

**ANALYSIS OF TEACHER PERCEPTION,
UNDERSTANDING, AND CHALLENGES
IN DEVELOPING THE HOTS QUESTION:
A CASE STUDY IN CENTRAL
LOMBOK, INDONESIA**

MUHAMMAD KHAIRUL WAJEDI IMAMI

SULTAN IDRIS EDUCATION UNIVERSITY

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CHALLENGES IN DEVELOPING THE HOTS QUESTION:
A CASE STUDY IN CENTRAL LOMBOK, INDONESIA

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ABSTRACT

This research was conducted to analyse teacher perception, understanding, and challenges in developing High Order Thinking Skill (HOTS) questions in Central Lombok, Indonesia. A qualitative approach with a case study design was utilized, involving interviews as the primary data collection method. The respondents were selected using purposive sampling, involving seven teachers with more than five years of teaching experience. The data analysis was carried out thematically. According to the findings, 1) The teacher believes HOTS is important for students, but students have low HOTS abilities. One of the causes is the teacher's teaching strategy. Furthermore, they perceive that several teaching strategies to enhance HOTS are ice breaking, grouping, and interactive interaction in the classroom. 2). Teacher understanding of HOTS is sufficient but needs improvement. And 3). The challenges for teachers in developing HOTS questions came from students' ability and attitude, as well as their low skill and lack of motivation. This research contributes by providing current information about teacher understanding, teacher perception, and the challenges and solutions in the implementation of HOTS in central Lombok, Indonesia.



ANALISIS PERSEPSI, PEMAHAMAN, DAN CABARAN GURU DALAM MEMBANGUNKAN SOALAN KBAT: KAJIAN KES DI LOMBOK TENGAH, INDONESIA

ABSTRAK

Guru memainkan peranan penting dalam meningkatkan penguasaan murid dalam Kemahiran Berfikir Aras Tinggi (KBAT). Walau bagaimanapun, penyelidikan telah mendedahkan bahawa keupayaan guru untuk membangunkan soalan KBAT masih terhad, membayangkan bahawa pelajar tidak menerima latihan yang mencukupi dalam bidang ini di sekolah. Oleh itu, kajian ini dijalankan untuk menganalisis persepsi, pemahaman, dan cabaran guru dalam membangunkan soalan KBAT di Lombok Tengah, Indonesia. Pendekatan kualitatif dengan reka bentuk kajian kes telah digunakan, melibatkan temu bual sebagai kaedah pengumpulan data utama. Responden dipilih menggunakan persampelan bertujuan, melibatkan tujuh orang guru yang mempunyai pengalaman mengajar melebihi lima tahun. Analisis data dijalankan mengikut tema. Mengikut dapatan, 1) Guru percaya KBAT adalah penting untuk pelajar, tetapi pelajar mempunyai kebolehan KBAT yang rendah. Salah satu puncanya ialah strategi pengajaran guru. Tambahan pula, mereka menganggap bahawa beberapa strategi pengajaran untuk meningkatkan KBAT ialah pemecahan, pengelompokan, dan interaksi interaktif di dalam bilik darjah. 2). Kefahaman guru tentang KBAT sudah memadai tetapi memerlukan penambahbaikan. Dan 3). Cabaran guru dalam membangunkan soalan KBAT datang dari keupayaan dan sikap pelajar, serta kemahiran yang rendah dan kurang motivasi. Penyelidikan ini menyumbang dengan menyediakan maklumat terkini tentang pemahaman guru, persepsi guru, dan cabaran serta penyelesaian dalam pelaksanaan KBAT di Lombok tengah, Indonesia.

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LIST OF ABBREVIATION

HOTS	Higher Orde Thinking Skill
LOTS	Low Order Thinking Skill
MoEC	Ministry of Education and Culture



CHAPTER 1

INTRODUCTION



1.1 Background of Study

The 21st century is the era of advancement. One of the essential skills for the 21st century is higher-order thinking skills (HOTS). Possessing this skill will assist students to bear up against the tight competency requirements in the workplace or even in daily life situations (Angraini et al, 2019). This skill helps students manage and solve real-life problems (Rabadi & Salem, 2018).

