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ASSESSING GAPS BETWEEN PERCEPTION AND IMPLEMENTATION OF HIGHER ORDER THINKING SKILLS (HOTS) IN ISLAMIC HIGHER EDUCATION

Sabilil Muttaqin[1]*, Nofi Maria Krisnawati[2], Maftuhah[3], Mu'arif Syam[4], Mustolihudin[5]
[1,2,3,5] STAI ALHIKMAH Jakarta, Jakarta, Indonesia
[4]Syarif Hidayatullah State Islamic University of Jakarta, Indonesia
E-mail: sabil.arjumand@gmail.com

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Abstract

High-order thinking skills (HOTS) is one of the key competencies in 21st-century education that requires students to be able to think critically, creatively, and solve complex problems. This study aims to assess lecturers' understanding, perceptions, and practices in implementing HOTS-based learning and evaluation in private Islamic higher education institutions (PTKIS) in the KOPERTAIS region I (DKI Jakarta and Banten). This study employed qualitative method with a case study approach. This research utilized two data collection techniques, namely open-ended questionnaires based on Google Forms and document analysis obtained through Semester Learning Plans (RPS) and learning outcome evaluation instruments. The participants in this study were 13 lecturers from PTKIS in the Kopertais region I that were garnered through snowball sampling. The findings of this study uncovered three main areas: lecturers' understanding of HOTS concepts, implementation of HOTS in teaching, and the relevance of evaluation instruments to HOTS. Based on these three categories, the findings suggest that some lecturers have a good understanding of HOTS concepts, but there are also some who are unable to effectively apply these concepts in teaching and developing HOTS-based evaluation instruments. This study also signifies the importance of aligning the understanding, implementation, and the development of HOTS-based instruments to create high-quality learning.

Keywords: higher order thinking skills (HOTS); HOTS-based learning; HOTS-based evaluation; the implementation of HOTS in PTKIS

Abstrak

Keterampilan berpikir tingkat tinggi (Higher Order Thinking Skills/HOTS) merupakan salah satu kompetensi kunci dalam pendidikan abad ke-21 yang menuntut peserta didik untuk mampu berpikir kritis, kreatif, dan memecahkan masalah kompleks. Penelitian ini bertujuan untuk menilai pemahaman, persepsi, dan praktik dosen dalam mengimplementasikan pembelajaran dan evaluasi berbasis HOTS di Perguruan Tinggi Keagamaan Islam Swasta (PTKIS) wilayah KOPERTAIS I (DKI Jakarta dan Banten). Penelitian ini menggunakan metode kualitatif dengan pendekatan studi kasus. Teknik pengumpulan data yang digunakan meliputi kuesioner terbuka berbasis Google Forms dan analisis dokumen yang diperoleh dari Rencana Pembelajaran Semester (RPS) serta instrumen evaluasi hasil belajar. Partisipan dalam penelitian ini adalah 13 dosen PTKIS di wilayah Kopertais I yang dipilih melalui teknik snowball sampling. Temuan penelitian ini mengungkapkan tiga fokus utama: pemahaman dosen terhadap konsep HOTS, implementasi HOTS dalam pengajaran, dan relevansi instrumen evaluasi terhadap HOTS. Berdasarkan ketiga kategori tersebut, hasil penelitian menunjukkan bahwa sebagian dosen memiliki pemahaman yang baik tentang konsep HOTS, namun masih ada yang belum mampu menerapkan konsep tersebut secara efektif dalam pengajaran maupun pengembangan instrumen evaluasi berbasis HOTS. Studi ini juga menegaskan pentingnya penyelarasan antara pemahaman, implementasi, dan pengembangan instrumen berbasis HOTS guna menciptakan pembelajaran yang berkualitas.

***Kata kunci**: keterampilan berpikir tingkat tinggi (HOTS); pembelajaran berbasis HOTS; evaluasi berbasis HOTS; implementasi HOTS di PTKIS*

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*Corresponding author

Introduction

Higher-order thinking skills (HOTS) are one of the important core competencies in 21st-century education (Zainil et al., 2023). As the global context continues to develop into increasingly complex situation, students are not only required to master basic knowledge, but also to be skilled in thinking critically, creatively, solving problems, and adapting to global challenges such as technological developments and social issues. Likewise, the implementation of teaching and learning process in the era of society 5.0 also requires the ability of educators to provide analytical, critical, creative, and innovative abilities to students (Huda, 2023). These abilities will greatly help students in answering the demands of a highly competitive world of work. Universities (especially Islamic universities) are expected to equip their students with the aforementioned abilities. One of the most effective ways to fulfil the above expectations is to create a learning environment that requires students to consistently carry out exploration, critical inquiry, discovery, and creative problem-solving activities (Gupta & Mishra, 2021).

Critical and creative thinking needs to be consistently nurtured so that students are able to reconstruct their imaginations and express original ideas (Kardoyo et al., 2020). Therefore, critical and creative thinking skill-based learning process is very strategic in developing students' potential of using higher order thinking skills (Kwangmuang et al., 2021). Higher order thinking includes deciding what to believe, deciding what to do, creating new ideas, making predictions, and solving non-routine problems (Gupta & Mishra, 2021). Higher order thinking skills (HOTS) are one of the approaches in learning that requires students to think analytically, critically, collaboratively, and innovatively (Budiarta & Harahap, 2018; Sani, 2019). In HOTS-based learning, lecturers are no longer the main source. They function more as facilitators who accompany and guide students in learning (Sani, 2019) and students are directed to find and solve their problems.

