

Perceptions of Elementary School Teachers in Malang on the Preparation and Analysis of HOTS Questions

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ABSTRACT

The purpose of this study is to describe the teacher's perception of the task of compiling and analyzing HOTS questions. A quantitative approach with this type of descriptive research. The sample was determined by using area quota non proportional random sampling technique. The instrument used in data collection was a combination of closed and open questionnaires made on google form and then sent via WhatsApp to the respondent's mobile number. The data obtained were analyzed using relative frequency distribution tables and presented in diagrammatic form. The results showed that the teacher had a positive perception of the task of compiling and analyzing HOTS questions which included acceptance, understanding, and assessment. The average level of achievement of teachers' perceptions about the HOTS item preparation task was 79.2%, while the perception of the HOTS question analysis task was 73.4% of the maximum expected score. According to the answers of most respondents, most of the respondents had a positive perception of the task of preparing and analyzing HOTS questions, but it was found that the teacher did not make up the questions themselves, did not make scoring guidelines, did not understand the characteristics of HOTS questions, did not understand the basic competencies that were the reference for HOTS questions. There were still indicators who are not in accordance with HOTS, do not analyze the questions before use due to time constraints, and do not yet understand the concept of difficulty level and problem difference both in terms of definition and practice.

Keywords: *Perception, Elementary School Teachers, HOTS Questions*

1. INTRODUCTION

The world today is in the 21st century which is marked by the rapid development of science and technology. In the field of education, there is a need for adaptation to process according to the times. Through education, each individual can develop his/her potential to become quality human resources so that they can compete in the global world.

Based on the results of an evaluation carried out internationally by the Program for International Students Assessment (PISA) in 2018, it shows that there is a quality gap when oversampled. In addition, Indonesia has lower scores on reading, math and science abilities than any other country. The existence of quality gaps and low capacity does not only require the role of the government in equitable access to education, but also requires professional teachers. Professional teachers have certain competencies, one of which is pedagogical competence. One of the indicators for teachers who have pedagogic competence is to improve the quality of the learning

program through the results of learning completeness based on the evaluation that has been designed (Hidayat, 2017: 15-16)

Evaluation of learning outcomes can be done by means of assessment, namely through non-test and test techniques. When reviewing the PTS (Mid-Semester Assessment) questions made by the teacher during the initial observations at SDN Kotalama 6 and SDN Oro-oro Dowo, it was found that the questions only measured the ability of Lower Order Thinking Skill (LOTS) or low-level thinking skills with no problem characteristics. open ended, the answer choices are only one, the answers can be found directly in the book, and are in the form of memorization. Another fact is that the PTS questions made by the teacher have not fulfilled the construction of a good arrangement, because someone made a grid but the arrangement was incomplete, did not make question cards, and did not make scoring guidelines. The results of the interview showed that some of the teachers made their own questions, but mostly made use of existing questions

and made them in one cluster. Meanwhile, to analyze the questions, there are no demands and no time, if the students score less than the KKM, a remedial or enrichment is held.

Several studies were conducted on HOTS, namely those conducted by Wijayanti (2019) and Setiawati (2019). Research conducted by Wijayanti (2019) by means of case studies shows that teachers are able to design, implement, and conduct assessments based on higher order thinking skills. However, the results of research conducted by Setiawati (2019) show a difference, namely that the questions made by the teacher measure a lot of low-level thinking skills rather than higher-order thinking skills, besides that the skills of students in high-order thinking are still uneven. Furthermore, research conducted by Rapih & Sutaryadi (2018) on the perspective of elementary school teachers on HOTS, namely understanding, application, and barriers. The results of his research show that most of the teachers already understand the concept and have implemented HOTS, but most of the teachers have difficulty designing and implementing HOTS-based evaluations.

The urgency of this research, HOTS, becomes even stronger when the partnership 21st century skill (2011) formulates a 21st century learning framework. Within this framework, academic content in the form of 3Rs (Writing, Reading and Arithmetic) and 4Cs (Critical Thinking, Communication, Collaboration, and Creativity) is very important in 21st century learning activities. If you refer to this framework, HOTS is the answer in answering the challenges in learning in the 21st century.

