Exploring Students’ LOTS and HOTS in Answering Reading Questions

Intan Armala1*, Endang Fauziati2, Abdul Asib3
1Universitas Sebelas Maret, Surakarta, Indonesia 2Universitas Muhammadiyah Surakarta, Surakarta, Indonesia

ABSTRACT

In the twenty-first century, the education world must fulfill the demands for teaching and learning connected to thinking abilities. For people who are more nuanced and intellectual, the ability to think is necessary. Students must be able to think to reach their learning objectives. Teachers face dilemmas in the classroom in terms of higher-order thinking skills. Teachers incorporate higher-order thinking skills into the teaching and learning process to provide experiences to students, especially in answering questions about higher-order thinking skills. Students often have difficulty answering HOTS questions. As a result, students have difficulty answering reading comprehension questions. This study aimed to explore what students' LOTS and HOTS should be improved when it comes to answering reading questions. This type of research is descriptive and qualitative. Data was collected by giving a reading test to 18 students. The instrument used in collecting data is a questionnaire. The results showed that the student's ability to answer reading questions based on the LOTS was good. Second, the ability of students to answer reading questions based on the HOTS is lacking. As a result of these findings, the ability of students to answer reading questions based on LOTS and HOTS should be improved.

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1. INTRODUCTION

In the twenty-first century, the education world must fulfill the demands for teaching and learning connected to thinking abilities. For people who are more nuanced and intellectual, the ability to think is necessary. Students must be able to think to reach their learning objectives (Fatimahuzzahroh et al., 2021; Songkram, 2015). Students must possess the "4C" which include critical thinking, communication, cooperation, and creativity, to succeed in a global society (Astiti et al., 2019; Kembra et al., 2018). There are two types of 21st-century abilities: abstract thinking ability (creative thinking and critical thinking) and tangible ability (communication and collaboration) (Eugenia et al., 2013; Meyer, 2020). As a result, these abilities must be included in classroom activities to prepare students.

Assessment is a critical component of both teaching and learning in the classroom. Assessment is the act of obtaining, comprehending, and analyzing data to enhance decision-making (Boodrud-Doza et al., 2020; Siddiq et al., 2019). It is used to evaluate students' progress and determine how well they have mastered a
particular subject. In the classroom, there are three major domains for assessment (Martínez-Sierra et al., 2020; Meihami & Razmjoo, 2016; Sudana et al., 2020). The first is the cognitive domain, which includes cognitive functions, including memory, interpretation, application, problem-solving, and critical thinking (Hyder & Bhamani, 2016; Widiana & Rendra, 2020). The second is the affective domain, which includes feelings, attitudes, values, interests, and emotions. The third is the psychomotor domain includes physical tasks and behaviours that require students to manage items (Nugraha & Wahyono, 2019; Wu et al., 2019).

Lower-order thinking skills (LOTS) and higher-order thinking skills (HOTS) are the two categories that Bloom’s Taxonomy divides thinking skills into (Abosalem, 2016; Iltshan et al., 2019). To move to higher-order thinking skills (HOTS), students must have lower-order thinking skills (LOTS). Lower-order thinking skills (LOTS) are defined by the capacity to remember and interpret information (Jansen & Möller, 2022; Kwangmuang et al., 2021). Lower Order Thinking Skills (LOTS) include remembering (C1), understanding (C2), and applying (C3). Meanwhile, higher-order thinking skills (HOTS) present a framework for how students’ critical thinking skills increase throughout their educational experience (Mubarok & Anggraeni, 2020; Mustika & Susanti, 2020; Suherman et al., 2020). The Higher-Order Thinking Skills category includes the ability of analyzing (C4), evaluating (C5), and creating (C6) (HOTS).

Rememering is the first step in the cognitive process (Dahlan et al., 2020; Lau et al., 2018). It arises when students explain, discuss, inform, or specify a specific issue. The next step is understanding. It occurs when students have completely understood what they have read. Retelling, inferring, interpreting, explaining, predicting, and outlining information are the keywords at this level. The third step is applying. Students are required to apply what they have learned in the classroom in a new context. The fourth step is analyzing. It comprises breaking down a substance into its constituent pieces and figuring out how the components fit together to form a bigger structure. Differentiating, arranging, and attributing are some of the keywords. The sixth step is evaluating. It comprises making a decision based on a set of criteria. The last step is creating. Creating means putting elements together into a form and the whole form is coherent and functional. The keywords in this stage are generating or describing problems, planning, and producing (Anrasiyana et al., 2022; Battisti et al., 2022; Gottzén & Sandberg, 2017).