Higher order thinking skills (HOTS) based learning model is the mandate of the national curriculum, both the 2013 curriculum (Abidin, 2014), the KKNI-based curriculum (Sutrisno & Suyadi, 2016) and the MBKM curriculum (Merdeka Belajar Kurikulum Merdeka/Independent in Learning Curriculum); in accordance with Permendikbud (ministry of education and culture regulation) number 3 of 2020. The level of knowledge that should be used in HOTS-based learning is the level of ability identified as the C-4, C-5 and C-6 categories in the cognitive aspect. HOTS-based learning is expected to nurture critical, creative, and innovative students because the level of ability instilled in HOTS-based learning is the ability to analyze (C-4), evaluate (C-5), and create (C-6).

The implementation of HOTS-based learning should be carried out in three stages: planning, implementation, and evaluation of learning. In other words, the implementation of HOTS in learning must consistently start from planning which includes making semester learning plans, learning materials, learning methods, and learning media (Novalita, 2014; Pratiwi & Mustadi, 2021; Tyas & Naibaho, 2021). Technically, semester learning plans must be prepared in accordance with the learning outcomes that have been agreed upon and developed by the national curriculum development team. The learning outcomes are then detailed into course learning outcomes (CPMK). Lecturers then create indicators based on the CPMK that has been compiled. HOTS-based learning should be seen from the indicators compiled in the CMPK. The planning stage is then followed by the implementation stage which must still adhere to the HOTS principle.

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In general, the implementation of HOTS-based learning will be achieved if the learning process is centred on students; known as student centred learning (Ardian & Munadi, 2015). Therefore, the selection of learning approaches and methods is very crucial (Samiudin, 2016). In general, inquiry-based learning approaches and problem solving are quite effective approaches to stimulate students to use higher order thinking skills (HOTS).

No less important than the two learning components above is learning evaluation, as it is one of the learning components used to see and assess student learning outcomes. It is also an important component to diagnose and measure learning outcomes. Evaluation used as a learning diagnosis tool allows educators, students, and also policy makers to find out various symptoms that appear in the learning process (Muttaqin, 2020). On the other hand, evaluation that aims to measure the final results of learning can also provide an overview of the achievement of learning targets. This information is certainly very important for educators, students, and also policy makers for planning the next school year period. Therefore, good and appropriate evaluation tools (instruments) are needed so that learning outcomes can be measured properly. To measure the success of HOTS-based learning, the evaluation tools (instruments) must also be HOTS-based. Evaluation tools, whether formative or summative, should be able to measure students' ability to use higher order thinking skills (Baharun & Sa'diyah, 2018). In short, evaluation tools must emphasize the assessment of students' ability to think contextually and authentically, no longer thinking textually (Simbolon & Tapilouw, 2015).

The application of HOTS-based learning models has not yet achieved maximum results. This can be seen from various studies that have been conducted. For example, a research paper written by Pratama and Istiyono (2015) reported that the results of planning and implementing HOTS-based learning in the selected schools were still classified as moderate (Pratama & Istiyono, 2015). Another research conducted by Budiarta, Harahap, Faisal, and Mailani (2018) mapped HOTS-based learning in all elementary schools in Medan city. The results of this study stated that HOTS-based learning still needs to be improved (Budiarta et al., 2018; Budiarta & Harahap, 2018). On the other hand, research conducted by Agusta and Sa'dijah (2021) stated that most teachers in Banjarmasin city are still not ready to implement HOTS-based learning, especially during online learning (Agusta & Sa'dijah, 2021). Some research results show that HOTS-based learning still needs to be improved. Most of the applied learning models only reach the level of middle order thinking skills, namely the ability that falls into the category of applying (C-3) and analyzing (C-4).

Therefore, educational institutions, such as Islamic higher education institutions, are required to be adaptive and able to respond to these challenges by reforming learning and evaluation approaches that encourage higher-order thinking. Referring to this, lecturers who act as the main agents in higher education institutions have a great responsibility to ensure that HOTS principles are not only understood theoretically, but also implemented in the learning and evaluation process. Thus, the integration of HOTS in learning becomes one of the important strategies in creating graduates who are not only cognitively superior, but also relevant to the needs of the times.

However, based on Ahmad et al. (2020) research, which states that although HOTS has become part of the national and international curriculum discourse, the reality of its implementation in Islamic educational institutions still faces various challenges. One of the main

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challenges, especially in Islamic higher education institutions, is that lecturers are still not maximizing the application of HOTS, making it difficult to stimulate students to be able to answer and create HOTS-based questions (Syafryadin et al., 2021). Undeniably, many lecturers explicitly state their support for the importance of HOTS, but still have difficulties in applying it concretely in the Semester Learning Plan (RPS) and in the evaluation instruments they use. In addition, most of the research on HOTS focuse on the implementation of learning, the use of learning methods, and the creation of learning media. Only a few studies focus on HOTS-based learning evaluation components or HOTS-based evaluation tools. As well as the lack of empirical studies that highlight the capacity of PTKIS lecturers in understanding and implementing HOTS. Hence, this becomes a research gap that should be filled (Widyanto, 2021). As we know, the quality of PTKIS learning is highly dependent on the competence of lecturers in developing a learning process that stimulates students' thinking skills, as well as designing evaluations that reflect HOTS characteristics. In this regard, this research (which focuses more on HOTS-based learning evaluation) is very significant. Thus, it is important to critically review how HOTS can be applied in daily pedagogical actions, especially in Islamic-based learning.

