at the SMP/MTs level. According to the study result, it was found that the absorption of students in solving HOTS category questions at the Physics national examination was still relatively low with a percentage of 20.1%. Furthermore, the research of Hariyatmi & Annisa Rahma Luthfia (2020), related to the form of HOTS questions, stated that the analysis results of Biology test questions were more dominated by LOTS category question group. Research on exam questions is rarely found at the higher education level. No research has been conducted on HOTS questions on comprehensive examinations at this educational level. Thus, this study has a specialty in the object under study, namely the comprehensive exam questions.

HOTS-loaded questions require high-level thinking skills accompanied by critical, logical, reflective, metacognitive, and creative thinking skills. Therefore, solving HOTS questions will train students to think at the level of analysis, evaluation, and creation (Suryapuspitarini et al., 2018). After that, Sani in Suyati et al., n.d. argues that the main criteria for HOTS questions are contextual including aspects of critical thinking, and stimulus presentation. In addition, HOTS questions become very important, because they make students accustomed to thinking creatively and they require high understanding (Huda et al., 2021).

Benjamin S. Bloom introduced the theory of cognitive abilities in 1956, known as Bloom's Taxonomy. In its development, Bloom's Taxonomy was then revised by Anderson and Krathwohl in 2001. This revised Bloom's Taxonomy underlies the cognitive domain contained in the KKNI (Palar, 2020). According to Bloom's Taxonomy, thinking is categorized into three parts, namely LOTS (Lower Order Thinking Skills), MOTS (Medium Order Thinking Skills), and HOTS (Higher Order Thinking Skills) (Kristanto & Setiawan, 2020). The dimensions of cognitive processes contained in Bloom's Taxonomy consist of six levels of cognitive abilities including C1 (remembering) and C2 (understanding) categorized in the LOTS thinking process, C3 (applying) as the MOTS thinking process, while C4 (analyzing), C5 (evaluating), and C6 (creating) categorized on the HOTS thinking process. However, there are also cognitive dimensions which are only divided into two groups, namely LOTS and HOTS. In this study, the cognitive dimension is divided into three levels of thinking, namely LOTS, MOTS, and HOTS.

The categorization of thinking levels in the revised Bloom's Taxonomy by Anderson and Krathwohl has been mapped into active verbs, starting with lower-order thinking to higher-order thinking. The classification can be seen in the following table (Huriyah et al., 2020)

**Table 1. Revised Bloom Taxonomy Taksonomi Bloom by Anderson dan Krathwohl**

No	C1-Knowledge	C2-Comprehension	C3- Application	C4- Analysis	C5- Evaluation	C6-Creation
1	citing	estimating	demanding	analyzing	considering	abstracting
2	mentioning	explaining	adjusting	auditing / checking	evaluating	animating
3	explaining	categorizing	allocating	making blueprint	comparing	arranging
4	describing	Characterizing	ordering	outlining	summarizing	collecting
5	counting	specifying	applying	solving	contrasting	founding
6	identifying	associating	determining	characterizing	directing	categorizing
7	registering	comparing	assigning	making a group	criticizing	Coding
8	showing	counting	obtaining	basic rationalizing	considering	combining





9	labelling	contrasting	preventing	emphasizing	defending	composing
10	indexing	changing	declaring	making a	deciding	imagining
				contrast basic		
11	matching	defending	calculating	correlating	seperating	developing
12	naming	describing	catching	detecting	predicting	solving
13	marking	interlacing	modificating	diagnosing	evaluating	relating
14	reading	differentiating	classifying	diagramming	clarifying	creating
15	realizing	discussing	completing	diversing	ranking	
						correcting
17	imitating	examplng	constructing	specifying into	interpreting	picturing
				parts		
18	noting	explain	accustoming	nominating	considering	designing
19	repeating	stating	demonstrating	documenting	allowing	improving
20	reproducing	patterning	decreasing	relating	measuring	planning
21	observing	broadening	determining	testing	projecting	dictating
22	choosing	summarizing	revealing	enhancing	specifying	increasing
23	stating	predicting	drawing	exploring	distinguishing	clarifying
24	studying	summarizing	rediscovering	illustrating	ranging	facilitating
25	tabulating	describing	using	collecting	recommending	forming
26	coding	training	grouping	releasing	formulating	
27	exploring	discovering	identifying	choosing	generalizing	
28	writing	revealing	illustrating	concluding	growing	
29	expressing	summarizing	supporting	Handling		
30	factoring	Interrupting	testing	Sending		
31	drawing	finding	validating	Repairing		
32	graphing	studying	Reproving	Combining		
33	handling	organizing	Matching			
34	illustrating	managing	Limiting			
35	adapting	maximizing	Combining			
36	identifying	Minimizing	Teaching			
37	manipulating	optimizing	Modelling			
38	beautifying	governing	Improving			
39	operating	underlining	Networking			
40	questioning	coding	Organizing			
41	prioritizing	Sketching				
42	editing	Repairing				