2. RESEARCH METHODS

The research approach in this research is quantitative with a descriptive design. The quantitative approach tests theory through measuring variables with numbers and analyzing data statistically (Maolani & Cahyana, 2016: 11). Descriptive is a method that serves to describe or give an overview of the object under study through data or samples collected as it is, without analyzing and making general conclusions (Sugiyono 2017: 147).

The population in this study were all State Elementary Schools in Malang City. The population consists of 5 districts, each area (area) is represented by 3 schools. This study uses a non-proportional random sampling area quota technique. Sample members are teachers in grades IV, V, and VI, the number of respondents is determined based on the group (study group) in each school. The number of class groups in 15

schools is 73, so the number of respondents planned is 73 people.

The research instrument used in data collection was a combination of closed and open questionnaires made on Google Form and then shared via WhatsApp to the respondent's cellphone number. The answer to each item of the instrument is scored using a Likert scale. The Likert scale has levels from positive to negative or from negative to positive. The scale in this study is strongly agree (4), agree (3), disagree (2), and strongly disagree (1). To make a research instrument, a research instrument grid is needed by describing the variables into subvariables, subvariables into indicators, and indicators into statement items in the questionnaire.

The instrument is valid and reliable if it can measure what is to be achieved and has regularity, namely showing the same results even though it is used several times. This study uses logical and empirical validity. Logical validity can be achieved through content validity, content validity is obtained from the guidance process with the two supervisors. After receiving input, the grid and research instruments were revised to reach an agreement to be tested. This trial is needed to obtain empirical data. Empirical data uses instruments that are declared valid based on experience. Testing the research instrument by distributing questionnaires via google form to 5 schools that were taken randomly, with 17 respondents. Data obtained using a questionnaire, scored using a Likert scale, then testing the validity using the Pearson Product Moment formula by correlating the score of the questions with the score total so that it can be seen whether there is a relationship between the questions and the total score. The formula is as follows (Arikunto, 2010:213).

$$r_{xy} = \frac{N \sum XY - (\sum X)(\sum Y)}{\sqrt{\{N \sum X^2 - (\sum X)^2\} \{N \sum Y^2 - (\sum Y)^2\}}} \quad (1)$$

The data collected was scored with the help of Ms. Excel is then processed using SPSS 22.0 for windows with the Pearson Two-Tailed Product Moment correlation formula with a significant level of 5%. The table for the value of r Product Moment at a significant level of 5% with N 17 is 0.482. The items used are those that have sufficient validity and are above r table until those that have very high validity. Meanwhile, those with low and sufficient r values but below the r table are not used or dropped. Based on the results of the calculation of the validity test of the teacher's perception questionnaire regarding the task of compiling and analyzing HOTS questions, the items used were 40

statements out of 50 statements and 4 open questions. So that the number of statement items and questions is 44.

In this study, the reliability test was carried out with the help of the SPSS 22.0 for windows program with the Cronbach Alpha Formula as follows (Retnawati, 2016:91).

$$\alpha = \left(\frac{k}{k-1} \right) \left(1 - \frac{\sum \sigma_i^2}{\sigma_t^2} \right) \quad (2)$$

Reliability (p) generally has a coefficient of $-1.00 \leq p \leq +1.00$. A high coefficient indicates high reliability, on the other hand, if the coefficient is low, the reliability is also low. The results of the calculation of the reliability of the research instrument on the teacher's perception of the task of preparing and analyzing HOTS questions can be seen in Table 1.

Table 1. Research Instrument Reliability Test Results

Reliability Statistics	
Cronbach's Alpha	N of Items
,967	40

Based on the calculation results, the reliability coefficient is 0.967. The reliability coefficient (p) is greater than -1.00 and less is equal to + 1.00, meaning that of the 40 statements in the questionnaire, it has high reliability. If all statement items on the research instrument have high reliability coefficients, then the instrument can be used several times because it is constant.

Data collection through steps and techniques. The data collection steps include the stages of preparation, implementation, data processing and data analysis, and report writing. The data analysis in this study, namely the data obtained from the questionnaire, is processed and then presented in the form of a percentage using diagrams and relative frequency distribution tables. Some of the procedures for analyzing data in this study are collecting data, checking data, processing and analyzing data, and making conclusions. After a series of data analysis techniques were carried out, in the final stage the researcher made conclusions about the perceptions of elementary school teachers in Malang about the preparation and analysis of HOTS questions.