Referring to these problems, this research is directed to answer three main questions. First, how do PTKIS lecturers understand the concept of HOTS? This question is important to identify the extent to which lecturers have an adequate theoretical foundation related to HOTS principles such as analysis, synthesis, evaluation, and creation. Second, what is the lecturers' ability to implement HOTS in learning practices? This second research question aims to assess the consistency between conceptual understanding and classroom application, including teaching strategies and methods used. Third, to what extent the lecturers' ability to develop evaluation instruments that reflect HOTS? The third research question aims to illustrate the lecturers' ability to deeply understand the concept of HOTS through learning evaluation. By answering these three questions, this research is expected to provide a comprehensive picture of the HOTS implementation map in PTKIS, so that it can be the basis for policy making and also lecturer capacity building towards pedagogical reform in Islamic education to be more adaptive to the demands of the 21st century and the current digital reality.

Method

This research uses a qualitative method with a case study approach. The use of case study approach in this research is based on several reasons. First, this research aims to identify, investigate and clarify various issues related to the implementation and evaluation of HOTS-based learning. This condition requires interrelationships that have not been clearly identified. Therefore, an in-depth understanding of the case is needed so that evidence of the interrelationships between the major components under study can be formulated (Pettigrew, 2013). Secondly, the nature of this research is to look thoroughly at the factors associated with a particular case, which requires a lot of data and details. So that a comprehensive analysis can be put forward. The use of a case study approach allegedly allows this goal to be achieved. Thirdly, the in-depth knowledge of a case in the study allows the researchers to formulate his findings to become a framework behind the formation of a phenomenon; in this case, the implementation and evaluation of HOTS-based learning (Houghton et al., 2013).

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The population of this study is all lecturers of private Islamic universities (PTKIS) situated in Region I that is coordinated by Private Islamic University Coordinator for Region I, which includes Jakarta, Bogor, Depok, Tangerang, and Bekasi regions (known as KOPERTAIS Region I). However, conducting research on all PTKIS lecturers in Region I in this study is very difficult. Therefore, this study selected several PTKIS lecturers in Kopertais Region I as research samples. This study used two data collection techniques, including open-ended questionnaires based on Google Forms and also document analysis that refers to the course plan and the learning outcomes evaluation instrument prepared by lecturers. The questionnaire was designed to explore lecturers' understanding of HOTS concepts, as well as how they implement and evaluate HOTS-based learning. Meanwhile, document analysis was used to assess the correspondence between the statements in the questionnaire and the actual practices reflected in the official teaching documents.

The questionnaire questions were open-ended to allow respondents to provide reflective and contextualised explanations. The questionnaire was distributed in the Kopertais Region I WhatsApp group, and thirteen (13) lecturers filled out the questionnaire. Thus, the participants of this study were thirteen (13) lecturers. The main data sources in this study are respondents' answers collected through google form-based interview questionnaire, RPS documents, and learning evaluation tools made by lecturers. The interview questionnaire used in this research is semi-structured and open-ended interview questions. In addition to interviews, this research also reviewed and evaluated several documents. The documents studied include semester learning plan (RPS), evaluation tools, and other supporting documents. The documents were used as a cross reference of the interview questionnaire results. This was done as one of the verification and validation methods of qualitative research, namely data triangulation. As explained earlier, this research uses qualitative methods. This research positions the researchers to be able to analyze data simultaneously. The analysis process begins by classifying the research subject, various events, information, and certain characteristics obtained in the data collection process (Punch, 2014b).

Furthermore, data analysis continued with three important processes in data processing and analysis proposed by Miles and Huberman, namely: data reduction, data display, and verification/conclusion drawing (Miles, 2014; Punch, 2014a). The three components interact simultaneously in the data analysis process. Data reduction is the initial process carried out by the researchers. This process includes editing, grouping/categorizing data, and summarizing data. This process is carried out by coding, making memos, grouping data based on themes and patterns, conceptualizing and explaining the concepts found in the data. The data that has been grouped is then displayed as field findings. In this process, data is organized (organizing), compacted (compressing) to avoid too much information, and collected according to themes that are in accordance with the theory (assembling). After these two processes, the researchers draws conclusions. These steps were repeated until valid results were obtained.

In real terms, the analysis process in this research was carried out in three stages. First, the data found in the field was processed and analysed (in-case analysis). The analysis process is based on respondents' answers that have been grouped based on research questions (problem formulation). Secondly, the results of the in-case analysis were compared with other sources (cross analysis) to find common patterns/characteristics and formulated into field findings. Third, the results that have been formulated in the second stage are then discussed with various theories in the literature to be formulated and concluded as the final result of the research. Through this methodology, it is

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expected to present a valid and in-depth picture of the real conditions of HOTS implementation in PTKIS, as well as contribute to the development of higher education policies and practices of Islamic higher education that are more qualified and contextualised.

Results and Discussion

As it has been stated above, this research collected data from several lecturers from private Islamic universities from KOPERTAIS Region I. The collected data is based on lecturers' responses upon several open ended google form-based interview questions. The findings show diverse data related to the implementation and evaluation of teaching and learning process in Private Islamic Universities (PTKIS) Kopertais Region I.

