Analysis of Students’ Reading Comprehension Achievement in Doing High Order Thinking Skill (HOTS) in School Final Exam

**Nur Fadila1, Ihda Husnayaini2, Indrawati 3**

1 IAIN Syaikh Abdurrahman Siddik Bangka Belitung

2 IAIN Syaikh Abdurrahman Siddik Bangka Belitung

3 IAIN Syaikh Abdurrahman Siddik Bangka Belitung

|  |  |  |
| --- | --- | --- |
|  |  | **ABSTRACT**  |
| **Keywords:** *Higher Order Thinking Skill**Reading Comprehension**Final Examination* |  | The objectives of the study are to measure students’ reading comprehension achievement in doing HOTS and to find out the percentage of HOTS in English reading comprehension in school final examination at SMAN 1 Mendo Barat, Bangka. The sample of this study were two classes with total number of 69 students. In this study, the researcher used students’ test results as the instruments for collecting data. The results of HOTS in reading comprehension was then analyzed by using analysis card listed in the revised edition of Bloom’s taxonomy. It showed that the mean of students’ absorption in answering HOTS in reading comprehension correctly was 35,79% and categorized as bad. Furthermore, the percentage of HOTS in reading comprehension in UAS was 25 % of 40 multiple choice test items, without the evaluation and creation skills and 10 questions represented analysis skill. Therefore, the researcher found that the factors of students’ difficulties in doing HOTS are 1) lack of interest in reading English texts, 2) having no idea the purpose of English reading texts and 3) not accustomed to make conclusions or interpret the texts due to being lack of vocabulary. |
|  |
| This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited. ©2019 by author. |
| ***Correspondence:*** Nur Fadila, Email: nurfadila@gmail.com |

**Introduction**

Indonesian government through the Ministry of Education and Culture, has integrated HOTS in the national school curriculum (known as 2013 curriculum). Teachers should know about the assessment to determine students‟ current status, monitoring students’ progress, assigning grades (Popham, 1999). Analyzing item are important to determine which test items are performing well and which need further reviews, and whether the test specifications need to be modified, and review the syllabus design cycle.

However, in reality, some students at SMAN 1 (Public High School No. 1) Mendo Barat got some problems in comprehending reading and answer the English examination items. Based on the preliminary observation by interviewing an English teacher and the result of the students’ test at SMAN 1 Mendo Barat, the problems faced by the students and the teacher were known in some indicators, as follows:

1. Based on the results of students’ achievement in English learning for three years, the average of their scores are 76,022. Students experienced difficulties in multiple-choice question, especially in reading test. Indeed, students got difficulties to answer HOTS question in English reading text.

2. The English teacher in SMAN 1 Mendo Barat uses textbooks and authentic material as resources of the students‟ exercise or examination. It consists of LOTS and HOTS questions.

3. The researcher has interviewed the English teacher at SMAN 1 Mendo Barat. She stated that the students have a lower reading. Students at SMAN 1 Mendo Barat have a problem to comprehend reading because a few of them did not enjoy reading, reading is not their habit. She told that students did not interest in reading activities.

Reading comprehension is a multi-component skill whereby the reader has to use several different cognitive processes involving word cognition, phrasing sentences, access of word meaning, semantic analysis of sentences, and interpretation of the overall text (Ali, Qoura, Gohar, & Amin, 2019).

According to Reutzel, there are two stages of reading comprehension development as following:

First, beginning with the lower processes that focus at the word level such as word recognition, fluency and vocabulary. Second, focuses on the higher-order thinking that relating prior knowledge to text content and consciously learning, selecting and controlling the use of several cognitive strategies for remembering and learning from the text (Reutzel & Cooter Jr, 2012).

Based on the theories above, a reading being one of the important in English skills, reading being a key of learning process also student cannot far away from it, because reading comprehension has many benefit for them. By reading they will get much information and knowledge which perhaps not given by teacher at class. In addition, reading also being an important skill to increase student opportunity to repair their future. So, reading is a need to survive besides other needs. Moreover, in this digital era reading activity will help them to develop their critical thinking also face word for the better life. The purposes of reading are searching for simple information, learning from text, skimming, integrating information, writing or searching for information. It is needed for writing, also critiquing the text. It’s for general comprehension (Rost, 2013). Reading is an active and complex process that involves the understanding written text, developing and interpreting the meaning of the text (Afflerbach, 2017).

