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# Implementation of Higher Order Thinking Skills Within Indonesian Language Learning at Madrasah Ibtidaiyah

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## Abstract

This article aims to describe Higher Order Thinking Skills (HOTS) implementation in the Indonesian learning and assessment process of Islamic Elementary School. The international study of Programme for International Student Assessment (PISA) shows that Indonesian students' reading, mathematical, and scientific literacy achievement is very low. Therefore, it is urgent to change the system of learning and assessment process. Hopefully, the method developed by the teacher enables significant improvement in higher thinking ability, encourages creativity, and builds student's independence in solving problems. A qualitative approach is applied in this research. The subjects were headmaster, teacher and student of MIN 2 Jember. To collect the data researcher conducted interview, observation and literature study. The collected data was analyzed with the spiral model analysis procedure; data management, reading and memo writing, description, classification, interpretation, and presentation/visualization. The result shows (1) MIN 2 Jember teachers have implemented HOTS-based learning to the Indonesian learning process. This method of learning was done to acquire basic knowledge competency. The learning model was varied enough to encourage the student to think at a higher cognitive level. (2) In the assessment process, teachers applied HOTS-based questions. This was identified with the question concerning students' daily activities and directing them to explain their answers. Questions were constructed based on required indicators.

## Keywords

HOTS, Indonesian Language, Learning Process, Learning Assessment

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## Introduction

The implementation of the 2013 curriculum has undergone improvements in content and assessment standards. The standard curriculum content is designed so that students are able to think critically and analytically following international standards by reducing irrelevant material and deepening as well as expanding relevant material for students. In comparison, the assessment standard is carried out by adapting the international standard assessment models gradually. Assessment of learning outcomes is expected to help students improve higher-order thinking skills (HOTS) because high-order thinking can encourage students to think broadly and deeply about the subject matter. (Jaenudin, Chotimah, Farida, & Syarifuddin, 2020)

The results of an international study conducted by the Programme for International Student Assessment (PISA) show that the achievement of reading literacy, mathematical literacy, and scientific literacy achieved by Indonesian students is very low. In general, Indonesian students are very low in (1) understanding complex information, (2) theory, analysis, and problem-solving, (3) using tools, procedures, and problem solving, and (4) conducting investigations. Based on the facts above, there needs to be a system change in the learning process and assessment. Learning and assessment developed by the teacher are expected to improve higher-order thinking skills, increase creativity, and build students' independence to solve problems.

HOTS is learning designed to prepare the 21st century generation for they need to have competencies and skills such as critical thinking and problem-solving competencies, creativity, Communication Skills, and the Ability to Work Collaboratively. HOTS needs to be applied in the learning process and learning assessment. Teachers are not only required to be able to carry out learning that can train students to have high-level skills, but also carry out HOTS-based assessments to promote more effective higher-order thinking learning processes.

The general principles for evaluating higher-order thinking are as follows. (1) determining precisely and clearly what will be assessed, (2) planning assignments or items that require students to demonstrate the knowledge or skills they have, and (3) determining what steps will be taken as evidence of the increased of students' knowledge and skills that have been shown in the process. (Singh, Singh, Singh, Mostafa, & Mohtar, 2018).

Furthermore, the Singh et al. (2018) explains that the assessment of higher-order thinking has three principles, (1) presenting a stimulus for students to think about, usually in the form of introductory text, visuals, scenarios, discourses, or problems (cases), (2) using new problems for students, the ones that have not yet discussed in class, and the questions which do not resemble the sense of remembering in nature, and (3) distinguishing between the difficulty level of the questions (easy, medium, and difficult) and cognitive levels (low-level thinking and high-level thinking).

The HOTS's test item has the following characteristics: (1) measuring high-level abilities, (2) it is based on contextual and exciting problems, and (3) it does not represent routine questions and provide the aspect of novelty instead. Within the HOTS's question structure, it generally uses a stimulus. The stimulus is the basis for understanding information. In the HOTS context, the stimulus presented must be contextual and exciting. The stimulus may base on global issues such as information technology, science, economy, health, and others.

The observable fact shows that HOTS-based learning is still not widely implemented by teachers, especially in elementary schools. According to Merta Dhewa, Rosidin, Abdurrahman, and Suyatna (2017), they state that most of the questions used by schools in Indonesia as a cognitive assessment instrument are questions that tend to test more on the memory aspect, while the questions to train students' high-level abilities are not yet widely available.

