

THE IMPLEMENTATION OF HIGHER ORDER THINKING SKILLS (HOTS) ON STUDENTS' READING COMPREHENSION AT SMA NEGERI 18 MAKASSAR

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ABSTRACT

This study aimed to know the implementation of higher order thinking skills on students' reading comprehension at SMA Negeri 18 Makassar. This research focused on pre-experimental research with one group pre-test post-test. The population of this research was class XI students of SMA Negeri 18 Makassar in the academic year 2021/2022. Purposive sampling techniques were used to take one class as the research sample, totaling 26 students. The data was obtained in the form of multiple choices of the reading test. After analyzing data, the writer concluded that the implementation of HOTS in reading comprehension can improve students' reading comprehension. This is evidenced by the average score of students during the pre-test and post-test. The mean score of the students in the pre-test (before the action) was 36.53 and the post-test (after the action) was 68.07. These data indicated that there is a significant difference between the pre-test and post-test. Based on the data from the analysis, it can be concluded that the implementation of higher-order thinking skills can improve students' reading comprehension in class XI Social 4 SMA Negeri 18 Makassar.

Keyword: Implementation, HOTS, Reading Comprehension.

INTRODUCTION

English is a global language which means English is used by people in almost all parts of the world to communicate with each other. In some countries, English is used as the first language after the mother tongue, while in other countries English is used as a foreign language, including Indonesia. There are four skills in English, namely listening, reading, writing, and speaking. Reading is one of the important ways to build knowledge. Anderson (2004:11) states that one of the important skills in learning a language is reading skill because it can indirectly improve vocabulary and speaking skills.

In reading before understanding, concluding, and describing ideas from an English reading text, the thing that must be done is to translate a word. However, in this case, students often find some difficult words that they do not know the meaning of so that it will be difficult for them to understand and draw conclusions related to the English reading texts they read. Reading is a developmental, interactive, and global process involving learned skills. This process specifically combines and can be positively and negatively influenced by non-linguistic internal and external variables or factors (Leu and Kinzer in Musfiroh, 2014:5). By reading, the reader can find out the information or message that a writer wants to

convey through words that can be seen and known by the reader. In addition, readers also get new experiences and can expand their knowledge by reading. Reading is not an easy thing to do, because the reader does not just read but also has to understand what the author wants to convey.

Aloqaili (2012:35), argues that the process of reading text is also considered to require HOTS (higher-order thinking skills) abilities to be able to understand, analyze, evaluate, and conclude the information obtained. Weimer (2012:1) also argues that HOTS can be facilitated through reading activities.

Although it can simply be translated as Higher Order Thinking Skills, HOTS is much broader than just "thinking". Some of the primary principles relevant to higher-order thinking processes are primarily based on three assumptions approximately thinking and learning. First, the quality of thinking cannot be hindered from the exceptional learning activities; they involve the interrelation of diverse additives and levels. Second, in real life students will learn about the subject matter through experiences in the community and school. Regardless of the principle concludes, the concepts and vocabulary they found out inside the preceding year will help them learn higher-order thinking skills and new content material in the future. Third, higher-order thinking involves various thought processes that are applied to a variety of situations with their respective complexities. The success of higher-order thinking depends on the individual's ability to apply, rearrange and hone understanding in the context of thinking situations. Based on Bloom's Taxonomy revised by Anderson and Krathwohl, higher-order thinking skills (HOTS) include three stages, namely analyze, evaluate, and create which focus on critical thinking, logical thinking, reflective thinking, metacognitive, and creative thinking. In addition, higher-order thinking also requires the ability to use knowledge, skills, and values in reasoning, reflection, problem-solving, decision making, innovating and creating something new (Anderson and Krathwohl in Nurhayati, 2020:39).

HOTS is the ultimate goal achieved through approaches, processes, and learning methods. Misunderstanding the HOTS concept will have an impact on learning model errors that are increasingly ineffective and unproductive. If the learning process is designed to achieve higher-order thinking levels, the learning objectives can adopt the verbs recommended in the concept of Bloom's Taxonomy. The verbs are used to determine the learning process that will be undertaken by students. The current era of global competition demands quality learning to provide facilities for students to develop skills, and abilities as capital to face challenges in global life. Therefore, the government implements a HOTS-based learning system which is a thinking process for students at a higher-order thinking. HOTS is expected to improve students' reading comprehension so that students not only read but also understand what they read.