3. RESULTS AND DISCUSSION

The number of research respondents planned was 73 respondents, because of the Covid-19 pandemic, the licensing process encountered problems. Until the time limit determined by the respondents, 70 respondents were collected. Respondent characteristics include class teachers, length of teaching, latest education, status, and

certification status. The characteristics of the respondent's status and certification status are not criteria in this study, so it doesn't matter if you are non-PNS or not certified teachers, but the criteria in this study are teachers who teach in high classes. The highest percentage of each respondent's characteristics, namely grade V teachers, teaching for 1-10 years, teachers with undergraduate degrees, mostly civil servant teachers and already certified. Elementary school teachers' perceptions about the task of compiling and analyzing HOTS questions included acceptance, understanding, and assessment. The explanation of each sub variable is as follows.

3.1 Elementary School Teachers' Perceptions of the HOTS Question Preparation Task

Acceptance of HOTS question preparation assignments is related to the teacher's willingness to accept the task of compiling HOTS questions. Teacher perception data about acceptance of HOTS question compilation assignments were obtained from 70 respondents with 8 statements. To determine the category, by calculating the highest score and lowest score, calculating the range of data, and calculating the length of the interval class. The frequency distribution of scores and the percentage of teachers' perceptions about acceptance of HOTS question compilation assignments is shown in Table 2.

Table 2. Frequency Distribution of Teachers' Perception of Acceptance of HOTS Question Preparation Tasks

Score Range	Frequency	Percentage (%)	Category
26,75 – 32	39	55,71	Very Positive
20,5 – 25,75	31	44,29	Positive
14,25 – 19,5	0	0	Quite Positive
8 – 13,25	0	0	Less Positive
Total	70	100	

Most of the teachers had a very positive perception, namely 39 people (55.71%). The average level of achievement of teachers' perceptions about acceptance of HOTS question compilation assignments is 83.9% of the expected maximum score. Although according to the respondents' answers, most of them received the task of compiling HOTS questions, there were still many teachers who did not make their own questions based on the answers to open questions. In addition, there are those who do not make scoring guidelines.

Understanding of the preparation of HOTS questions includes understanding the concept of HOTS questions

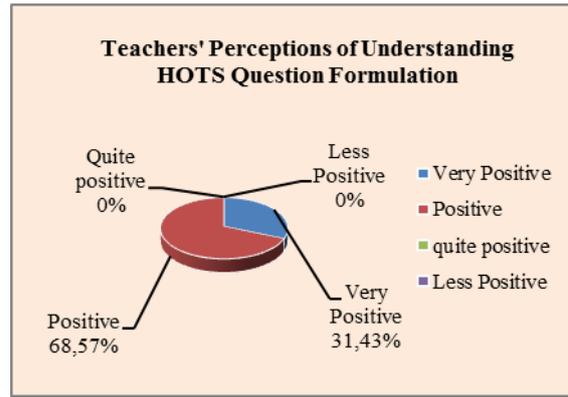
and understanding the preparation of HOTS questions. Teacher perception data about understanding the concept of HOTS questions and understanding the preparation of HOTS questions were obtained from 70 respondents each 10 statements, to determine the category of steps the same as the previous sub-variable. The frequency distribution of scores and the percentage of teachers' perceptions about understanding the concept of HOTS questions is shown in Table 3.

Table 3. Frequency Distribution of Teachers' Perceptions of Understanding the HOTS Problem Concept

Score Range	Frequency	Percentage (%)	Category
33,25 – 40	20	28,57	Very Positive
5,5 – 32,25	50	71,43	Positive
17,75 – 24,5	0	0	Quite Positive
10 – 16,75	0	0	Less Positive
Total	70	100	

Most of the teachers had a positive perception, namely 50 people (71.43%). The average level of achievement of teachers' perceptions about understanding the concept of HOTS is 77.3% of the expected maximum score. Understanding the concept of HOTS questions includes identifying the concepts of HOTS questions, identifying the characteristics of HOTS questions, and determining the characteristics of HOTS questions based on cognitive levels. Although according to the respondents' answers most of them understood the concept of HOTS questions, in the statement about determining the characteristics of HOTS questions based on the cognitive level, namely the ability to think at high levels only measured the factual, conceptual and procedural dimensions, as many as 21 people gave a score of 2, because the negative statement agreed. Whereas the ability to think at a high level does not only measure the factual, conceptual, and procedural dimensions but up to the metacognitive dimensions.