As an effort to improve the quality of learning, especially in developing higher order thinking skills (HOTS), a systematic mapping of the concept, implementation and evaluation of HOTS learning is needed. This aims to understand how HOTS is applied in the learning process and how students' cognitive outcomes are affected by the approach. Therefore, this research focuses on in-depth analysis of various aspects related to HOTS, which are then categorized to gain a deeper understanding. The formulation of these findings is based on several categories, namely: 1) HOTS concept; 2) implementation of HOTS learning and HOTS Cognitive Outcomes; 3) Evaluation of HOTS Learning. However, before mapping and formulating the responses, it is important to acknowledge that the responses can be grouped into three categories as in table 1.

Table 1. Categories of lecturers' responses to the distributed questionnaire

Groups	Categories	Description
One	Consistent responses.	Some lecturers in this category answered all questions consistently, starting from the initial understanding of HOTS to the last question. All answers that appeared showed the accuracy of understanding, explanation, learning methods, and evaluation models used in the teaching and learning process. In addition, responses from this category also attached the supplementary documents such as semester learning plan (RPS) and evaluation sheets used in lectures. This of course makes it easier for researchers to analyse.
Two	Inconsistent responses.	For this category, the responses showed differences (inconsistencies) in some parts. For example, the reflection on HOTS shows a good understanding of HOTS. However, in the evaluation model and sample questions section, the understanding of HOTS was not reflected. In addition, some lecturers did not include supplementary documents. Therefore, it was difficult for the researchers to put such responses in the first group.
Three	Incomplete responses.	There were some lecturers who did not respond to some of the questions in the questionnaire. Therefore, the researchers could not position the lecturer in the mapping.

Table 1 presents the classification of lecturers' responses based on consistency, completeness, and accuracy in providing answers related to the understanding and application of HOTS in learning. This categorization provides initial insight into the extent to which lecturers understand the concept of HOTS and how they implement it in the teaching context. Based on the classification results, the subsequent discussion will focus on three main dimensions that are the core of the analysis in this study. First, HOTS Concept, which will review the extent to which

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lecturers understand the basic principles of HOTS and how this concept is translated into learning policies. Second, HOTS Learning Implementation and HOTS Cognitive Outcomes, which identifies the ways lecturers implement HOTS in learning practices and its impact on students' cognitive achievement. Third, HOTS Learning Evaluation, which analyses the instruments and evaluation methods used to measure HOTS achievement in learning, as well as their effectiveness in reflecting students' higher order thinking skills. These three aspects will be discussed in depth, with reference to the response categories listed in Table 1, to provide a more holistic understanding of HOTS implementation among lecturers.

Based on three aspects and the results of data collection from PTKIS lecturers in Kopertais Region 1, it was found that the level of understanding, implementation, and evaluation based on HOTS varied greatly. Table 2 below is a recapitulation of the findings in tabular form to clarify the distribution of categories:

Table 2. Recapitulation of the Findings

Research Focus	High Category	Medium Category	Low Category
HOTS Concept Understanding	3 participants	5 participants	5 participants
Implementation of HOTS in Learning	3 participants	5 participants	5 participants
HOTS-based Evaluation Instrument	5 participants	5 participants	3 participants

Based on Table 2, it can be seen that only a small number of lecturers demonstrated complete mastery of all aspects of HOTS. Most were at the moderate level, while quite a few were in the low category, particularly in the evaluation aspect. These findings will be discussed in depth, with reference to the response categories listed in Table 1, to provide a more holistic understanding of HOTS implementation among lecturers.

HOTS concept

The responses shown by respondents when answering questions in the google form-based questionnaire concerning their comprehension on the concept of HOTS can be categorized into 3 groups:

First category

Respondents in this category provided a clear explanation of HOTS. Moreover, they also provided identification and practical terminology used in higher order thinking skills (HOTS) spectrum. For example, what lecturer-1 said below:

> "HOTS are thinking skills that refer to categories C-4 (analyzing) to C-6 (creating) in the cognitive ability category based on Bloom's Taxonomy"

Lecturer-12 gave a brief explanation but showed a fairly good level of understanding and mentioned the technical terms used in HOTS and stated that "…it's thinking skills up to the level of analysing, creating". Furthermore, lecturer-2 also showed a comprehensive understanding of the concept of HOTS and stated that:

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> "HOTS when viewed in the new Bloom's taxonomy is included in the cognitive domain levels 4 to 6 namely analysis, synthesis and creation. According to other experts, HOTS is categorized as critical thinking, creative thinking, problem solving, research skills, innovation, self-management skills, technological collaboration, and conveying facts with reasoning. In general, everyone has HOTS skills, they just need to develop and train them."

Based on the responses above, it can be said that some lecturers from private Islamic universities KOPERTAIS region I that display similar understanding in this category have a fairly good understanding of the concept of HOTS along with an understanding of some practical terminology used in HOTS.

Second Category

Apart from the group mentioned above, there were also some lecturers who gave general comments about HOTS and did not mention technically important terms in the definition of HOTS. Therefore, this category is more suitable to be grouped in the group that understands the concept of HOTS in general. For example, the comment made by lecturer-5 who stated:

> "… Skills to think broadly, critically, and deeply, not like a tape recorder that can only record & play back the recordings…."