Assessment is an essential process to evaluate the students’ competence during teaching and learning process. Regulation for Ministry of Education and Culture No. 66 the year 2013 states that assessment in school as a process of gathering and processing information to measure student learning outcomes. It involves portfolio-based assessment, repetition, competency level exams, authentic assessment, self-assessment, daily assessment, middle test assessment, semester assessment, final year assessment, national examination and school examination (Pendidikan, 2013).

1. **Assessment**

Assessment is a general term that covers the way to obtain information about student learning outcomes and make judgments about learning process. It includes observation, ranking, testing using paper and pencils. The assessment process considers the following principles, namely: 1) clearly determining what is accessed has priority in the assessment process. 2) It relevance to measured characteristics or performance. 3) It comprehensives in accordance with the procedure. 4) It requires an awareness of its limitations, 5) It is a last meaning, not a final meaning in itself.16 It is expected to help students to improve higher order thinking skills while higher-order thinking skill can encourage students to think broadly and deeply about the subject matter (Pulungan & Suganda, 2020).

Additionally, Wiliam stated that the characteristic of assessment (Wiliam, 2011):

1. It is an essential part of teaching and learning

2. It involves sharing learning goals with students

3. It aims to help students to know and to recognize the standards of learning objectives

4. It involves students in self-assessment

5. It provides feedback which leads to students recognizing their next step and how to take them

6. It is underpinned by confidence that every student can improve

7. It involves both teacher and students reviewing and reflecting on assessment data.

Teacher need test items as tool to measure the student ability while in conducting an assessment. The most general used test item is multiple choice test items (Nifiky, 2020). Therefore, to make the students have the ability to think critically, the learning process provides a space for learners to find the concept of knowledge- based activities.

Meanwhile, in terms of assessment, there is an excessive effort from the government to disseminate the core ideas of higher order thinking skills to the English teachers at different levels such as elementary school, junior high school, senior high school, and higher education. Higher order thinking is a skill that necessarily used to assess students in a complicated manner also they required to think very hard to complete the task (Setyarini, 2020).

1. **Analysis Items**

In the content analysis literature, there are three kinds of definitions of this research method:

a. It takes content to be inherent in a text

b. It takes content to be a property of the source of a text

c. It takes content to emerge in the process of a researcher analyzing a text relative to a particular context (Kim & Williams, 1988).

Item analysis is one of the most important statistical procedures that test developer needs to carry out and to develop test items to know how valid it is in terms of testing and target construct. Once all the data have been conducted, the data file must be checked to ensure that no errors. Item analysis can be divided into three stages, they are:

1. To check the facility values or difficulty levels of the items. To find out the high other thinking questions.
2. The levels of discrimination each item provides. It means that the extent to which the items are separating the stronger test-takers from the weaker ones.
3. It helps to identify the amount of internal consistency that exists between the items.

These three analyses will help the test developer to decide whether the trial items can be banked for use in a future test, should undergo revision, or must be dropped (Vitale, Pellegrino, Masuhara, Mishan, & Tomlison, 2017).

This is the processes of content analysis (Kim & Williams, 1988);

Reducing data to manageable representations

Abductively Inferring contextual phenomena to rely and structs or models to choose context as warrants

Narrating the results of the research questions

Unitizing Sampling

Recording/Coding

Bloom’s Taxonomy is a tool to measure the cognitive skills and ability within the test papers based on the specific criteria. It consists of three parts; cognitive domain, effective domain, and psychomotor domain. Cognitive domain consists of six levels which are; LOTS and HOTS (Putra & Abdullah, 2019). Indeed, Benjamin Bloom in 1956 collaborated with four other educational psychologists to publish their Taxonomy of Educational Objectives. He identified four key principles in developing his taxonomy as follows (Ghanizadeh, Al-Hoorie, & Jahedizadeh, 2020):

1. It should be in accordance with students‟ behaviors,

2. There should be a logical relationship among categories in the taxonomy‟

3. It describes value judgment, and

4. It reflects psychological processes.

Bloom’s work was recognized by teachers, administrators, and curriculum specialists. The HOTS is an important component for an individual to be able to solve new problems in education with creative and critical thinking skills (Retnawati, Djidu, Kartianom, & Anazifa, 2018). Creative thinking involves coming up with ideas that nobody else would think of (Babaci-Wilhite, 2020). This is a way to examine the degree of thinking in classrooms that the students required the ability to identify, reason, judge, analyze, evaluate, and make decision about assumptions (Murtonen & Balloo, 2019).