In order to improve the standard of evaluation, HOTS loaded questions are very necessary. Higher order thinking skills (HOTS) are part of revised Bloom's taxonomy in the form of operational verbs consisting of analyzing (C4), evaluating (C5) and creating (C6) which can be used in making questions (Fanani, n.d.). It supports the concept of a higher education curriculum, namely the KKNi which is oriented towards the student's competence. Learning evaluation standards for higher education emphasizes the minimum criteria concerning the evaluation of student learning processes and outcomes in order to fulfill graduate learning achievement including, (a) evaluation principles; (b) evaluation techniques and instruments; (c) evaluation mechanisms and procedures; (d) implementation of the evaluation. Evaluation techniques include observation, participation, performance, written tests, oral tests, and questionnaires (Minister of Education and Culture of the Republic of Indonesia, 2020).

In order to measure student learning outcomes, an instrument known as a test is needed. Principally, the test aims to assess each student's learning process's success. Moreover, it also aims to obtain accurate information concerning the achievement level of students' instructional goals, so that it can be followed-up (H. Daryanto, 2012). Measurements are performed thoroughly on the cognitive, affective, and psychomotor aspects. These three aspects are important domains in evaluation. At the cognitive measurement stage, HOTS item questions can be made in several alternative forms, such as multiple choice. Generally, HOTS-loaded questions use a stimulus referring to a real



situation. Multiple choice questions include subject matter (stem) and answer choices (options). The answer choices of HOTS questions must include distractors and the answer key. The answer key is the correct answer. Although a distractor is an incorrect answer, it can trick someone into choosing it if the lesson material needs to be mastered better. Generally, the expected answer (answer key) is not contained explicitly in the stimulus or the reading. Students are asked to find answers related to the stimulus/the reading using their knowledge concepts and using logic/reasoning. The correct answer is given a score of 1, and the wrong answer is given a score of 0 (Widana, 2017). Generally, in the assessment context, HOTS questions measure the ability to: 1) transfer one concept to another, 2) process and apply information, 3) identify connections from different kinds of information, 4) use information to solve problems, and 5) critically examine ideas and information. However, HOTS-based questions are easier than recall questions. (Fanani, 2018). With the HOTS-loaded questions, the higher-order thinking ability of each student can be clearly measured. According to Mustahdi, evaluating higher-order thinking includes three principles, (1) providing a motivation for students to consider. Basically, it is in the structure of the initial text or reading, visuals, scenarios, dialogues, or problems; (2) make use of new problems for students which have never been discussed in class, and not just questions for the process recalled; (3) comparing the difficulty level of questions (easy, medium, or difficult) and cognitive level (low-level thinking and high-level thinking) (Ahmad & Sukiman, 2019).

At higher education level, there are several forms of learning outcomes evaluation, including comprehensive exams which aimed to measure students' level of ability and depth of understanding regarding the obtained materials. Basically, students required competencies include three domains, namely cognitive, affective, and psychomotor. In the comprehensive exam stage, the cognitive domains are evaluated, based on Bloom's Taxonomy, namely C1-C6 (memory, understanding, application, analysis, synthesis, evaluation/creation in revised taxonomy by Anderson). Theoretically, each instrument used as a measuring tool, including the instrument in a comprehensive exam, has yet to determine its level of validity and reliability. It is caused by the concept of measurement has not led to the students required competencies (Suwarna & Ilmi, 2016). At IAKN Manado, at the undergraduate level, the first comprehensive examination was held at the Faculty of Theology in 2022, The Biblical and Systematika Majors were also included. A comprehensive exam is a prerequisite for taking the thesis examination. The questions form used in the comprehensive exam is multiple choice. This study aims to analyze the distribution of Higher Order Thinking Skills (HOTS) questions based on the revised Blomm Taxonomy.