In addition, HOTS has a positive correlation with student achievement in school. Hamdan et al (2019) said that the utilisation of HOTS in teaching and learning surpasses student achievement academically and practically. This view is in





line with the study by Tanujaya et al (2017), who found that there is a linear relationship between HOTS and student achievement. Therefore, it is essential for school to foster student`s HOTS.

However, students in Indonesia are said to be without a satisfactory level of HOTS. This was proven through a study by Yuliati and Lestari (2018), which showed that the majority of students did not know about the concept of HOTS. This study is in line with Bahtiar`s (2018) study, which found that the level of critical thinking among students in Lombok, West Nusa Tenggara, is low. This finding was also supported by Halim et al (2021), where students were still unskilled in solving HOTS questions. This situation shows that the students in Indonesia have not yet received sufficient training in HOTS.



The weakness of students in HOTS is said to be caused by the lackof skill of the teacher in implementing HOTS in school. HOTS assessments are said to be rarely used by teachers. This situation furtheraffects the mastery of HOTS among students in Indonesia (Ramadhan et al., 2019). As the main facilitator in the classroom, teachers have an obligation to help students improve their HOTS. To do that, teachers need to have the necessary perception, understanding, and ability relatedto HOTS (Suratmi et al., 2019; Abosalem, 2016).





1.2 Research Problem

Previous research showed that Indonesian students' proficiency in HOTS is low. Hamdi et al (2018) and Sagala and Andriani (2019) reported that students did not achieve the international standard of HOTS such as the Program for International Student Assessment (PISA) and the Trend in International Mathematics and Science Study (TIMSS). Ginting and Kuswandono (2020) argue that one of the factors contributing to students' low HOTS skill is a lack of training in solving HOTS-related problems. Students get less stimulation about HOTS in school because teachers rarely implement HOTS assessments in the classroom (Ramadhan et al., 2019). It is happening because teachers lack understanding of HOTS (Widana, 2017).



The teacher plays an important role in enhancing student HOTS proficiency in

school. It is because they are the ones who are obligated to arrange, implement, and evaluate the learning activities (Gozali et al., 2021). Tanudjaya and Doorman (2020) stated that teacher pre-existing knowledge is important to improve student HOTS skills. teacher can manage learning strategies that deliver essential critical thinking instruction (Anggraeny & Khongput, 2022). Other than that, teachers should be able to carry out strategies for intriguing learning and higher- order assessment (Ginting & Kuswandono, 2020). To achieve that, teachers should have good perception and an appropriate understanding of HOTS because student mastery of this skill depends on teacher mastery of this 21st century skill (Ardini, 2017).

In terms of perception, research has shown that teacher perceptions of HOTS influence the learning methods they use in the classroom. If the teacher has a positive





and accurate perception of HOTS, the teacher can provide an appropriate learning method to help students improve their HOTS (Mustika et al., 2019; Mahanani et al., 2020). The teachers have misconception about HOTS in which they consider HOTS questions to be difficult (Abosalem, 2016). The teacher continues to conflate the ability to solve HOTS problems with the ability to solve difficult problems. In this case, teacher-variable perception became the challenge for them in developing HOTS questions (Tyas et al., 2019).

Teachers do not understand and cannot implement HOTS in the teaching and learning process (Warmadewi et al., 2019). Due to students' limited knowledge, access to various materials, curriculum, and time constraints, the teacher believes HOTS is a difficult concept to implement (Archarya, 2021). The study conducted by Ardini (2017) discovered that teachers have a poor understanding of HOTS. The teacher interviewed is unable to define HOTS. Furthermore, Suratmi et al (2019) stated that the low teacher ability in developing HOTS questions was caused by the teachers' lack of understanding of the practical concept within the application of HOTS assessment.

Aside from teacher perception and understanding, HOTS teacher challenges must also be considered. Paying attention to teacher challenges could help teachers mitigate which aspects need to be emphasized. Giri (2021) explains in his research that teachers' inability to provide answers to HOTS questions stems from a lack of knowledge and training. Teacher training only gives theories without a real-life example. Fakhomah and Utami (2019) reported other challenges for the teacher in HOTS, namely time management, where the teacher needs more time to apply HOTS teaching strategies. When a student is unable to answer a HOTS question, the teacher





is also demotivated. Dima et al (2021) reported several challenges for teachers regarding HOTS, such as the low ability of students in HOTS, the lack of teacher proficiency in producing HOTS questions, and the lack of facilities in implementing the HOTS teaching and learning process.