In the cognitive domain they listed six skills in ascending order:

1. Knowledge

2. Comprehension

3. Application

4. Analysis

5. Synthesis

6. Evaluation

With new understanding about education, in 2001 Krathwohl and Anderson changed the terms of Bloom Taxonomy called Bloom’s Revised Pyramid (Sweet, Blythe, & Carpenter, 2016):

1. Remembering

2. Understanding

3. Applying

4. Analyzing

5. Evaluating

6. Creating

The dimensions on the taxonomy are similar, but the highest two level of the taxonomy was revised by a group who worked for five years to clarify the taxonomy. They have been interchanged. Evaluation is now the fifth level and the creation, previously termed the synthesis, is at the top level of the taxonomy.

In 2001 framework, the dimensions on the taxonomy also shifted to verb form to indicate the cognitive skill expected at each level. The levels now are remembering, understanding, applying, analyzing, evaluating, and creating skill. Furthermore, the revised version identifies significantly more cognitive processes under each level to clarify the level of thinking in each category. The revised taxonomy includes nineteen cognitive processes classified in six levels.

The characteristic of HOTS questions at the educational level, there are the descriptions of the characteristics of HOTS questions (Ramadhana, Rozimela, & Fitrawati, 2018):

1. Measuring high-order thinking skills

High-order thinking is a process: analyzing, reflecting, arguing, applying concepts to different situations, composing, creating. High-order thinking skills include problem solving skills, critical thinking, creative thinking, reasoning, and making decision.

2. Contextual-based problems

HOTS questions are real-life situational assessments, where students are expected to apply classroom learning concepts to solve problems.

Indeed, characteristics assessment HOTS is as follows:

a. Measuring the ability of a high level. It is including the ability to solve problems (problem solving), critical thinking skill (critical thinking), creative thinking, decision making. It requires the ability to analyze (C4), evaluating (C5), and create (C6).

b. Based on contextual issues, it loads stimulus in the form of case. Here are five characteristics contextual assessment (Widana et al., 2018):

1.) Relating, the assessment is directly related to the context of real- life experience.

Experiencing, the assessment emphasized the exploration, discovery, and creation.

3.) Applying, assessment demands the student ability to apply knowledge in the classroom.

4.) Communicating, assessment demands the ability of students to be able to communicate the conclusion of the problem.

5.) Transferring, assessment of students who requires the ability to transform the concepts of knowledge in the classroom into a new context.

c. Not routine (not familiar)

According to Widana, there are the steps compose about HOTS namely:

1. Analyze the KD that can be created problems HOTS

2. Arrange gratings matter

3. Write down the items on the card matter

4. Determining the answer key or the form of multiple choice question

5. Conduct a qualitative analysis

6. Perform quantitative analysis

Furthermore, HOTS benefits are: 1.) Increase the motivation of students for the assessment HOTS can connect the subject matter in the classroom with the real-world contexts so that learning is felt more meaningful; 2.) Improve learning outcomes for the assessment HOTS can increase the way students think creatively and critically; 3.) Improving the competitiveness of students (Widana et al., 2018).

Some studies have revealed the use of HOTS in high schools in various regions in Indonesia. One was by Istiqomah. She found that the factors of students’ difficulties in doing HOTS was categorized high with the result in percentage was 72,8%; (3) The factors of students’ difficulties in doing of HOTS in English reading comprehension section are lack interest in English, do not understand the meaning or purpose of the reading, not accustomed to do conclusion or interpret and actually it was rarely applied in teaching and learning activity (Istiqomah, 2019).

Another study by Sole and Anggraeni indicated joint midterm examination questions in Elementary Schools have not been able to measure HOTS (Sole & Anggraeni, 2020). While a study by Widiyaningsih suggested that there was an increase in the amount of higher order thinking question as much as 16% (Widiyaningsih, 2019).

Therefore, there are two problems the writer tried to find out: one related to the students’ achievement in reading comprehension by applying HOTS and the other is how many percentages of the students using HOTS in their school final exam.