The same thing was also conveyed by lecturer-11 who stated that HOTS is: "… the ability of thinking skills on complex matters in terms of making analysis, synthesis, and drawing conclusions". Similarly, lecturer-7 conveyed that "… HOTS is a high-level way of thinking that does not rely on text when solving problem, thinking critically, rationally, and creatively". Lecturer-8 and lecturer-6 also said that "… HOTS in the context of learning is a learning process that involves or requires a high level of thinking and analysis"

Third Category

In addition to the two groups above, there are some lecturers who showed a partial understanding of the term HOTS, which is understood only in the context of giving questions to students. For example, lecturer-13 stated that:

> "HOTS is a form of making questions made by educators for their students where the questions develop students' cognitive to be more able to think logically critically and rationally".

While lecturer-10 said that HOTS is: "… modelling problems with C4-C6 level". Meanwhile, Lecturer-3 emphasized HOTS in learning and mentioned that "… it's a learning that can apply critical thinking to long-term understanding and be able to implement it". In short, some of the expressions quoted in this category do not fully describe the concept of HOTS.

In order to analyse the obtained data, the researchers use three main variables to determine and formulate the perception of PTKIS lecturers in KOPERTAIS Region I about higher order thinking skills (HOTS), namely 1) reflection, 2) Direct explanation delivered by lecturers when answering questions, 3) response to cognitive ability targets that become learning

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outcomes. Based on the responses that have been given, it can be formulated that the understanding of KOPERTAIS Region I lecturers about the concept of HOTS can be categorized into three groups:

First Category: Understanding HOTS concepts and practical terminology.

The lecturers in this first category explained the concept of HOTS clearly. In addition to providing a detailed explanation, respondents in this category also provided identification and practical terminology used in higher order thinking skills (HOTS), namely the categorization of thinking skills using operational verbs of C-4, C-5, and C-6. The explanation is strengthened by making the C-4 to C-6 level abilities as the target cognitive abilities that become learning outcomes. In terms of understanding HOTS, the researchers used two assessment criteria in assessing respondents' understanding, namely: 1) detailed explanation and mentioning the general characteristics of HOTS; 2) the use of practical terminology associated with HOTS (operational verbs proposed in Bloom Taxonomy). Thus, if the explanation given by the respondent includes these two criteria, then the respondent has shown a comprehensive understanding of HOTS.

This is in line with what was stated by (Krathwohl, 2002) who argues that high-level thinking skills (HOTS) are high-level thinking skills that involve critical, creative, and contextual analysis processes that refer to C-4 (analyze), C-5 (evaluate), and C-6 (create) levels of knowledge. Moreover (Amer, 2006), stated that the concept of HOTS should also be reflected in the context of the types of questions used in learning evaluation. HOTS includes basic concepts, learning implementation, methods, and learning evaluation. Thus, a comprehensive understanding of HOTS includes several components described above.

Second Category: Understanding the concept of HOTS in general

Unlike the previous group, this second category gave an understandable and clear explanation of the definition of HOTS. However, some lecturers in this category fail to mention some practical concepts associated with HOTS; such as the categorization of operational verbs based on Bloom's taxonomy with identified levels (from level C-1 to C-6). On the other hand, some lecturers who fall into this category mentioned that they were targeting cognitive abilities of level C-4 and C-5 as learning outcomes, but they do not provide an accurate explanation of the concept of HOTS. Thus, their understanding of HOTS could be considered incomprehensive and unstructured. Moreover, their understandings do not meet the two criteria determined above. Therefore, this group of lecturers is more suitable to be categorized as the group that understands the concept of HOTS in general. As it has been stated by previous researchers, many others argue that the concept of HOTS includes thinking skills that include meta-cognitive, critical, creative, innovative, and contextual thinking (Abidinsyah et al., 2019; Ramdiah & Royani, 2019).

Third category: Partial understanding of HOTS concepts

Some lecturers who fall into this category are those who understand and explain HOTS only in a certain context. For example, they understand HOTS only in the form of questions or understand HOTS only in the context of higher order thinking processes carried out in

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learning. In addition, lecturers who fall into this category do not mention the target cognitive abilities corresponding to levels C-4 to C-6 as their learning outcomes. Thus, some lecturers who fall into this category illustrate a less complete understanding of the concept of HOTS.

These perceptions and categories are in line with what was conveyed by (Tyas & Naibaho, 2021) which stated that the concept of HOTS is integral to all components of learning. Starting from the concept of thinking, learning implementation, and learning evaluation.

In relation to the three categories above, it is important to acknowledge the existence of lack of depth in understanding HOTS that can be caused by several factors. The lack of understanding of the HOTS concept can limit one's ability to develop self-quality in higher order thinking skills (HOTS) (Busdayu et al., 2023; Saraswati & Agustika, 2020; Yanto & Arif, 2023). As happens in the world of education, the development of knowledge and technology in the 21st century requires humans to have high-level thinking skills. In this regard, students are required to be critical and have good analytical skills in facing complex challenges to solve problems.

One of the factors that hampers the mastery of HOTS concepts is the lack of training and self-development, in which some lecturers still have limitations to carry out self-development. These limitation/obstacles can be caused by several things, as the research of Rapih, S. and Sutaryadi (2018) suggested that the lack of mastery of HOTS concepts is caused by various obstacles, which include, but not limited to: (a) lack of interest from within, this tends to be caused by low motivation or self-confidence, thus preventing someone from taking steps towards better self-development; (b) lack of resources, limited access to resources such as learning resources in the form of reading materials, training, and education, so that it can hinder self-development; (c) lack of knowledge and information, this can be caused by ignorance on ways or resources that can help in self-development; (d) time constraints, this may be the result of a heavy workload that inhibits one's ability to allocate time; (e) lack of social support, the absence of an environment or community that support and encourage self-development; (f) physical or health limitations.