Therefore, applying HOTS-based learning and assessment in the 2013 curriculum is expected to improve the students' characteristics to face the 21st century. By implementing HOTS, it is expected that students will have the competencies and skills needed in the 21st century.

Based on the results of a preliminary study conducted at MIN 2 Jember, it was found that teachers at MIN 2 Jember have implemented HOTS in carrying out the learning process and assessment of Indonesian language learning. This can be seen through the implementation within the learning process, which indicates that the teacher has used various models and methods that require students to think critically and build students' independence to solve problems. The learning process is carried out using methods such as Discovery learning and Problem-based learning. Likewise, in the learning assessment, the teacher uses questions that do not only require students to recall, understand, and apply the material they have learned, but also require students to think

at a higher level.

## Methods

This study aims to describe the implementation of HOTS in Indonesian language learning at MIN 2 Jember. Following the research objectives, the approach used in this study is a qualitative approach. According to Lou and Noels (2019), a qualitative approach is a fundamental approach in understanding a social phenomenon and the individual's perspective being studied. Its primary purpose is to describe, study and explain the phenomenon. An understanding of this phenomenon can be obtained by describing and exploring it in a narrative. In this way, researchers must show the relationship between events and the meaning of events. In qualitative research, the researcher is involved in the situation or phenomenon that is being studied. The type of research chosen is a phenomenological study. According to Merriam and Grenier (2019), a phenomenological study describes some individuals' general meaning to their various life experiences related to concepts or phenomena. Thus, this study seeks to describe the phenomenon of HOTS implementation in the process and assessment of Indonesian language learning at MIN 2 Jember.

The data in this study consisted of two kinds of data; primary and secondary data. Primary data is the implementation of HOTS in Indonesian language learning at MIN 2 Jember, which includes: (a) HOTS implementation data in the Indonesian language learning process at MIN 2 Jember, and (b) HOTS implementation in Indonesian language learning assessments at MIN 2 Jember. Secondary data is in the form of field note data related to the ongoing process of HOTS-based learning activities. Field note data itself includes the descriptive and reflective field notes.

The data sources are; (a) the Principal of MIN 2 Jember, (b) teachers of MIN 2 Jember, and (c) students of MIN 2 Jember. In order to provide a factual as well as an in-depth description of the phenomenon studied, several techniques were used as the data collection method such as: (a) observation, (b) interviews, and (c) documentary studies.

Observations are made by directly observing the symptoms found related to the research problem. The observation used here is non-participant observation. Functioning as non-participant observation, it indicates that the researcher is not directly involved in the research, but he/she is only involved as an observer. In this matter, the researcher directly observes HOTS implementation activities in Indonesian language learning.

Moreover, another technique used as data collection in this study was in-depth interview techniques. The in-depth interview is technically carried out by combining two types of interviews; structured and unstructured interviews. Structured interviews were conducted using interview guidelines, while non-structured interviews were conducted independently beyond the interview guidelines prepared. The second interview model was done in a casual conversation model by considering the research problem. Likewise, the documentary study was used to obtain data in the form of documents related to HOTS implementation in the process and assessment of Indonesian language learning at MIN 2 Jember. The intended data include: (a) lesson schedules, (b) Indonesian language lesson plans (LP), and (c) Indonesian language learning assessment instruments.

The data obtained in this study were analyzed using the spiral analysis model proposed by Hennink, Hutter, and Bailey (2020), having the following steps. In the early stages of the analysis process, the researcher organized data in the form of HOTS implementation in Indonesian language learning into file folders and index cards. This process includes: moving from a circle of reading and taking notes into a circle of description, classification, and interpretation. In this circle, code or category formation is formed. In this particular process, the researcher describes in detail, develops themes or dimensions through several classification systems, and provides interpretations. During the description, classification and interpretation process, the researcher develops a code or category and sorts the text or visual images into categories. In the final phase of the analysis activity, the researcher presents the data, both in the form of text/description, table, and chart.

Furthermore, to test the validity of the data, data triangulation was carried out, which included source and technical triangulation. Source triangulation is done by checking the data obtained from several sources. Meanwhile, Technical triangulation is done by checking data from the same source with different techniques.



## Result and Discussion

Based on the research results, there are several interesting things to analyze. The results of this study are based on the results of observations, interviews, and documentary studies. The research results presented and analyzed cover; (a) Implementation of Higher Order Thinking Skills in the Indonesian Language Learning Process, and (b) Implementation of Higher Order Thinking Skills in Indonesian Language Learning Assessment.