In connection with the facts above, the researcher tried to use a HOTS-based learning model so that students are more interested and better able to analyze English reading texts and improve students' reading comprehension. Higher-order thinking skills in the teaching and learning process are thinking skills that help students understand reading texts with analytical and creative thinking skills. Based on the background of the problem above, the researcher is interested in researching with title: "The Implementation Of Higher Order Thinking Skills (HOTS) On Students' Reading Comprehension At SMA Negeri 18 Makassar."

REVIEW OF LITERATURE

Definition of Higher Order Thinking Skills

Higher-order thinking skills (HOTS) are thinking skills that apply processing in remembering, restating, or referring to something. Higher-order thinking skills include the ability to solve problems, critical thinking skills and creativity, and the ability to make decisions on a matter. The term higher-order thinking skills was first introduced by Benjamin S. Bloom et al. through a book entitled *Taxonomy of Educational Objectives: The Classification of Education Goals* in 1956.

Educating students with HOTS means enabling them to think. Students are said able to think if they can apply their knowledge and develop their abilities into new contexts or ways. Higher-order thinking skills (HOTS) thinking method of students at higher-order thinking that is developed from various cognitive standards and methods and taxonomies of learning which includes problem-solving techniques, Bloom taxonomy, and taxonomies of getting to know, teaching, and evaluation (Saputra in Dinni, 2018: 171). The main purpose of higher-order thinking is students' thinking skills at a higher level, especially those related to the capacity to think seriously in receiving diverse kinds of records, suppose creatively in solving trouble the use of the information they've and make choices in complicated situations (Saputra in Sofyan, 2019: 3).

Resnick in Jailani, et.al (2018: 3) argue that HOTS is difficult to define, but is easily recognized through its characteristics. Furthermore, Resnick in Jailani, et al. (2018: 3) reveal several HOTS characteristics, namely:

- 1) Non-algorithmic, meaning that action steps cannot be fully predetermined;
- 2) Complex, meaning that steps cannot be seen or guessed directly from a certain point of view;
- 3) Generate multiple solutions;
- 4) Involves differences of opinion and interpretation;
- 5) Involves applying multiple criteria;
- 6) Involves uncertainty;
- 7) Demands independence in thought processes;
- 8) Involves an impressive meaning;

9) Requires hard work.

Brookhart in Nugroho (2021:17), explains that HOTS types are based on classroom learning objectives, which consist of three categories, HOTS as transfer, HOTS as critical thinking, and HOTS as problem-solving. HOTS as the transfer is defined as the ability to apply knowledge and abilities that have been developed in learning new contexts. HOTS as a transfer includes the ability to analyze, evaluate, and create. HOTS as critical thinking is defined as the ability to provide wise judgments and criticize something for logical and scientific reasons. HOTS as problem-solving is defined as the skill to identify problems and solve problems using non-automatic strategies. With this ability, students will be able to solve their problems and work more effectively.

Indicator Level of Higher Order Thinking Skills

Bloom's Taxonomy is designed with six levels of cognition, specifically: knowledge, understanding, application, analysis, synthesis, and evaluation, and then revised as remembering, understanding, applying, analyzing, revising, and creating. In lower-order thinking skills (LOTS) it includes memorizing, while higher-order thinking skills requires understanding and application of the knowledge gained. The top three levels of Bloom's taxonomy that are often presented as a pyramid are analysis, synthesis, and evaluation. All of these taxonomic levels involve critical thinking.

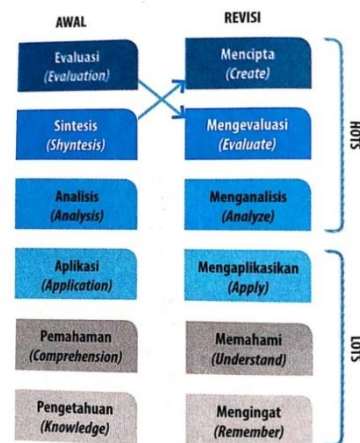


Figure 2.1 Changes in Bloom's Taxonomic Level of Cognition by Anderson and Krathwohl in Nugroho (2018: 20)

According to Nugroho (2018: 22) if synergized with Bloom's taxonomy, HOTS indicators that can be used are as follows:

1. Analysis Level

At this level, the material is broken down into several parts and its relationships are determined, both between parts and as a whole. The level of

analysis consists of the ability or skills to distinguish, organize, and connect (Nugroho, 2018:22).