There is no research about teacher perception, understanding, and challenges in implementing HOTS in Central Lombok. Research regarding HOTS in central Lombok is only about HOTS instrument development (Hamdi et al., 2018), analysis of HOTS in the teaching and learning process (Yusuf et al., 2020), and analysis of student HOTS ability (Bahtiar, 2018). Based on the argumentation above, researchers intend to identify teacher perception, understanding, and challenges in implementing HOTS. The research from the perspective of teacher perception, understanding, and challenges will give a different angle to understand the condition of HOTS implementation.

1.3 Objective of Research

This study will identify the perceptions and understandings of Indonesian teachers about HOTS. This study also tends to explore the challenges faced by Indonesian teachers in implementing HOTS. The specific objectives of this research are as follows:

1. To explore teacher perceptions about HOTS.
2. To identify the teacher's understanding of HOTS.
3. To explore the challenges faced by teachers in implementing HOTS.





1.4 Research Question

The research questions are as follows:

1. What is the teacher's perception of HOTS?
2. How much do teachers understand about HOTS?
3. What are the challenges for teachers in developing HOTS questions.

1.5 Theoretical Framework

There are two theories underlying this research. Those are the Bloom taxonomy and the Gibson theory of direct perception. The next paragraph will explain both theories in detail.

The concept of HOTS is derived from Bloom's taxonomy. The Bloom taxonomy's cognitive dimension involves the formulation of intellectual skill and is organised hierarchically from concrete knowledge to abstract knowledge (Sulaiman et al., 2017). Bloom's taxonomy perfectly combines cognitive skills that divide the cognitive dimension into six levels. The first to the third level is categorised as "lower order thinking skills" (LOTS), and the fourth to the sixth level is categorised as "high order thinking skills" (HOTS) (Qasrawi & Beniabdelrahman, 2020). According to Prasetyo et al (2021), HOTS in the revised Bloom taxonomy are defined as the ability to analyse a problem (C4), evaluate a problem (C5), and generate a finding (C6).





Several researchers utilise the Bloom taxonomy to measure HOTS' level of expertise. Using the Bloom taxonomy, Sagala and Andriani (2019) distinguish high-level questions from moderate-level questions and lower-level questions in their study. In the research, the Bloom taxonomy was used to make sure the high-level question assessed critical thinking and problem-solving skills. Research by Ernawati and Baharullah (2020) analyses student levels of HOTS using the hierarchy of the revised Bloom taxonomy. Based on the interview results, they divide the student level into three categories: analysis (C4), evaluation (C5), and creation (C6). And Febrina et al (2019) utilise Bloom's taxonomy to analyse the content of HOTS in a student textbook. HOTS used to analyse which content is HOTS and LOTS.

The second theory is the theory of direct perception by Gibson. Human beliefs and cognitive dimensions, according to the theory, are formed by a long, progressive stimulus from an external factor with visible structure and abilities (Demuth, 2013). In the context of this research, teacher perception and understanding were gathered through a long process of teaching and learning. Teachers' perceptions and understanding were also shaped by their participation in training and workshops offered by the Indonesian Ministry of Education and Culture (MoE).

Michael and Carello (1981) define a theory of direct perception as a theory of knowing the environment. Humans collect the information in their surroundings through their direct vision (Demuth, 2013). That is why teachers can recognise the challenges they face during the implementation of HOTS. The teacher observes and points out the difficulty they felt, which they then assimilated as knowledge.





1.6 Definition of Key Terminology.

In this research, several terms need to be explained, such as HOTS, perception, understanding, and challenges. Those variables each have a conceptual and operational definition.

1.6.1 HOTS

HOTS is defined as the capability to practise several skills such as reasoning, contemplation, problem solving, decision-making, innovating, and generating. In the revised Bloom taxonomy, the skill of HOTS is analyzing, evaluating, and creating.

The use of HOTS forces people to change their perceptions in new situations. It necessitates logical thinking rather than memorising and remembering in order for people to comprehend the logical order and master the concept (Yuliati & Lestari, 2018; Prasetyo et al., 2021; Merta Dhewa et al., 2017).