### Implementation of Higher Order Thinking Skills in the Indonesian Language Learning Process

In the 2013 curriculum, Indonesian language learning has a very strategic role. Indonesian language learning has been considered to be an advocate for knowledge transfer. By developing the ability to think logically, critically, creatively, and innovatively, the Indonesian language's role as an advocate of knowledge transfer will continue to develop along with the development of the language itself.

Hindanah as the Principal of MIN 2 Jember, emphasized

The development of Indonesian language competence in *Madrasah Ibtidaiyah* emphasizes listening, speaking, reading, and writing. This competency development is carried out through text media. The Indonesian language learning process at *Madrasah Ibtidaiyah* is presented in the form of thematic learning. Integrated thematic learning is integrated learning that uses themes to link several subjects to provide meaningful experiences to students. (Interview on March, 3rd 2020)

### Hindanah Further Explained

The Indonesian language learning process at MIN 2 Jember is directed at improving students' ability to communicate correctly and adequately in a daily basis, both in spoken and in written form, as well as developing critical and creative thinking skills. These competencies enable students to ask, answer, reason, and argue with others. The learning process is designed to train students using language skills by expressing their ideas and opinions creatively and critically. (Interview on March, 3rd 2020)

From the explanation above, it can be concluded that the essence of Indonesian language learning is the learning process to understand and produce ideas, feelings, messages, information, data, and knowledge for various daily communication needs, both in written and oral form. Concerning the aspect of understanding and producing ideas, feelings, messages, information, data, and knowledge, such thinking activities have a significant role. Even the thinking process is considered a central activity that allows students to understand and produce the ideas well. Therefore, teachers must create conditions that require optimal thinking processes. In relation to the Indonesian language learning process at *Madrasah Ibtidaiyah*, Ahmad Syaikhuna Sidiq, as a grade I teacher, explained

In Indonesian language learning, I use inquiry learning models, problem-based learning, and project-based learning. I use Inquiry Learning to teach KD 3.4 focuses on determining vocabulary about the body parts and the five senses and its treatment through short text (in the form of pictures, writing, simple slogans, and/or song lyrics) and environmental exploration. Problem-based learning is used to teach KD 3.5, which focuses on recognizing vocabularies about maintaining health through short text (in the form of pictures, writing, and simple slogans) and/or environmental exploration. Meanwhile, project-based learning is used to teach KD 3.11 which focuses on examining children's poetry/song lyrics (containing the expression of admiration, pride, respect for parents, affection, or friendship) played for fun activities. (Interview on March, 13th 2020)

Ahmad Syaikhuna Sidiq further stressed that the inquiry learning model applied at class I is very simple, which of course it is not the same as its application in the upper class. The important part is that the application of this inquiry model allows students to think critically, creatively, and solve problems independently.

### **Ani Purwatingsih As a Grade IV Teacher, Also Explained**

In the Indonesian language learning process, I use various models and strategies that vary among them, I use inquiry models, problem-based learning, and project-based learning. I use the inquiry model for Basic Competence 3.1. focuses on examining the main ideas and supporting ideas obtained from oral, written, or visual texts. In this activity, I took the following steps: first, I asked students to read the written text carefully, then the students were asked to look for the main ideas and supporting ideas. At the end of the activity, students are asked to report the results. The implementation of the learning itself uses a scientific approach (Interview on March, 16th 2020)

### **Eko Iswanto, As A Grade VI Teacher, Said the Same Thing**

In the Indonesian language learning process, I use the inquiry learning model in KD 3.1. focuses on summarizing information based on the text of the observation report that is heard and read. The steps taken are: first, informing the learning objectives; second, proposing problems; third, carrying out the investigation process; fourth, presenting the results of the investigation; and fifth, drawing conclusions. In addition, I also use a problem-based learning model for KD 3.5, discussing comparing the characteristics of poetry and prose texts. The steps taken are; clarifying the problem, identifying the problem, collecting data and information, discussing the problem, presenting discussion results, and reflecting. Whereas for KD 3.4 about extracting important information from history books using the aspects of what, where, when, who, why, and how is implemented using a project-based learning model. The steps taken include: determining basic questions, designing project planning, compiling a schedule, monitoring project progress, testing processes and results, evaluating experiences. (Interview on March, 20th 2020)

Based on the explanations above, it can be concluded that the Indonesian language learning process at MIN 2 Jember has implemented HOTS-based learning. HOTS-based Indonesian language learning is carried out to achieve basic competencies related to the knowledge domain, such as KD 3. HOTS-based learning is reflected in the learning model applied by the teacher, which is quite varied and requires students to think at a higher cognitive level. It goes hand in hand with Rahmawati, Nisfah, and Kusairi (2019) opinion that HOTS based learning requires students to think at a higher cognitive level. The HOTS itself consists of problem-solving, creative thinking, critical thinking, argumentation, and decision-making skills.