**Method**

In this study, the researcher used a quantitative and qualitative approach. The feature of the research designs that is used to collect, analyze, and interpret data using quantitative and qualitative research. The researcher used a mixed method for this study. The mixed method research involves combining qualitative and quantitative research data in a research study (Creswell & Creswell, 2017). The purpose of this mixed research method was to determine the percentage of HOTS in English reading comprehension in final exam and measure students’ achievement level in doing HOTS.

The researcher used nonprobability sampling technique. In nonprobability sampling, the researcher selects individuals because they are available, convenient, and represent some characteristics the investigator seeks to study (Creswell & Creswell, 2017). One kind of non-probability sampling is purposive sampling for conducting the research. Purposive sampling is a sampling technique which takes the sample with certain considerations (Rasinger, 2013). The researcher took two classes of population as the sample as suggested by the English teacher since the students of the classes had better English achievement than the others. The total number of sample was 69 students.

The data was obtained by collecting the students’ reading test results. Then they were analyzed by using HOTS instrument. First the scoring was conducted to measure students’ level in doing HOTS of English Reading Comprehension in the school final exam and finding the average score. The data then was classified into group items that are included in the HOTS category by using Analysis Card.

**Results and Discussions**

1. **Students’ reading comprehension achievement in doing HOTS in School Final Exam**

**Table 1. Analysis of student’s level in doing HOTS in English Reading Comprehension**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **No.** | **Indicators of HOTS** | **Question’s Number** | **The Number of Student with Correct Answers** | **Percentage** |
| 1 | Analyzing (critical thinking): Justifying a decision or course of action | 13 | 27 | 39,13% |
| 2 | 19 | 22 | 31,88% |
| 3 | 20 | 42 | 60,86% |
| 4 | 28 | 32 | 46,37% |
| 5 | 31 | 15 | 21,73% |
| 6 | 32 | 38 | 55,07% |
| 7 | 35 | 12 | 34,78% |
| 8 | 40 | 24 | 34,78% |
| 9 | 41 | 11 | 15,94% |
| 10 | 44 | 24 | 34,78% |
|  | **∑x** | 357,93% |
|  | **Mean** | 35,79% |

Based on the data above, the total score is 357,93 of 69 students, the mean of score is 35,79 by looking at the table below:

**Table 2. The result of student’s level in doing HOTS in English reading comprehension**

|  |  |  |
| --- | --- | --- |
| **Absorption Interval (%)** | **Absorption Category** | **Students answer with HOTS correctly** |
| 85≤×≤100 | Excellent | **35,79%** |
| 70≤×<85 | Good |
| 50≤×<70 | Fair |
| **0≤×<50** | **Bad** |

Based on the table above, the number of student is 35,79% who answer questions with HOTS correctly in reading comprehension. It is in interval 0≤×<50, which means it is categorized *bad*.

1. **The Percentage of HOTS in Reading Comprehension in the School Final Exam**

Based on the percentage of HOTS in reading comprehension, it is 25%. The result can be seen in the following chart.

**Figure 1**

**Percentage of HOTS and LOTS in the English Reading Comprehension Test in UAS**

0%

0% 25%

75%

HOTS Items

LOTS Items

Regarding the chart above, the distribution of the lower order thinking level obtains 75% while the higher order thinking level only 25%. Then, distribution of the HOTS items is figured in the following chart.

**Figure 2**

**Distribution of HOTS and LOTS**

0%

0%

25%

15%

0%

60%

Remembering Understanding Applying

Analyzing Evaluating

Creating

The chart above shows that the distribution of higher order thinking skills level which consists of analyzing, evaluating, and creating level only gets 10 questions out of 40. All of the questions only belong to analyze skill or C4, while no question above for C5 or evaluation and also there is no question above for C6 or the creation domain. Also the distributing of lower order thinking skills level which consists of remembering, understanding, and applying level gets 30 questions out of 40. There are 6 questions belong to remembering skill, 24 questions include in understanding skill and also there is no question for applying skill.

Then, the following table explains the percentage and distribution of each skill in the higher order thinking skills in reading comprehension in the final exam.