For the current research, HOTS is explicated based on Bloom's taxonomy hierarchical order, which includes the skills of analysis, evaluation, and creation.

1.6.2 Perception

Perception is the process of a human thinking about certain phenomena after receiving sensations from the environment through their sense organs. The sensation





is the result of a process of interaction between the human and the phenomenon in the environment. During the process, there are five senses that are activated: vision, hearing, taste, smell, and touch (Aprianto, 2017).

Teacher perception is acquired through their experience in the teaching and learning process and other external factors. The current research intends to gauge teacher perception in the aspect of the importance of HOTS, student HOTS ability, and the strategy to enhance HOTS in the teaching and learning process.

1.6.3 Understanding

Understanding is an extensive web of interrelated ideas, experiences, and beliefs that transform information from simple, memorised facts into knowledge that can be the basis for action (Sherman & Kurshan, 2005).

This research will explore teacher understanding of the definition, what skill is measured in HOTS, the HOTS element, how HOTS questions work, the step in creating a HOTS question, and the instructional word in a HOTS question.

1.6.4 Challenges

According to Alkolu (2019), "challenge" refers to the level of difficulty and the effort invested to accomplish something. Challenges are defined as putting ourselves to the



test, dealing with intriguing things, and facing the unpredictable and unexpected (Mariani, 1997). The definition is consistent with Moulida's (2019) definition, which defines challenges as something new and difficult that necessitates essential attempts and tenacity.

Based on the definition above, the term "challenge" in this research refers to the difficulty that teachers face during the implementation of HOTS.

1.7 Significant of Research

The purpose of this research is essentially to describe teacher perception, understanding, and challenges in implementing HOTS. The information compiled in this research is an important aid for the Indonesian Ministry of Education and Culture (MoEC), future researchers, and teachers.

This research will help the MoEC develop a teacher development program. This research contains the current condition of teacher perception, understanding, and challenges in implementing HOTS. The information can be used by the MoEC to decide what material to teach in the teacher continuous professional development program. Other than that, through the information, MoEC can decide what kind of programme to conduct to train teachers to be able to implement HOTS in the classroom successfully.



The information is also beneficial for the teacher themselves. Teachers can learn about other teachers general perceptions and understandings. Knowing that information, teachers can make improvements and reflect on their current expertise in HOTS. Teachers can also learn what kinds of challenges other teachers face in implementing HOTS so they can prevent themselves from having the same difficulty.

Other than that, other researchers can utilise the information in this research to conduct their own research. They can expand the discussion, cite the information, and use the information as references for their research.

1.8 Limitation of research



This research has limitations in terms of research methodology, specifically in sampling and document availability. Researchers hardly found an appropriate sample because only a limited number of teachers were able to join HOTS training. In the end, there were seven teachers interviewed in this research. The number of participants essentially affects the data collected. According to Malterud et al (2015), the adequacy of sample size in qualitative research depends on the aim of the study, the sample's simplicity, the theory established, the quality of the dialogue, and the analysis strategy. The researcher focused on the quality of the dialogue to ensure that the number of participants interviewed could answer research questions. By considering the significant point, the researcher leads the dialogue to the extensive discussion.



Another limitation of this research is the number of documents available at the study location, namely central Lombok. Researchers found only a few research papers and documents about HOTS in central Lombok. That is why the researcher generalised the discussion to a wider scope in Indonesia.

Researchers draw conclusions from their observations in central Lombok to a more general formulation of Indonesia that can be applied to future situations. According to Mayring (2007), there are several aims of generalisation, one of which is systematic comparison. Systematic comparison is inclined to be a matter of interpretation. It focuses on recording similarities and differences between several observations.

1.9 Conclusion

This chapter consists of introductory materials about the research, the main concern of the research, the conceptual or procedural aspects, the limitations, and the importance of the research.

The introductory materials consist of research background and research problems that highlight the current situation adopted from previous research that relates to the topic discussed. The theoretical framework research intends to methodize the research process based on the theory or step arranged from research variables, so a brief definition of the variable is also provided.



The significance and limitations of the research are also discussed in order to explain what contribution this research can make and what potential barriers may arise during the research process. This information is important to other researchers in their contemplation and consideration of conducting similar research.