Understanding of the preparation of HOTS questions includes analyzing KD, compiling a question grid, choosing the right and contextual stimulus, writing questions according to the question grid, and making scoring guidelines (rubrics) or answer keys. The percentage of teacher perceptions about understanding the preparation of HOTS questions is shown in Figure 1. Most of the teachers had a positive perception, namely 48 people (68.57%). The average level of achievement of teachers' perceptions about understanding the preparation



of HOTS questions was 78.4% of the expected maximum score.

Figure 1. Teacher's Perception Diagram of the Understanding of HOTS Question Formulation

Although according to the respondents' answers most of them understand the preparation of HOTS questions, in the section on analyzing KD for statement number 27 in the questionnaire, all the basic competencies to be measured can be arranged into HOTS questions. A total of 51 people gave a score of 1-2, because the statement was negative, they strongly agree and agree. This means that most teachers do not understand that only essential KD can be used as HOTS questions.

The assessment of the HOTS question preparation task includes the level of difficulty experienced by the teacher, whether the teacher has difficulty or not when assigned to compile HOTS questions. Teacher perception data about acceptance of HOTS question compilation assignments were obtained from 70 respondents with 2 statements, to determine the category of steps the same as the previous sub-variable. The percentage of teacher perceptions about the assessment of HOTS questions is shown in Table 4.

Table 4. Frequency Distribution of Teachers' Perceptions of Assessment of HOTS Question Writing Tasks

Score Range	Frequency	Percentage (%)	Category
7,25 - 8	5	7,14	Very Positive
5,5 – 6,25	48	68,57	Positive
3,75 – 4,5	17	24,29	Quite Positive
2 – 2,75	0	0	Less Positive
Total	70	100	

Most of the teachers had a positive perception, namely 48 people (68.57%). The average level of perception achievement is 68.7% of the expected

maximum score. This means that most teachers have no difficulty if they are assigned to analyze HOTS questions and have no difficulty determining indicators that are in accordance with higher-order thinking levels. Although according to the respondents' answers, most of them gave a positive assessment of the HOTS question formulation task, there are still many indicators that are not in accordance with the level of thinking according to Bloom's taxonomy.

3.2 Elementary School Teachers' Perceptions of the HOTS Question Analysis Task

Acceptance of HOTS question analysis assignments includes the teacher's willingness to analyze the questions before use. Data for teacher perceptions about acceptance of HOTS question analysis assignments were obtained from 70 respondents with 2 statements. To determine the category the steps are the same as the previous sub-variables. The percentage of teacher perceptions about acceptance of HOTS question analysis assignments is shown in Figure 2.

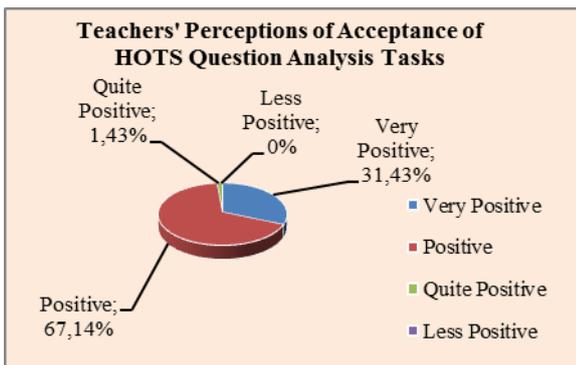


Figure 2. Teachers' Perceptions of Acceptance of HOTS Question Analysis Tasks

Most of the teachers had a positive perception, namely 47 people (67.14%). The average level of perception achievement was 79.2% of the expected maximum score. This means that most of the teachers accepted the HOTS question analysis assignment. Although according to the respondents' answers, most of the respondents received the HOTS question analysis assignment, there were still teachers who did not analyze the questions before they were used due to time constraints on respondents' answers to open questions.