### **Research Method**

This study used a descriptive research method with a qualitative approach which is based on the philosophy of post positivism in examining natural objects with the writer as the key instrument (Sugiyono, 2012). The qualitative research paradigm was revealing reality without the need for standard measurements (Afifuddin & Beni Ahmad Saebani, 2018). The data source for this study is the comprehensive exam questions document of the Biblical Major at the Theology Study Program of IAKN Manado. In this study, the writer was the main instrument. Basically, in qualitative research, the writer becomes the key instrument that plays a role in determining the focus of the research, selecting data sources, determining data collection techniques to data analysis techniques, then making conclusions based on the data analysis results (Moleong, 2018). The question documents were then analyzed in terms of HOTS characteristics.



In analyzing the data, the steps of the Miles, Huberman and Saldana (2014) model were used. It included the stages of data condensation, data display, and drawing conclusions or verification. Data condensation refers to selecting, focusing, simplifying, abstracting, and transforming the data appearing in a complete corpus (body) of written field notes, interview transcripts, documents, and other empirical materials. Condensation makes the data stronger (Miles et al., 2014). Data Presentation was done by compiling data simply into tables, making it easier to draw conclusions. The collected data was analyzed based on the revised Bloom's Taxonomy of Anderson & Krathwhol (2001) to identify questions that fall into the HOTS category.

### **Results and Discussion**

The Comprehensive Exam is an examination activity that is comprehensive, aimed at assessing students' understanding and academic abilities while attending lectures related to theory. It was stated In the results of service activities carried out by Ruslan et al., (2022), that "Broadly speaking, the comprehensive test consists of individual attributes which are the goal to measure an aspect of behavior or obtain information about the attributes of the person being tested (individually)". A comprehensive exam is a test for students who want to end their studies in college. However, not all universities carry out comprehensive examinations. At the Manado State Christian Institute, until 2021, the comprehensive exam was only applied to the postgraduate program's final students. In 2022, the Faculty of Theology, especially the Theology Study Program, begins to apply a comprehensive exam that is used as a requirement to take the thesis exam. So, at the Faculty of Theology, a comprehensive examination is held after the thesis proposal seminar. The stages of implementing the comprehensive exams in Theology Study Program of IAKN Manado are almost the same as the stages of the comprehensive exams conducted at the Aqidah Sciences Study Program, Ushuluddin Faculty, UIN Alauddin Makassar. The initial stage begins with registration. In Aqidah Study Program, registration is unlimited in time. Students are free to choose when they are ready to register. However, in Theology Study Program, registration for the comprehensive exam is limited by time. The implementation is equally carried out after the thesis proposal exam in Aqidah Study Program. However, in Theology Study Program the data is taken from the data of students who have passed the thesis proposal seminar and who are currently in the thesis guidance stage. In Aqidah Study Program, evidence regarding the stages of thesis guidance is strengthened by a statement from the supervisor that the supervisor is examining the student's thesis. Afterward, they are at the comprehensive exam stage. The comprehensive examinations carried out at the Theology Faculty of IAKN Manado and at the Aqidah Science Study Program at UIN Alauddin were the supervisor is examining the student's thesis fees (Damis, 2018).

The comprehensive examinations carried out by the Theology Study Program are grouped into 2 concentrations called Biblical major and Systematic Major. The superiors of faculty appointed a coordinator for each study program who is responsible for administering the exam. The number of comprehensive exam questions was decided during a meeting of the faculty, study program superiors, and the comprehensive exam coordinators. Each major in the study program at the Faculty of Theology prepared 100 comprehensive exam questions. A comprehensive exam on Biblical Major covered 15 courses. Each lecturer in that course prepared the questions for each course. The number of comprehensive exam questions is 100 questions. The comprehensive exam questions were in the form of multiple choice in which the correct answer (in the answer key there is only one possible correct answer, while the other alternative answers are wrong choices) and the best type of answer measured learning