**Table 3. The Distribution of the Higher Order Thinking Skill in Multiple Choice Question’s in**

 **Reading Comprehension**

|  |  |  |  |
| --- | --- | --- | --- |
| **No.** | **Higher Order Thinking Level** | **Multiple Choice Questions** | **Total Score** |
| 1 | Analyze | 10 | 10/40x100%=25% |
| 2 | Evaluate | 0 | 0/40x100%=0% |
| 3 | Create | 0 | 0/40x100%=0% |
| **Total** | **10** | **10/40x100%=25%** |

The table above shows that from 40 multiple choice questions, the analyzing or C4 skill was the highest score between evaluating or C5 and creating skill or C6 because it did not apply evaluating skill, even creating skill, since it can be applied in essay questions, but not in multiple choice. The analyzing skill in reading test obtains 25%. And there is no question belongs to the evaluating and creating skill.

**Discussions**

Based on the test results, it is very reasonable that the students need reading ability of careful reading in line with developed test structures, reading questions measure more reasoning, problem solving, argumentation, and communication skills than questions that measure memory and comprehension abilities are declared by PISA. Furthermore, PISA questions also measure the level students‟ ability to solve problems that requires HOTS skills (Damaianti, Abidin, & Rahma, 2020).

Furthermore, Widana et al stated that problem-solving skill is an important aspect of critical thinking skills (Widana et al., 2018). The critical thinking is also an effective way to improve students’ understanding. Unfortunately, in fact the students‟ critical thinking skills in reading comprehension questions were very low. So, it should be focused on developing, logic, reasoning, argument, analysis, and problem-solving.

In addition, there are some factors of students‟ difficulties in doing HOTS: when the instruction of the question orders to conclude the text based on the reading text, they actually did not understand it. Furthermore, they also said it was difficult for them to find the meaning and the purpose of the text. Due to this, first things that teachers need to teach the students are how to:

a. Identify the questions or conclusion that will be made;

b. Identify the meaning of the text,

c. Identify the known facts,

d. Memorize relevant vocabulary.

It can be assumed that student center process will be achieved as they common with these and also because of this skill is not routine or seldom to apply in (Ningsih, Marpaung, & Yolida, 2018). The difficulties of learning English the students had were not only caused by ineffective learning but also were caused by differences in personality types possessed by each individual and psychosocial factor could influence the difficulties faced by students as well. This is related to respondent 28 and 30 who said that “they were not interested in reading English texts.”

Indeed, Widana stated that the difficulty is not the same as higher-order thinking that the level of difficulty in the item is not the same as the high-order thinking ability. For example, to know the meaning of a common vocabulary may have a high level of difficulty, but the ability to do the question does not include higher order thinking skills. Thus, HOTS questions are not necessarily those that have high level difficulty (Widana et al., 2018).

Considering the finding that correlated with Ariani stated that higher order thinking skills is vital for the improvement of language proficiency. The students‟ critical thinking significantly correlated to learners‟ reading comprehension proficiency. Hence their finding of extent association of higher order thinking skills and reading comprehension it is pointed out that higher order thinking can predict a quarter to critical reading comprehension (Ariani, 2020).

Hadi et. al. found that comprehension of the problem is another difficulty expression by students in answer HOTS test items. An indication of this difficulty can be seen from students tended to experience difficulties when presented test items that required in-depth analysis. Also that students are often impatient and do not like to read the passage of the test items (Hadi, Retnawati, Munadi, Apino, & Wulandari, 2018). It happened in this study that a couple of student claimed that there are many texts in final exam made them bored read the questions.

Indeed, they added that the high percentage of students who were not answering was also an evidence of students’ low interest in HOTS test items. This also indicates that the students were not challenged by HOTS test problems and they were not accustomed to HOTS model test items. Sometimes they were confused when working on the answers (Hadi et al., 2018). Therefore, teachers need realizing the students‟ difficulties in doing reading comprehension test and taking appropriate approaches to improve their teaching practices (Abdullah, Abidin, & Ali, 2015).

The government regulation stated that the aspect of knowledge is acquired by activities of Remembering, Understanding, Applying, Analyzing, Evaluating and Creating. However, the application of the Higher Order Thinking Skills (HOTS) model questions on several high school subjects is still considered too difficult though it received a lot of responses from the examinees (Tumanggor, Soband, & Sojanah, 2020). The policy of applying HOTS model questions is intended so that students have the ability to think at a high level that they can hone critical thinking skills, logical, reflective, metacognitive, and creative.