2. Evaluating Level

In principle, the evaluation level is the ability to make decisions based on criteria. This level consists of checking and critical skills (Nugroho, 2018:31). According to Anderson and Krathwohl in Nugroho (2021:32), checking is a process to find inconsistencies or errors in a process or product. Criticizing is a form of evaluation level. The form of evaluation of various ideas that can be used to solve a problem. Criticizing is the process of assessing an opinion or results based on a set of predetermined criteria.

3. Creating

At this level, students' ability to thinking creatively or innovatively is increasingly being tested. According to Anderson and Karthwohl (2010: 87), it is emphasized that creativity does not only show unique product designs, but also combines various sources of information to produce new products, perspectives, strategies, meanings, and understanding. The creating level consists of formulating, planning, and producing.

The Characteristics of HOTS Questions

There are some characteristics of HOTS questions forward by Setiawati Wiwik, et al. (2019: 39):

1. Transfer of one concept to another;
2. Process and apply information;
3. Looking for links from different kinds of information;
4. Use the information to solve problems;
5. Critically examine ideas and information.

Higher Order Thinking Skills on Reading Comprehension

Afflerbach et.al in Ernawati & Elin Driana (2019: 6) formulates three characteristics of high-level reading skills. The first is goal-directed (purpose-directed) where the reader uses techniques to perceive, pick, use, revise, and evaluate the approach used to achieve these goals. The second one is responsive, in which readers interpret, examine, and examine various factors of the text they read. The third feature is self-regulated, which displays the ability to relate reading goals, duties, situations, and contexts of discourse with reading techniques.

Advantages and Disadvantages of Higher Order Thinking Skills

Concklin in Nugroho (2018: 62) emphasizes that HOTS learning that is done correctly will make students enthusiastic, have motivation, do not give up easily, and feel they need learning. Nugroho (2018: 63) states that there are many opinions and studies that prove that HOTS learning and assessment provide good benefits for students. There are at least three benefits that can be felt, namely

increased student achievement, motivation, and/or positive attitudes. On the other hand, can develop and improve their reasoning power and can also encourage students to understand the scientific concepts they receive during the learning process.

In addition to the benefits or advantages described above, HOTS also has its shortcomings in learning. These drawbacks are as follows:

1. Lack of student references to theories related to the problems studied.
2. In multiple-choice questions, it is difficult to distinguish the answers because the available answers are very similar.
3. Selection of questions that must meet the HOTS standard.

Definition of Reading

Reading is one of the language skills that are no less important than the others skills like speaking, listening, and writing. The ability to read can determine how well a person absorbs information obtain from written texts. Reading is also one of the skills tests when doing tests such as TOEFL and IELTS. The ability to read also has benefits in everyday life, especially when we look for some information in books or articles that contain writing in English.

Reading is a process in understanding the written texts which involves someone's perception and thought (Pang in Chrismawaty, 2017: 7). By reading, someone can retrieve the message of what they read. Reading is not a simple activity, because readers must use their perceptions and thoughts to recognize the work and understand the text itself. In addition, in reading, they also take advantage of their previous knowledge to help them understand written texts (Pang in Chrismawaty, 2017:7).

Reading Comprehension

Reading comprehension is one aspect that is the main goal of teaching reading in school. Reading comprehension is the basis for understanding what is learned in various fields of study. Reading comprehension ability is an interactive technique regarding the reader, the reading, and the context. This ability entails the capability to achieve meaning from written texts as stated by Silliman and Wilkinson in Herlina (2016: 29) "reading comprehension is commonly defined as the ability to accumulate that means from written text."

The Process of Reading Comprehension

According to An (2013: 134), there are as a minimum three varieties of constructing that means techniques proposed by using a few specialists.

1. Bottom-up processing
2. Top-down Processing
3. Interactive processing

Factors Affecting Reading Comprehension

There are many ideas about the factors affecting reading comprehension forward by some experts. Below are presented four factors that influence reading comprehension.