outcomes that required understanding, applying, or interpreting factual information (measuring more complex and more difficult learning). Through objective tests, there are several things measured, namely (1) the results of knowledge (knowledge of terminology, specific facts, principles, and methods and procedures); (2) the results at the level of understanding and application (the ability to identify the application of facts and principles, the ability to interpret cause and effect relationships, and the ability to justify methods and procedures); (3) the high order thinking skills (Wartoni & Issak Benjamin, n.d.). The form of the correct answer test and the best answer contained in the questions tested in the comprehensive exam of Theology Study Program. Students who took the comprehensive exam could find out the results because the assessed answer sheets were returned to them. Therefore, each student could measure their weaknesses. Furthermore, students who did not pass the comprehensive exam were required to take a remedial exam.

### HOTS Analysis on Comprehensive Exam Questions

Questions were divided into courses in deciding the Higher Order Thinking Skills (HOTS) level on the comprehensive exam questions of the Biblical Major at Theology Study Program in 2022. After categorization, the process of analysis, mapping, and classification was carried out. The comprehensive exam questions of Biblical Major were mapped based on the cognitive thinking stage of Bloom taxonomy revised by Alexander and Krathwohl and divided into three categories or thinking dimensions, namely, LOTS, MOTS, and HOTS. The mapping was according to revised Bloom Taxonomy by Alexander and Krathwohl which was described in the following table:

**Table 1. Cognitive Thinking Level in the comprehensive exam questions of Biblical Major Year 2022**

No.	Course	Competency	Cognitive Thinking Level						Category		
			C1	C2	C3	C4	C5	C6	LOTS	MOTS	HOTS
1	History of Church	Identifying	√							√	
2	History of Church	Mentioning	√							√	
3	History of Church	Mentioning	√							√	
4	History of Church	Extracting		√						√	
5	History of Church	Identifying	√							√	
6	History of Church	Mentioning	√							√	
7	Greek	Identifying	√							√	
8	Greek	Mentioning	√							√	
9	Greek	Categorizing		√						√	
10	Greek	Determining			√						√
11	Greek	Mentioning	√							√	
12	Greek	Determining			√						√
13	Greek	Determining			√						√
14	Study of Old Statement	Identifying	√							√	
15	Study of Old Statement	Categorizing		√						√	
16	Study of Old Statement	Mentioning	√							√	
17	Study of Old Statement	Identifying	√							√	
18	Study of New Statement	Differentiating		√						√	





19	Study of New Statement	Expressing	✓		✓	
20	Study of New Statement	Characterizing	✓		✓	
21	Research Methodology	Completing		✓		✓
22	Research Methodology	Emphasizing		✓		✓
23	Research Methodology	Completing	✓			✓
24	Research Methodology	Choosing		✓		✓
25	Research Methodology	Determining	✓			✓
26	Church Management	Determining	✓			✓
27	Church Management	Directing		✓		✓
28	Church Law	Determining		✓		✓
29	Church Law	Pointing	✓		✓	
30	Church Law	Characterizing		✓		✓
31	Dogmatics	Mentioning	✓		✓	
32	Dogmatics	Identifying		✓		✓
33	Dogmatics	Determining		✓		✓
34	Dogmatics	Deciding	✓		✓	
35	Logics	Analyzing		✓		✓
36	Philosophy	Characterizing	✓		✓	
37	Philosophy	Choosing		✓		✓
38	Greek	Identifying	✓		✓	
39	Greek	Composing			✓	✓
40	Greek	Interpreting		✓		✓
41	Hermeneutics of Old Statement	Separating		✓		✓
42	Hermeneutics of Old Statement	Deciding		✓		✓
43	Hermeneutics of Old Statement	Determining	✓			✓
44	Hermeneutics of Old Statement	Determining	✓			✓
45	Hermeneutics of Old Statement	Limiting	✓			✓
46	Hermeneutics of Old Statement	Selecting		✓		✓
47	Hermeneutics of Old Statement	Selecting		✓		✓
48	Hermeneutics of Old Statement	Deciding		✓		✓
49	Hermeneutics of Old Statement	Selecting		✓		✓
50	Hermeneutics of Old Statement	Identifying	✓			✓
51	Hermeneutics of Old Statement	Identifying	✓			✓
52	Hermeneutics of Old Statement	Determining	✓			✓