Understanding of HOTS question analysis includes identifying the definition of HOTS question analysis, determining the function of question analysis, identifying the concept of difficulty level, and identifying the concept of difference in question power. Data for

teachers' perceptions about the analysis of HOTS questions were obtained from 70 respondents with 5 statements. To determine the category the steps are the same as the previous sub-variables. The frequency distribution of scores and the percentage of teachers' perceptions about understanding the HOTS question analysis task is shown in Table 5.

Table 5. Frequency Distribution of Teachers' Perceptions of Understanding the HOTS Question Analysis

Score Range	Frequency	Percentage (%)	Category
17 - 20	15	21,43	Very Positive
13 - 16	55	78,57	Positive
9 - 12	0	0	Quite Positive
5 - 8	0	0	Less Positive
Total	70	100	

Most of the teachers had a positive perception, namely 55 people (78.57%). The average level of perception achievement is 75.8% of the expected maximum score. Although according to the respondents' answers, most of them understood the analysis of HOTS questions, when viewed from the respondents' answers to open questions, 57 people (81.43%) had calculated the difficulty level of the questions and 36 people (51.43%) had calculated the difference in the power of the questions. However, most teachers provide follow-up in the form of conducting remedials or enrichments. From the follow-up, it proves that the teachers have not yet understood the concept of question analysis. Qualitative question analysis was carried out before the questions were used, but if the follow-up was in the form of remedials or enrichment, it meant that the questions were ready to be used and the follow-up was because the students had not reached the KKM.

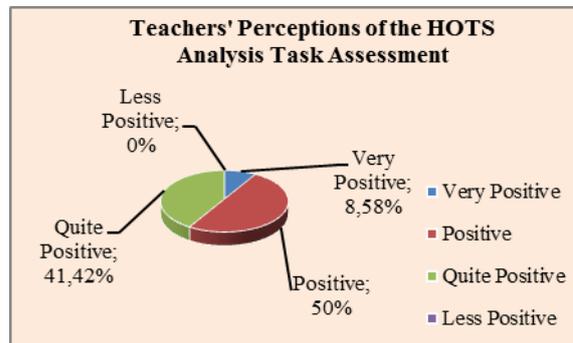


Figure 3. Teachers' Perceptions of the HOTS Analysis Task Assessment

Assessment of HOTS question preparation assignments. After the teacher accepts and understands the HOTS question analysis assignment, after that gives an assessment of the assignment. Data for teachers'

perceptions about the HOTS question analysis task assessment were obtained from 70 respondents with 3 statements. To determine the category the steps are the same as the previous sub-variables. The percentage of teacher perceptions about the assessment of HOTS question analysis tasks is in Figure 3.

Most of the teachers have a positive perception, namely 35 people (50%). The average level of perception achievement is 65.3% of the expected maximum score. Even though according to the respondents' answers, most of them gave a positive assessment of the HOTS question analysis task, if it is seen from the respondents' answers to open questions, most of the teachers did not have time to calculate the difficulty level and the difference in question power. For the difference power of the questions, as many as 34 people (48.57%) never calculated the difference power of the questions due to lack of time and did not understand about the difference in the questions.

4. CONCLUSION

Overall, the teacher has a positive perception of the task of preparing and analyzing HOTS questions, which include acceptance, understanding, and assessment. The average level of achievement of teachers' perceptions about the HOTS item preparation task was 79.2%, while the average level of achievement of teachers' perceptions about the HOTS item analysis task was 73.4% of the maximum expected score.

Based on the results of the study, it can be concluded that, in general, teachers have a positive perception of the task of preparing and analyzing HOTS questions. According to the answers of most respondents, most of the respondents had a positive perception of the task of preparing and analyzing HOTS questions. But it was found that the teacher did not make up the questions themselves, did not make scoring guidelines, did not understand the characteristics of HOTS questions, did not understand basic competence which could be used as HOTS questions.

There were still indicators that is not in accordance with the high-level thinking level, does not analyze the questions before use due to time constraints, and does not understand the concept of the level of difficulty and different power of the questions both by definition and practice. The advice given is that the school must carry out educational supervision, teachers develop their potential, and further research is expected to use different

approaches and methods in similar research, and have a backup plan to deal with certain conditions such as a pandemic.

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