Implementation of HOTS Based Learning and HOTS Cognitive Outcomes

The implementation of learning carried out by lecturers who have submitted their responses through the distributed questionnaires is quite diverse, ranging from those who clearly use conventional learning methods to several learning models that provide space for students to think analytically, creatively, and innovatively.

For lecturers who conduct HOTS-based learning, they provide space for students to think analytically and innovatively. This can be seen from some of the learning methods they use such as dialogic discussions, group projects, debates, case studies, problem solving, analogies, and mind mapping. This can also be seen in some of the uploaded documents such as semester plan. The existence of these learning methods really provides space for students to find new ideas that are contextual to the real problems that occur and in accordance with their experiences. Meanwhile, some other lecturers use several learning methods that emphasize less complex thinking processes, tend to remember, and explain their understanding of lecture materials. These methods include question and answer, resume writing, lectures, and presentations. These learning methods are

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categorized as non-HOTS-based learning, because the learning activities do not require students to think at a higher level.

HOTS-based learning cognitive outcomes provide an overview of students' thinking abilities at a higher level, especially those related to the ability to think critically in obtaining information, think creatively in solving problems based on the obtained knowledge, and ability to make decisions in complex conditions. To achieve the aforementioned abilities, there should be several activities implemented by lecturers in planning the learning activities to achieve HOTS-based cognitive outcomes. In the planning stage, the implementation of HOTS-based learning can be seen from the operational verbs used in the Semester Program Plan (RPS) and the instructions in the test evaluation sheet.

Based on the collected data, many participants use operational verbs that fall into the category of low-level thinking skills, namely categories C-1, C-2, and C-3. Meanwhile, operational verbs that fall into the C-4, C-5, and C-6 categories are used in some occasion. It indicated that most lecturers in Kopertais Region I are still aiming for low and medium level thinking skills. This can be seen from the operational verbs used in the Semester Learning Plan (RPS) or learning evaluation (Non-HOTS category operational verbs (C-1, C-2, C-3)). Meanwhile, only a small portion used operational verbs that required students to use higher order thinking skills (Operational Verbs of HOTS category (C-4, C-5, and C-6)). Thus, most of the lecturers' responses related to lesson planning to create HOTS-based cognitive outcomes can be divided into three categories: 1) High-level cognitive abilities (categories C-5 and C-6), 2) Middle level cognitive abilities (categories C-3 and C-4), 3) Low level cognitive abilities (categories C-1 and C-2).

Not only referring to the readiness of lecturers in the planning stage to produce HOTS-based cognitive outcomes, it is also necessary to develop students' cognitive abilities in the classroom that must be built by lecturers to produce excellent graduates. This aspiration can be done by providing stimulus and opportunities for students to practice analytical, critical, and innovative thinking skills. This can be seen from the responses given by the lecturers when asked about it. Lecturer-1 for example stated that:

> "First, I will ask them to do a simple analysis exercise by comparing one opinion with another. Second, I will ask them to express their opinion on a case. Third, I will ask them to support their opinion with some academic sources. Fourth, I will ask them to give their independent opinion based on the knowledge they have acquired."

Furthermore, lecturer-12 revealed that:

> "Provide questions related to students' daily lives that are related to the materials (indicators). 2. Explaining the importance of the material to be discussed and why students must know. 3. Discussing issues related to the material such as how abstract material can be understood by students easily and look concrete (clear). 4. Provide projects in the form of presentations, field observations, journal analysis and practice. "

The two responses above show that students are trained to always think critically, analytically and contextually. Furthermore, some other lecturers also stated that they have tried to train students to find the core of the problem and try to solve the problem. As stated by lecturer-4 who stated that:

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"I always hold effective discussions in exploring ideas or problem solving in a learning material/topic. Also "Ask students to examine the development of modern thinking contextually and try to find a point of correspondence with efforts to contextualize it in an ever-changing situation."

In other words, the lecturers also expressed similar effort, namely trying as much as possible to improve students' thinking skills through various learning methods and other stimuli in the learning process which are expected to improve students' thinking skills.

HOTS-based learning is a complex and holistic educational process, therefore educators or lecturers must design this learning tools appropriately, so as to stimulate students' higher-level thinking skills. One of the main aspects to note is to determine specific learning objectives in accordance with the characteristics of HOTS learning. HOTS based learning is a learning type that invites students to think at a high level, so the learning objectives must also use high-level operational verbs such as analyse, evaluate, and create/C-4, C-5 and C-6 operational verbs (Sinta et al., 2022). Learning objectives are a reference for the success of a lesson. To achieve this success, lecturers should develop and make a seamlessly coordinated Semester Program Plan (RPS) with the learning objectives of higher order thinking skills, such as analysis, synthesis, evaluation, and creation. This is in accordance with the opinion of Febriana, et. al. (2020), which stated that a lesson will improve the quality of education if educators are planning the lessons in accordance with the students' knowledge development.

Looking at the collected data in this research, it showed uneven results, in which only a small proportion of lecturers have planned their lessons using HOTS-based operational verbs (C-4, C-5, and C-6). On the other hand, the results showed that most lecturers made plans and evaluation instruments using low-level thinking skills operational verbs, namely C-1, C-2, and C-3 categories. In this sense, it can be said that most PTKIS lecturers in Kopertais region 1 are still aiming for low and medium level thinking skills, as it can be seen from the operational verbs used in the Semester Learning Plan (RPS) or learning evaluation (Non-HOTS category operational verbs (C-1, C-2, C-3)). This result is similar to what was conveyed by Sinta, et al (2022) which stated similar conclusion.