53	Hermeneutics of Determing Old Statement	√	√
54	Hermeneutics of Selecting Old Statement	√	√
55	Hermeneutics of Deciding Old Statement	√	√
56	Hermeneutics of Summarizing Old Statement	√	√
57	Hermeneutics of Deciding Old Statement	√	√
58	Hermeneutics of Summarizing Old Statement	√	√
59	Hermeneutics of Deciding Old Statement	√	√
60	Hermeneutics of Interpreting Old Statement	√	√
61	Hermeneutics of Selecting Old Statement	√	√
62	Hermeneutics of Determing Old Statement	√	√
63	Hermeneutics of Selecting Old Statement	√	√
64	Hermeneutics of Selecting Old Statement	√	√
65	Hermeneutics of Determing Old Statement	√	√
66	Theology of Old Determing Statement	√	√
67	Theology of Old Determing Statement	√	√
68	Theology of Old Choosing Statement	√	√
69	Theology of Old Determing Statement	√	√
70	Theology of Old Choosing Statement	√	√
71	Hermeneutics of Determing New Statement	√	√
72	Hermeneutics of Choosing New Statement	√	√
73	Hermeneutics of Determing New Statement	√	√
74	Hermeneutics of Choosing New Statement	√	√
75	Hermeneutics of Determing New Statement	√	√
76	Hermeneutics of Determing New Statement	√	√
77	Hermeneutics of Determing New Statement	√	√
78	Hermeneutics of Determing New Statement	√	√
79	Hermeneutics of Predicting New Statement	√	√
80	Hermeneutics of Interpreting New Statement	√	√
81	Hermeneutics of Determing New Statement	√	√



82	Hermeneutics of Deciding New Statement				√				√	
83	Hermeneutics of Choosing New Statement				√				√	
84	Hermeneutics of Choosing New Statement				√				√	
85	Hermeneutics of Determining New Statement				√			√		
86	Hermeneutics of Choosing New Statement				√				√	
87	Hermeneutics of Interpreting New Statement				√				√	
88	Hermeneutics of Determining New Statement				√			√		
89	Hermeneutics of Choosing New Statement				√				√	
90	Hermeneutics of Formulating New Statement				√				√	
91	Hermeneutics of Determining New Statement				√			√		
92	Hermeneutics of Summarizing New Statement				√				√	
93	Hermeneutics of Determining New Statement				√			√		
94	Hermeneutics of Choosing New Statement				√				√	
95	Hermeneutics of Determining New Statement				√			√		
96	Hermeneutics of Determining New Statement				√			√		
97	Hermeneutics of Choosing New Statement				√				√	
98	Hermeneutics of Choosing New Statement				√				√	
99	Hermeneutics of Determining New Statement				√			√		
100	Hermeneutics of Determining New Statement				√			√		
Total		14	8	38	23	16	1	22	38	40
Percentage		14%	8%	38%	23%	16%	1%	22%	38%	40%

**Description:**

C1 = Remembering;

C2 = Understanding;

C3 = Applying;

C4 = Analyzing;

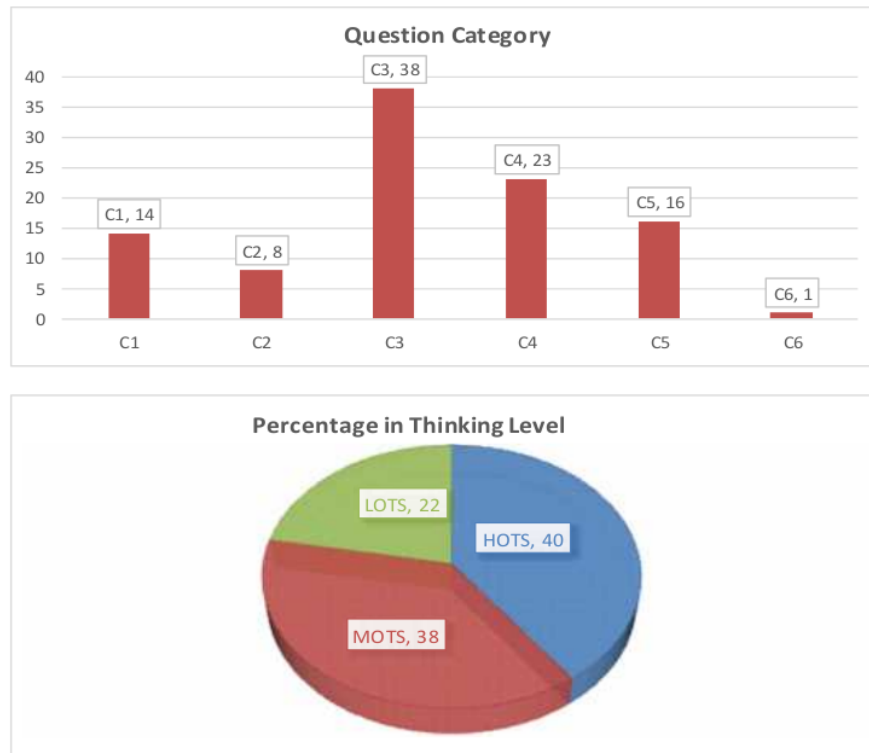
C5 = Evaluating;