Wiyarsi and Purtadi (2017) also emphasized that by applying HOTS, students will be able to clearly distinguish ideas or opinions, argue well, solve problems, construct explanations, and hypothesize and understand complex matters. HOTS will occur when someone associates new information with prior information stored in their memory and associates or rearranges as well as develops that information to find a solution to a particular problem.

The characteristics of HOTS learning are: (a) Focusing on questions, (b) analyzing/assessing arguments and data, (c) defining concepts, (d) determining conclusions, (e) using logical analysis, (f) processing and applying information, (g) using the information to solve problems. Within van Leeuwen and Janssen (2019) concerning Primary and Secondary Education Process Standards, it is explained that the learning process is carried out by using three learning models. The three learning models mentioned are; (a) learning through discovery (Inquiry Learning) (b) Problem Based Learning Model, and (c) Project Based Learning Model.

#### **a) Discovery/Inquiry Learning model**

Discovery/Inquiry Learning model is a learning process designed to develop active learning students to find a particular knowledge on their own. According to Dewantara (2020), the discovery learning model is a learning process that occurs when learning is not presented with the learning materials in their final form, but students are expected to organize it themselves. 'Discovery' is finding a concept through a series of data or information obtained through observation or experiment. Thus, Discovery Learning is defined as a learning process that occurs when students are not given information directly but are required to organize their understanding of information collected independently.

There are several models of Discovery Learning that can be applied. According to Neroni, Meijs, Gijsselaers, Kirschner, and de Groot (2019), there are two ways to implement Discovery Learning: Free Discovery and Guided Discovery Learning. Free Discovery Learning is a discovery learning

without any teacher guidance, while Guided Discovery Learning requires the teacher to function as a facilitator in the learning process.

### b) Problem Based Learning Model

The Problem Based Learning Model uses a variety of thinking abilities from students, both as an individual and in groups. The Problem Based Learning model also uses a real-life environment to solve problems so that the activities are meaningful and relevant. The purpose of Problem Based Learning is to improve the ability to apply concepts to new/real problems, integrating HOTS concepts, establishing a desire to learn, directing self-study, and improving skills.

The characteristics covered in Problem Based Learning are: (1) the problem is used as the starting point of learning, (2) The problem used is a real-life problem presented indirectly, (3) The problem usually demands multiple perspectives, (4) the problem challenged the students to get the learning process in a new learning realm or domain, (5) prioritizing independent learning, (6) utilizing various sources of knowledge, not just a single source, and (7) implementing collaborative, communicative, and cooperative learning. These seven characteristics require students to use their higher-order thinking skills, especially problem-solving abilities.

### c) Project Based Learning Model

The Project-Based Learning Model is a learning method that uses a project/activity as a medium. Students are required to do exploration, assessment, interpretation, synthesis, and information to produce various forms of learning outcomes. Project-Based Learning is a student-centered learning model for conducting an in-depth investigation of a particular topic. Students constructively deepen their learning process with a research-based approach to seek the solution of problems or questions which are real, relevant, and substantial.

Project-Based Learning has several characteristics, including: (1) Centrality, (2) Driving questions, (3) Constructive Investigation, (4) Autonomy, and (5) Realism. The objectives of Project-Based Learning are: (1) increasing the ability of students to solve problems, (2) acquiring new knowledge and skills in Learning, (3) making students to be more active in solving complex project problems with real results, (4) developing and improving the skills of students in managing materials or tools to complete tasks or projects, (5) increasing student collaboration competencies, especially within group projects.

By applying these three learning models, the students are expected to perform scientific practices, social behaviors, and establish such a positive curiosity.

## Implementation of Higher Order Thinking Skill in Indonesian Language Learning Assessment

The application of the 2013 Curriculum emphasizes the achievements and skills of the 21st century which include critical thinking and problem-solving, creativity, communication skills (ability to communicate), and ability to work collaboratively (working together as a team). In order to achieve such competencies, learning assessment activities should be carried out by using HOTS-based questions or test items.