Moreover, the choice of using low-level operational verbs shows the lecturers' lack of understanding toward the concept of HOTS. If lecturers have a deep understanding and association ability with the concept of HOTS, they will use high-level operational verbs in their semester learning plans. In addition, Budiarta in Sinta, et al (2022) conveyed that understanding certain concept is the main thing for someone to develop learning tools to implement them.

In the implementation of HOTS learning, researchers used three variables in formulating the implementation of learning carried out by PTKIS lecturers in Kopertais Region I, namely: 1) lecturers' reflections and explanations; 2) variety of methods used in learning; 3) most often used methods in learning process; based on the submitted responses. The learning models that have been implemented by the lecturers can be categorized into two categories: a) HOTS-based Learning Implementation; b) Non HOTS based Learning Implementation.

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First category: Implementation of HOTS-based Learning

Some lecturers who fall into this category clearly mention that the types of methods they use are the types of learning methods that trigger students to think critically, analytically, associatively, and innovatively. Learning models that use dialogic discussions, group projects, debates, case studies, problem solving, analogies, and mind mapping are some of the methods associated with HOTS-based learning models because these methods are able to stimulate students to think more critically, contextually, and creatively. This is in accordance with Herman, et al (2022) who stated that the determination of learning models and methods has an important role in encouraging and producing HOTS-based learning. Thus, they can reach the level of knowledge that reaches the C-6 level (creating).

One of the important things in HOTS-based learning is the use of learning methods that allow students to orchestrate various higher order thinking skills. This will only be possible if the method used in learning supports it. Such as the research conducted by Jailani, Sugiman, & Apino (2017) and Loyens et al. ()2023) who used problem-based learning as the basis of their research. This means that if the learning method used does not allow students to analyse, think creatively, and find solutions to factual problems, then the learning is not HOTS-based (Khasanah & Hidayah, 2022; Suherman et al., 2020).

Second category: Learning Implementation that is not HOTS-based

Unlike the previous category, some lecturers who fall into this second category tend to use conventional learning methods which in fact emphasize non-complex thinking processes and tend to remember (recalling/C-1) and explain (C-2) their understanding of the lecture material being discussed. So, the target knowledge level has not reached the C-5 and C-6 level categories. Low-level thinking skills are applied in learning, because lecturers do not understand the concept of HOTS-based learning. In this instance, lecturers have limitations in developing learning using appropriate strategies. Lecturers are unable to determine methods and design activities that are in accordance with high-level thinking skills (Wilson & Narasuman, 2020).

The limited implementation of HOTS-based learning can reduce the ability of educators to instil intellectual challenges to the students, resulting in lack of experience in developing higher order thinking skills. It is therefore crucial to provide support and training to this group of lecturers, so that they can understand and implement HOTS based learning effectively. In-depth training and opportunities to collaborate with peers can help overcome these barriers and increase the success of HOTS based learning implementation.

HOTS Based Learning Evaluation

Evaluation models used in learning, responses from PTKIS lecturers in Kopertais Region 1 can be divided into three categories: a) Using HOTS-based evaluation models in categories C-5 and C-6, b) Using HOTS-based evaluation models in categories C-3 and C-4, c) Using evaluation models that are not HOTS-based (level categories C-1 and C-2).

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Lecturer-1 for example said that:

" First, I will describe a case. Second, I will ask students to: 1) Present their analysis of the case, 2) Ask students to associate the problems in the case with various existing literature, 3) Provide solutions and independent views on the case".

The description shows that lecturer-1 asks students to analyse certain problems, associate these problems with existing theoretical knowledge in the scientific treasury to then find solutions to the problems being studied. This is included in the category of higher order thinking skills (HOTS). The same thing was also conveyed by several other lecturers. In the exemplary test evaluation sheet, lecturer-4 exemplifies the test question submitted to students which reads "Explain the best solution you do in interacting effectively in a social environment". Also what was conveyed by lecturer-9 who asked students to "As a prospective teacher what would you do to make it easier for students to teach integer counting operations?". Furthermore, lecturer-5 gave an example of a problem that not only requires critical thinking from students, the problem also requires students to contextualize current problems:

“Is the polarization of urban and rural Islam or modernist and traditionalist still relevant for the two major organizations Muhammadiyah & Nahdlatul Ulama in the current context? Include your critical arguments in answering this question!”.

In addition to the above responses, other lecturers also showed examples of evaluation test types that require students to use higher order thinking skills (HOTS) with cognitive ability categories identified in categories C-4, C-5 and C-6.

However, there are also some lecturers who provide examples of questions that are identified in the C-1, C-2, and C-3 knowledge categories. Like the question from lecturer-2 which asks students to: "Describe the differences (characteristics) of the characteristics of plants with callus and cormus? Draw and give examples!". The same thing was also done by lecturer-13 through one form of test type questions: "Students are given questions about the development of learning methods and explain the strategies of these methods in running and applying them". Some of these responses indicate that the evaluation model developed by PTKIS Kopertais Region I lecturers can be categorized as a HOTS-based learning evaluation model. While some other lecturers still provide evaluations that cannot be categorized as HOTS-based evaluations.