C6 = Creating;

*LOTS = C1, C2; MOTS = C3; HOTS = C4, C5, C6*

Based on the data obtained, the total number of comprehensive exam questions was 100 items, from 15 compulsory courses tested. According to the data, it was found that the competency level of the comprehensive exam questions of Biblical major at theology study program comprehensive exam questions of Biblical major at theology study program was distributed from the category of C1, C2, C3, C4, C5 to C6. However, it was only 1 question included in category C6 with 1% of achievement. The higher level questions dominated the comprehensive exam questions, namely, 16 questions of C5, or reaching 16%, and 23 questions of C4, or equal to 23%. While for the medium level questions, C3 obtained 38

questions which is equal to 38%. The low level questions were on C1 level with 14 questions equaling 14% and on C2 level with only 8 questions equals to 8%. Besides, the competency level of comprehensive exam questions of Biblical major at theology study program was seen in the following diagram.



**Diagram 1. Competency level of comprehensive exam questions of Biblical Year 2022**

When viewed from the side of the questions with Higher Order Thinking Skill (HOTS), Medium Order Thinking Skill (MOTS), and Lower Order Thinking Skill (LOTS), then from the data exposure above, the Comprehensive Exam questions are more dominated by HOTS questions than questions MOTS and questions with LOTS levels. However, the difference between HOTS and MOTS questions is only slightly, which is 1%. Of the total 100 questions, there are 40 items that are classified as HOTS questions with a percentage of 40%, 38 items belonging to the MOTS questions with a percentage of 38%, and as many as 22 items that fall into the LOTS question category with a percentage of 22%.

Furthermore, the competency level of the Comprehensive Exam on the subject of study is illustrated in the table below.

**Table 4. Competency Level Comprehensive Examination Questions of Biblical Major per Course**

Course	Number of Questions	Cognitive Level						Category		
		C1	C2	C3	C4	C5	C6	LOTS	MOTS	HOTS
History of Church	6	5	1	0	0	0	0	6 (6%)		
Greek	7	3	1	3	0	0	0	4 (4%)	3 (3%)	





Study of Old Statement	4	3	1	0	0	0	0	4 (4%)	
Study of New Statement	3	0	3	0	0	0	0	3 (3%)	
Research Methodology	5	0	0	3	2	0	0	3 (3%)	2 (2%)
Church Management	2	0	0	1	0	1	0	1 (1%)	1 (1%)
Church Law	3	1	0	1	1	0	0	1 (1%)	1 (1%)
Dogmatika	4	1	1	2	0	0	0	2 (2%)	2 (2%)
Logics	1	0	0	0	1	0	0		1 (1%)
Philosophy	2	0	1	0	1	0	0	1 (1%)	1 (1%)
Hebrew	3	1	0	0	0	1	1	1 (1%)	2 (2%)
Hermeneutics Of Old Statement	25	0	0	9	7	9	0	9 (9%)	16 (16%)
Theology of Old Statement	5	0	0	3	2	0	0	3 (3%)	2 (2%)
Hermeneutics of New Statement	15	0	0	9	4	2	0	9 (9%)	6 (6%)
Theology of New Statement	15	0	0	7	5	3	0	7 (7%)	8 (8%)

The table above shows that the 2022 Theology Study Program Comprehensive Biblical Specialization Examination questions for all Biblical courses, not all test items are included in the HOTS category questions. Of the 15 courses tested in the comprehensive exam, 9 courses contain questions in the HOTS question category and six courses whose questions fall into the MOTS and LOTS categories. The results of the data analysis above show that in the Theology Study Program Biblical Specialization comprehensive exam, the HOTS category questions are dominant in the Theology Study Program Biblical Specialization comprehensive exam questions compared to the MOTS and LOTS categories.