1. Background knowledge of the text
2. Affection
3. Purpose of reading
4. Vocabulary mastery

METHOD OF THE RESEARCH

In this writing, the writer applied an experimental research method. The design was used a pre-experimental one-group pre-test-post-test. This design involved one group that was given a pre-test (O), given treatment (X), and given a post-test. In pre-experimental research one group pre-test and post-test, the first step is to determine the sample to be the research sample and grouping it into one research class. The next step is to provide a pre-test to measure the motivational condition of students before being given treatment by applied higher-order thinking skills to students' reading comprehension. In the next stage, the sample was given treatment by applied higher-order thinking skills to students' reading comprehension. Then the final stage of the sample was given a post-test to measure the condition of students' reading comprehension after being given treatment by applied higher-order thinking skills in reading comprehension. This research was carried out at SMAN 18 Makassar, in the 2021/2022 academic year. The writer took four meetings for the research. The population of this research covered the eleventh-grade students of SMAN 18 Makassar in the 2021/2022 academic year consist of 315 students divided into nine classes, namely of five classes of Sciences and four classes of society which each class consists of approximately 35 students. This research applied the purposive sampling technique. The writer took one class that has been formed at the school to be observed, which consists of approximately 26 students. The sample of this research is the eleventh grade of Social 4 of SMA Negeri 18 Makassar. The material was used in this research is material about HOTS. The test was given twice, before and after the treatment or teaching and learning process. Students were given a pre-test to find out the initial reading comprehension of the sample and the post-test was measured whether the HOTS that has been applied can improve or not on students' reading comprehension. And to see whether the implementation of HOTS has a significant effect on students' reading comprehension, the writer compared the results of the class post-test.

FINDINGS AND DISCUSSIONS

The writer conducted a pre-test to know the prior knowledge of the students' reading comprehension and conducted post-test after giving treatments. The presentation of data in this part was obtained through multiple

choice test. Below is the table show the percentage of students' pre-test and a post-test.

Table 1 The Percentage of Students' Pre-Test

No.	Classification	Score	Pre-test	
			Frequency	Percentage
1.	Excellent	96-100	-	-
2.	Very Good	86-95	-	-
3.	Good	76-85	-	-
4.	Fairly Good	66-75	2	7,7%
5.	Fair	56-65	4	15,4%
6.	Poor	36-55	6	23%
7.	Very Poor	<35	14	53,8%
Total			26	100%

Based on table 4.1 above, the pre-test showed that 26 students. There were 14 students (53,8%) got a very poor classification, 6 students (23%) got a poor classification, 4 students (15,4%) got fair classification, and 2 students (7,7%) got fairly good classification. None of the students got good, very good, and excellent.

Table 2 The Percentage of Students' Post-test

No.	Classification	Score	Post-Test	
			Frequency	Percentage
1.	Excellent	96-100	-	-
2.	Very Good	86-95	1	3.8%
3.	Good	76-85	7	26.9%
4.	Fairly Good	66-75	8	30.8%
5.	Fair	56-65	7	26.9%
6.	Poor	36-55	3	11.5%
7.	Very Poor	<35	-	-
Total			26	100%

Based on the table 4.2 above, the post-test showed that 26 students. There were 1 student (3,8%) got very good classification, 7 students (26,9%) got a good classification, 8 students (30,8%) got a fairly good classification, 7 students (26,9%) got fair classification, and 3 (11,5%) got poor classification. None of students got excellent and very poor.

The t-test is to measure whether or not there is a significant difference between the result of the students' mean scores in the pre-test and post-test. By using inferential analysis of the t-test the significant differences can be easier to analyze. In this research, the null hypothesis (H_0) stated that the implementation of higher-order thinking skills can't enhance the students' reading comprehension at the eleventh grade of Social 4 of SMA Negeri 18 Makassar in the academic year 2021/2022. While the alternative hypothesis (H_1) states that the implementation of higher-order thinking skills can enhance the students' reading comprehension at the eleventh grade of Social 4 of SMA Negeri 18 Makassar in the academic year 2021/2022. If the value of significance is 2 or sig. (2-tailed) lower than 0.05, H_1 accepted and H_0 rejected.