There are four variables used in assessing and formulating the evaluation model used by PTKIS lecturers in Kopertais Region 1, namely: 1) questionnaire responses, 2) examples of how lecturers conduct learning evaluation, 3) operational verbs used in learning evaluation, and 4) evaluation sheet documents. Based on the submitted responses, the learning evaluation used by PTKIS lecturers in Kopertais Region 1 can be divided into three categories: a) HOTS-based evaluation model category C-5 and C-6; b) Evaluation model that uses intermediate thinking skills (MOTS) category C-3 and C-4, c) Evaluation model that uses low-level thinking skills (LOTS) category C-1 and C-2.

First Category: HOTS-based evaluation model category C-5 and C-6

The obtained data shows that PTKIS Kopertais Region 1 lecturers who fall into this category evaluate students' ability to analyse problems, associate theoretical knowledge with real

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problems, and evaluate students' ability to find solutions or create new opportunities from problems raised in learning evaluations. This is included in the category of higher order thinking skills (HOTS). As the opinion of Aprilia (2023; 2024) and De Mello et al. (2021) which stated that when students were able to combine facts and ideas when synthesizing, generalizing, explaining, analysing to conclude, those abilities were counted as high-level thinking ability (HOTS). In addition, the evaluation sheets used by this group of lecturers also showed the use of operational verbs that indicate the target level of knowledge being addressed (Aprilia & Machromah, 2024; Aprillia et al., 2023).

Second category: Evaluation models that use intermediate level thinking skills (MOTS) categories C-3 and C-4

This category represents lecturers who use assessment models that have not targeted and tested students' thinking abilities at the C-5 and C-6 levels, but still test students' abilities at the C-3 and C-4 levels. This can be seen from the operational verbs and the question sheets that were tested on students. Although some questions show efforts to test students' ability to analyse problems, however, the desired analysis model is more about comparing one concept with another. So, this category has not yet entered the C-5 and C-6 levels. This is in line with the opinion of Taubah (2019), which stated that Medium Order Thinking Skill is the ability of intermediate level students by using the verbs understand and apply.

Third category: Evaluation models that use low-level thinking skills (LOTS) (C-1 and C-2)

Some lecturers were identified as using types of learning evaluations that test students' abilities at the C-1, C-2, and C-3 levels. Such as asking students to explain a concept, explain the difference between one thing and another, and several other types of questions that are still included in the category of efforts to measure low-level thinking skills (C-1 and C-2). This type of evaluation emphasizes more on testing students' ability to understand, explain, and compare. This is in accordance with Dwijayanti (2021) and Wigert et al. (2022) who stated that low-level thinking skills have convergent thinking activities, practicing only by solving problems and memorizing, studying simple problems, etc.

The findings above show variations of understanding and implementation of HOTS-based learning, both in learning practices and constructing evaluation instruments. It reflects that the problem of strengthening HOTS in PTKIS KOPERTAIS Region I is not only the problem of individual lecturers, but also wider structural and institutional challenges, such as the absence of a systematic HOTS-based pedagogic training system in PTKIS KOPERTAIS Region I. This may be due to weak institutional support related to improving the quality of resources. As Mgaiwa & Kapinga (2021) stated, the lack of academic mentoring and administrative pressure on lecturers has contributed to the low pedagogical quality of lecturers, especially in HOTS. When viewed from an Islamic perspective, this finding also illustrates the weak integration of Islamic epistemology with modern learning approaches, as from the standpoint of classical Islamic education which has a scientific tradition of scholars that always emphasizes critical and reflective abilities (Aripin et al., 2020). So, it can be said that, in the absence of this conceptual foundation, the HOTS approach is only seen as a technical instruction, not as part of the Islamic scientific ethos that emphasizes deep meaning and intellectual ijtihad.

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Based on the findings and critical analysis, a strong foundation can be established in curriculum design, particularly at PTKIS KOPERTAIS Region I, by emphasizing the integration of HOTS competencies into the structure of learning outcomes, syllabus, and RPS. In addition, it is also necessary to highlight the importance of evaluation standards and academic assistance in assessing the extent to which skills are implemented in the classroom, not just as outlined in the RPS document. Therefore, PTKIS needs to develop a lecturer training model that not only emphasizes HOTS techniques but also integrates Islamic values. Several strategic recommendations can be made to help build lecturers' understanding and skills related to HOTS-based learning, such as integrated curriculum development, lecturer training by emphasizing practices that can integrate Islamic values and HOTS, and the formation of a HOTS quality assurance team.

Conclusion

This study found a gap between understanding and practice of HOTS-based learning among lecturers at PTKIS in the KOPERTAIS region I. This gap is reflected in the diversity of lecturers' understanding and teaching and evaluation practices that do not fully reflect HOTS principles. As is known, most participants created evaluation instruments at low cognitive levels, namely C-1 and C-2. This study contributes to mapping the understanding, teaching practices, and evaluation design of HOTS-based PTKIS lecturers, which has not been specifically studied in private Islamic universities. Thus, this study provides a foundation for developing faculty capacity-building programs and government policies to implement more qualified and innovative pedagogical changes based on higher-order thinking skills. However, this study has limitations, including the scope of the study area, the limited number of respondents, and the lack of exploration of institutional factors that may influence the implementation of HOTS. Therefore, in future studies, it is recommended to expand the geographical scope, increase the number of participants, and further explore contextual aspects such as pedagogical training, institutional policies, and structural support for strengthening HOTS-based learning in a more comprehensive and in-depth manner.

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