Evaluation is an important part in measuring the quality of education and learning outcomes. According to Sudjana (2014), in carrying out the process of assessing learning outcomes, there were several steps that can be used as guidelines, namely: (1) formulating and affirming teaching objectives; (2) reviewing teaching materials based on curriculum and syllabus; (3) developing assessment tools; (4) using the results of the assessment according to the purpose of the assessment. In the preparation of assessment tools (points 3 and 4), the following steps are necessary (a) reviewing the curriculum and textbooks so that the scope can be determined; (b) formulating specific instructional objectives; (c) create an assessment grid or blueprint; (d) arrange questions based on the grid that has been made; (e) create and determine the answer key to the question. The steps of the assessment process above have not been fully implemented in the preparation of comprehensive exam questions, so that the distribution of questions and the distribution of cognitive categories is uneven. In the preparation of comprehensive exam questions, the grids made are not divided into balanced proportions according to the cognitive realm of the revised Bloom's taxonomy, so there are still courses that do not contain HOTS category questions at all. From the results of the analysis, there were 6 courses that did not contain HOTS category questions and 9 courses that contained HOTS category questions. The percentage of thinking about the Biblical Specialization comprehensive exam is shown in diagram 1 which includes 40% HOTS, 38% MOTS, and 22% LOTS. However, if the percentage of thinking is measured in each subject, it is found that the thinking dimensions of the revised Bloom's taxonomy are not distributed proportionally in all the subjects tested. According to Sudjana (2014) the determination of the



proportions and criteria for questions that are easy, medium, and difficult needs to be analyzed for the level of difficulty. The comparison of easy-medium-difficult questions can be made 3-4-3. The balance of the level of difficulty of the questions needs to be considered. The policy on the percentage of HOTS question categories needs to be based on the conditions and abilities of students in general (Purbosari et al., 2021). Thus, in making comprehensive exam questions in higher education, these considerations need to be considered, so that the distribution of thinking dimensions based on Bloom's revised taxonomy is balanced in proportion.

### **Conclusion**

The comprehensive examination questions of Biblical major were taken from 15 courses with the total questions of 100. Each lecturer made them. The number of questions for each course had been previously set. However, the process of asking questions had yet to conduct with proper planning. Therefore, the distribution map of thinking criteria (cognitive level) based on Bloom Taxonomy needed to be evenly distributed. In accordance with the results of study, there was only 9 courses tested containing HOTS questions with the percentage of 40% or equals to 40 questions. It demonstrates that even though not all questions in the tested courses contain it, HOTS questions appeared more dominant compared to MOTS with only 38% and LOTS at 22%. According to the numbers, it was concluded that the use of HOTS in the comprehensive exam question of Biblical Major at Theology study Program at IAKN Manado mostly had fulfilled HOTS question criteria.

### **Recommendation**

Following the study results, some recommendations are stated as follows; Firstly, those responsible for the comprehensive examination of the Theology Faculty at the planning stage need to analyze the division of the number of questions in the thinking category LOTS, MOTS and HOTS. The purpose is that for the HOTS questions on all courses to be evenly distributed. Additionally, after the comprehensive exam, evaluation is needed. It can be a benchmark in improving learning process quality which is based on the increase of students thinking quality. Second, at IAKN Manado, a quality increase of educators based on educational development not only at the national level but also at the international level is required, for example, by conducting training and having educators join, particularly concerning the abilities to make exam questions, which are characterized by questions capable of measuring HOTS. Thirdly, the educational policy maker at national level, especially the policy makers on higher education at Religious Affairs Ministry and at educational and cultural ministry, need to evaluate the learning process by involving related agency. Therefore, educator quality will keep improving, and consequently, educational objectives can be achieved including the learning outcomes.

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