**Table 3 The Result of T-test
PAIRED SAMPLES TEST**

		Paired Differences					t	Df	Sig. (2-tailed)
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
					Lower	Upper			
PAIR 1	PRE-TEST – POST-TEST	-3.153	17.819	3.4947	-38.735	-24.340	-9.025	25	.000

The result of the t-test stated that Sig. (2-tailed) was 0,000. The result provided that the Sig. (2-tailed) the table was lower than the level of significance. So, the alternative hypothesis (H_1) was accepted and the null hypothesis (H_0) was rejected. It means that the implementation of higher-order thinking skills can enhance students' reading comprehension at the eleventh grade of Social 4 of SMA Negeri 18 Makassar in the academic year 2021/2022.

DISCUSSION

The objective of this research is to find out the implementation of the higher-order thinking skills that can improve (HOTS) on students' reading comprehension at SMAN 18 Makassar. At the first day, the writer introduced about her self to students and she also share Google Form link in zoom meeting and whatsapp group to know the students' prior knowledge. On the pre-test, students got 36.53 as mean score and 18.96 as the standard deviation. The score

classified as poor category because it is not achieve a standard score in school and students do not have a prior knowledge about HOTS, and they answer the question based on their prior knowledge.

The statistical analysis of the students' reading comprehension from their pre-test score, none of the students classified as excellent, very good, and good, 2 students (7,7%) classified as fairly good, 4 students (15,4%) classified as fair, 6 students (23%) classified as poor, and 14 students (53,8%) classified as very poor. On the other hand, the students' reading comprehension could be classified as poor.

After taking the pre-test from the students, the writer conducted treatment. The first treatment conducted on Zoom, she introduced higher-order thinking skills and also explained the materials to students. At the end of the lesson, the writer gave questions based on HOTS through Google Form to knew students' knowledge after a lessons. After answer the questions in Google Form, students discussed the answer with the writer.

On the second treatment, the writer explained the characteristics of the HOTS questions, HOTS on reading comprehension, and the advantages of HOTS. After gave some material about HOTS, in the second treatment the writer invited students to pay attention with text they read. Then the writer asked students to answer questions in Google Form. After answer the questions in Google Form, the writer invited students back to analyze what the questions need and find the answer in the text. In this treatment, the writer also read the text for students and invited them to think critically about the main idea from the text and she also asked for students to answer the questions together. The students emphasized to pay more attention with the characteristics of HOTS, so they can became more active and wonder during the teaching-learning process.

In second treatment, students search the statement that related with the answer so they can easier to understand about the text and the questions. Students also read the questions first not the text, so they can understand what is the questions about. And to make it easier for students to answer and understand the reading questions, the writer gave suggestions to increase their vocabulary and practice reading English text based on HOTS.

At the last meeting, the writer applied post-test. In post-test, the writer gave the same question when the writer conducted the pre-test. Students got 68.07 as mean score and 11.66 as the standard deviation. Students' mean score on post-test classified as fairly good category. The average students gets good score for their post-test and the result of the t-test analysis shows that there was a significant between the result of pre-test and post-test. It means that the students' reading comprehension was improved significantly after implementation HOTS.

The result of the t-test stated that Sig. (2-tailed) was 0,000. The result provided that Sig. (2-tailed) the table was lower than the level of significance. This result means that there was a significant difference between the result of pre-test

and post-test. In the other words, the implementation of higher-order thinking skills can improve students' reading comprehension.

This research had several advantages. The important things where HOTS made students enthusiastic, gave students motivation to read more English texts to hone their reading comprehension, and also can improve their reasoning power, and encourage students to understand the scientific concepts they receive during the learning process. The disadvantage of this research is HOTS on reading text was difficult to understand by the students, and the writer find it difficult to adjust it to the predetermined time. Based on the previous explanation, it can be concluded that the implementation of higher-order thinking skills can improve students' reading comprehension.

CONCLUSION

The success of this research can be indicated by the students' scores in the post-test. The implementation of higher-order thinking skills guided the students to get some motivation in reading English text and it also helped students to improve their critical thinking. To improve students' critical thinking in reading text, students need to pay more attention and focus on what they read to get the meaning of the context of reading text. The improvement had not been acquired spontaneously, but after giving the treatment in four meetings it means that the students' reading comprehension can be increased slowly.

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