According to Abkary and Purnawarman, HOTS is represented in the level of analyzing, evaluating, and creating in the revised version. The HOTS is the ability to find answers or achieve the goals through various forms of thinking processes (Abkary & Purnawarman, 2020). As we know that assessment is an important aspect of the teaching and learning process because it can measure students‟ abilities to think critically and creatively. They stated that the teacher applied various assessments and different strategies in assessing students’ HOTS. They found that the tendency shows that teachers used summative assessments to assess students’ HOTS. The teachers implemented the summative assessment by choosing the appropriate test and rubric from the book or internet without making HOTS from the book or the internet without making a HOTS questions by themselves. It happens in English teacher in SMAN 1 Mendo Barat, that she did not create the final test item in summative assessment at school. The facts do not fit with the theory that the teachers create the test in summative assessment at school because they know the level of students’ knowledge and skills (Abkary & Purnawarman, 2020).

Furthermore, it needed to use authentic assessment in assessing students’ HOTS based on Basic Competency, which supported the students relating the task with contextual issues in real-life. Indeed, teachers can produce creative forms of matter following the Basic Competency (KD) in the respective subjects and raised the contextual issues that exist in the social and environment as stimulus material. Authentic assessments encourage students to engage in higher order thinking and real world problem solving.

So, creating the test in summative assessment and imply authentic assessment in assessing students‟ HOTS are important that the teachers can create by their own creativity. Hopefully, the percentages of HOTS items in the questions are suitable for students‟ competencies.

**Conclusions**

The result of the mean of students’ absorption in answer of HOTS in Reading Comprehension in correctly showed that there was 35,79% and it is categorized ‘bad’.

The percentage of HOTS in Reading Comprehension suggested that 25% of 40 Multiple Choice test items in the Reading Comprehension, the evaluation and creation skill were none and 10 questions were analysis skills. In addition, the factors of students’ difficulties in doing HOTS in Reading Comprehension was lack of interest in reading English text. They also did not understand the purpose or meaning of the texts and were not accustomed to make conclusions or interpretation as well as were lack of vocabulary.

A suggestion is offered to the English teachers. They should improve the students’ ability of higher order thinking skills, provide students with more reading activities, memorizing vocabulary related to the English reading texts, help them with hints and clues, and also train them to practice the cognitive and meta-cognitive strategy while reading. In this regard, teachers should not lecture all the time, and explain everything to the students but they should encourage the students to read and find out by themselves the different layers or meaning of the texts.

Furthermore, the students are expected to recognize their ability in doing HOTS especially for reading comprehension items. Students should be aware how much their vocabulary and develop their critical thinking through HOTS items.

**References**

Abdullah, A. H., Abidin, N. L. Z., & Ali, M. (2015). Analysis of students’ errors in solving Higher Order Thinking Skills (HOTS) problems for the topic of fraction. *Asian Social Science*, *11*(21), 133.

Abkary, N. S., & Purnawarman, P. (2020). Indonesian EFL Teachers’ Challenges in Assessing Students’ Higher-Order Thinking Skills (HOTS). *4th International Conference on Language, Literature, Culture, and Education (ICOLLITE 2020)*, 482–489. Atlantis Press.

Afflerbach, P. (2017). *Understanding and using reading assessment, K-12*. ASCD.

Ali, D. A. A., Qoura, A. A., Gohar, R. H., & Amin, A. S. (2019). A Proposed Metacognition-Based CALL Program to Improve EFL Students’ Reading Comprehension Skills and Motivation. *Journal of Research in Curriculum Instruction and Educational Technology*, *4*(4), 109–134.

Ariani, E. (2020). DO HOTS CORRELATE WITH READING COMPREHENSION. *Language-Edu*, *9*(1).

Babaci-Wilhite, Z. (2020). *Learning Critical Thinking Skills Beyond the 21st Century for Multidisciplinary Courses: A Human Rights Perspective in Education*. Cognella, Incorporated.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage publications.

Damaianti, V. S., Abidin, Y., & Rahma, R. (2020). Higher order thinking skills-based reading literacy assessment instrument: An Indonesian context. *Indonesian Journal of Applied Linguistics*, *10*(2), 513–525.

Ghanizadeh, A., Al-Hoorie, A. H., & Jahedizadeh, S. (2020). *Higher order thinking skills in the language classroom: A concise guide*. Springer.