Regarding the implementation of HOTS in the learning assessment at MIN 2 Jember, Hindanah as the school's principal explained that teachers at MIN 2 Jember had implemented HOTS-based learning assessments. This can be seen within the questions given as a measurement instrument, both during daily assessments, midterm assessments, and finale-semester assessments. The questions themselves were not only measure the process of remembering but also the aspect of higher order thinking skills (Interview on March, 3<sup>rd</sup> 2020).

### Husnul Khotimah, The Teacher of Grade IA, Expressed the Same Thing

In constructing questions as an assessment instrument within Indonesian language learning, I always relate to events experienced by students in their life routine and lead the students to provide explanations related to the answers given. Besides, the material or questions that I gave, has been adjusted to the indicators that I wanted to accomplish. (Interview on March, 15<sup>th</sup> 2020) Eko Iswanto as a grade VI teacher emphasized that in giving questions to students, the test items were not only focusing on the sense of memorizing, but they needed to contained or used

provided information to solve problems and critically examine ideas and provided data. (Interview on March, 15<sup>th</sup> 2020)

From some of the information obtained, it can be concluded that the teachers at MIN 2 Jember in carrying out the assessment of Indonesian language learning have used HOTS-based questions. This can be seen from the questions given that they always relate to events experienced by students in everyday life and direct the students to provide explanations related to the answers given. In addition, the material or questions given are adjusted to the indicators to be achieved. This is in line with the Jaenudin et al. (2020) which states that HOTS-based questions are a measurement instrument used to measure higher-order thinking skills, such as abilities beyond the recall process. HOTS-based questions in the assessment context measure the ability to: (a) transfer one concept to another, (b) process and apply information, (c) look for links from different kinds of information, (d) use information to solve problems, and (e) critically examine ideas and information. When it is viewed from the knowledge or cognitive domain, HOTS-based questions generally do not only measure the factual, conceptual, or procedural dimensions, but rather measure the metacognitive domains. The metacognitive domain describes the ability to connect several different concepts, interpret, solve problems, choose problem-solving strategies, find new methods, argue, and make the right decisions.

Furthermore, the dimension of the thought process in Bloom's taxonomy as refined by Anderson and Krathwohl (2001) consists of the ability of knowing (C1), understanding (C2), applying (C3), analyzing (C4), evaluating (C5), and creating (C6). HOTS-based questions generally measure abilities within the domains of analyzing (C4), evaluating (C5), and creating (C6).

The HOTS-based assessment can be applied to Indonesian language learning. The development of HOTS's questions in Indonesian language learning also refers to some criteria. These criteria are; (a) real events-based questions (contextual); (b) visual analysis type of questions; (c) some questions which direct students to give reasoning for the answers given; (d) The material or subject matter of the test items must be in line with the indicators to be achieved.

These four criteria can be applied in the steps of making HOTS-based questions. Jaenudin et al. (2020) describes the steps for constructing HOTS-based questions such as; (a) analyzing the basic competence that can be developed into HOTS-based questions, (b) compiling the test items' cues, (c) choosing an interesting and contextual stimulus, (d) constructing the questions based on the prepared test items' cues, and (e) creating scoring guidelines (rubrics) or answer keys.

The example of HOTS-based test items' cues in Indonesian language learning can be seen in the following table:

**Table 1.1**  
HOTS-based Test Items' Cues

| No | Basic Competence  | Material       | Grade/smt | Indicator  | Cognitive level | Question's Type | Test Item Number |
|----|---|----------------|-----------|--|-----------------|-----------------|------------------|
| 1  | 3.1. Summarizing information based on the text of the observation report that is heard and read | Report<br>Text | VI/1      | Providing the informational text, the students are able to summarize the information | C5              | PG              | 1                |

According to the test items' cues above, teachers can develop or construct HOTS-based questions in Indonesian language learning.

## Conclusion

In the Indonesian language learning process, teachers at MIN 2 Jember have implemented HOTS-based learning. HOTS-based Indonesian language learning is carried out to achieve basic



competencies related to the cognitive aspect, such as KD 3. HOTS-based language learning reflected in the learning model applied by the teacher, is quite varied and requires students to think in a higher cognitive level. Among the learning models applied are: inquiry learning models, problem-based learning, and project-based learning.

In assessing Indonesian language learning, teachers of MIN 2 Jember have used HOTS-based questions. This can be seen from the questions given to students which always relate to events experienced by students in everyday life and direct students to provide explanations related to the answers given. Furthermore, the material or questions given are adjusted to the indicators to be achieved.

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