Hadi, S., Retnawati, H., Munadi, S., Apino, E., & Wulandari, N. F. (2018). The difficulties of high school students in solving higher-order thinking skills problems. *Problems of Education in the 21st Century*, *76*(4), 520.

Istiqomah, N. (2019). *An Analysis of Higher Order Thinking Skills (HOTS) of English Reading Comprehension Section in National Examination at Islamic High School*.

Kim, S., & Williams, R. S. (1988). Mixed-basis band structure interpolation scheme applied to the rocksalt structure compounds TiC, TIN and TiO. *Journal of Physics and Chemistry of Solids*, *49*(11), 1307–1315.

Murtonen, M., & Balloo, K. (2019). *Redefining scientific thinking for higher education: Higher-order thinking, evidence-based reasoning and research skills*. Springer.

Nifiky, M. G. (2020). *Content Validity and HOTS elements of Reading test items developed by MGMP teacher in Malang*.

Ningsih, D. L., Marpaung, R. R. T., & Yolida, B. (2018). Analisis Soal Ujian Nasional Biologi Sekolah Menengah Atas. *Jurnal Bioterdidik*, *6*(6), 1–10.

Pendidikan, M. (2013). Peraturan Menteri Pendidikan dan Kebudayaan Republik Indonesia. *Nomor*, *66*, 1–3.

Popham, W. J. (1999). *Classroom assessment: What teachers need to know*. ERIC.

Pulungan, M., & Suganda, M. V. A. (2020). *Need Analysis of Instruments Assessment of Curriculum 2013 Based on Higher Order Thinking Skills (HOTS) for Elementary School Students*.

Putra, T. K., & Abdullah, D. F. (2019). Higher-order thinking skill (HOTS) questions in English National Examination in Indonesia. *The Journal of Educational Development*, *7*(3), 178–185.

Ramadhana, N. A., Rozimela, Y., & Fitrawati, F. (2018). High order thinking skills-based questions in the test items developed by Senior High School English teachers of Padang. *Journal of English Language Teaching*, *7*(4).

Rasinger, S. M. (2013). *Quantitative research in linguistics: An introduction*. A&C Black.

Retnawati, H., Djidu, H., Kartianom, A., & Anazifa, R. D. (2018). Teachers’ knowledge about higher-order thinking skills and its learning strategy. *Problems of Education in the 21st Century*, *76*(2), 215.

Reutzel, D., & Cooter Jr, R. B. (2012). *Teaching children to read: The teacher makes the difference*.

Rost, M. (2013). *Teaching and researching: Listening*. Routledge.

Setyarini, S. (2020). Teachers’ Understanding in Constructing Higher Order Thinking-Based Assessments: Voice from English Teachers’ Experience. *4th Asian Education Symposium (AES 2019)*, 39–42. Atlantis Press.

Sole, F. B., & Anggraeni, D. M. (2020). Analysis of High Order Thinking Skill (HOTS) in joint midterm examination at YAPNUSDA Elementary School. *Journal of Physics: Conference Series*, *1440*(1), 12102. IOP Publishing.

Sweet, C., Blythe, H., & Carpenter, R. (2016). Why the Revised Bloom’s Taxonomy Is Essential to Creative Thinking. *National Teaching & Learning Forum*, 7.

Tumanggor, M., Soband, A., & Sojanah, J. (2020). Students’ higher-order thinking skills through problem-based learning in Bandung. *Prosiding ICoISSE*, *1*(1), 322–327.

Vitale, G., Pellegrino, E., Masuhara, H., Mishan, F., & Tomlison, B. (2017). *Investigations into interlinguistic transfer: the role of reading assessment techniques*.

Widana, I. W., Parwata, I., Parmithi, N. N., Jayantika, I., Sukendra, I. K., & Sumandya, I. W. (2018). Higher order thinking skills assessment towards critical thinking on mathematics lesson. *International Journal of Social Sciences and Humanities*, *2*(1), 24–32.

Widiyaningsih, A. (2019). *An Analysis of the Higher Order Thinking Skills (HOTS) in the National Examination of English on Junior High School Level*. UIN SMH BANTEN.

Wiliam, D. (2011). What is assessment for learning? *Studies in Educational Evaluation*, *37*(1), 3–14.