Higher-order thinking skills have become a national educational priority in Indonesia. This is reflected in the Law of the National Education System, enacted in 2003: "...developing students' ability to become critical, creative, and independent citizens" (Mubarok & Anggraeni, 2020; Suherman et al., 2020). However, according to the PISA 2018 results, Indonesian students in reading texts are placed 72 out of 79 members of the nations, with a mean score of 371. Motivation, students’ attitudes in EFL classes, and reading strategies are all aspects that might influence students' language learning (Renandyia, 2013; Shih & Reynolds, 2015). Other issues include the teacher’s material and teaching approach, both of which are ineffective in training students to answer the HOTS’s items in reading. As a result, the students are accustomed to addressing LOTS of questions while reading. The fundamental issue is that Indonesian students are not provided enough practice in answering contextual questions that demand concrete action, reasoning, and innovation, all of which are PISA characteristics questions. Then there is the lack of teachers' ability to create instrument assessments for HOTS, as well as a lack of or inaccessibility of instrument evaluations specifically meant to train HOTS (Hamdi et al., 2018; Widyaningish et al., 2020).

Vocabulary knowledge, prior knowledge, meta-cognitive information, and reading methods are all factors that influence students' reading competence (Alavi & Akbarian, 2020; Pourhosein Gilakjani & Sabouri, 2016). Then, students’ reading attitudes, adequate teaching on comprehension techniques, variety, and text form, as well as awareness of various reading comprehension strategies, are all aspects that impact students' reading literacy (Gilakjani, 2017; I. P. I. Kusuma et al., 2017). As a result, most students struggle with higher-order thinking skills in reading. Teachers in the classroom have a problem with developing higher-order thinking skills, which is one of the national educational goals. Teachers include higher-order thinking skills in teaching and learning process to provide students experience, particularly with problems that need higher-order thinking skills (Mubarok & Anggraeni, 2020; Suherman et al., 2020). The study focuses on the application of lower-order and higher-order cognitive abilities to reading questions. Answering reading questions, especially ones that involve higher-order thinking abilities, is a challenge for many students (HOTS). As a result, students are unable to respond effectively to reading questions.

The cognitive levels of comprehension questions presented in reading and writing textbooks for Al-Imam Mohammad ibn Saud Islamic University (IMSIU) first-year English Department students, as well as the thinking levels of questions posed by EFL instructors to IMSIU’s first-year English Department students (Alnofal, 2018). The most of questions posed to first-year instructors are of a lower cognitive level (knowledge, comprehension, and application). Furthermore, the textbook study demonstrated that both textbooks preferred lower-level cognitive abilities. The results revealed that students' reading skills in answering higher-order thinking items on descriptive and recount texts is weak or low, with descriptive text and recognizing the important concept earning the highest mean score (Riadi & Tantra, 2020). Then, there is no substantial variance.
in students’ reading competency in answering higher-order thinking items across classes, text genres, or reading indicators. The research, explored the distribution of HOTS in English teacher-made tests, the relevance of the English teacher-made test to the skills in English simplified syllabus, and the reason for HOTS being less common in English-made tests (Syahdanis et al., 2021). The findings imply that instructors’ exam questions should contain more HOTS-type questions because the assessments are mostly LOTS-type questions (Musliha et al., 2021). The purpose of this research is to explore what students’ LOTS and HOTS are when it comes to responding to reading questions.

2. METHOD

A descriptive qualitative study was used for this research. This research involved students in the twelfth grade from one of the senior high schools in Salatiga. Purposive sampling was used to choose the students, resulting in a total of 18 students. The students were between the ages of 16 and 17. The data was obtained through a reading questions test. Reading questions based on LOTS and HOTS from twelfth-grade textbooks are delivered to the students. Previously, the researcher examined the reading questions using the indicators of LOTS and HOTS, which were proposed by Anderson and Krathwohl (2001). In addition, the test contained 12 reading questions, six of which were LOTS’ questions and six of which were HOTS’ questions. The reading questions are shown in Table 1.

<table>
<thead>
<tr>
<th>No.</th>
<th>Reading Questions Item</th>
<th>Indicator</th>
<th>LOTS</th>
<th>HOTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Where do you think the conversation takes place?</td>
<td>Understanding</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>What is the relationship between the speakers?</td>
<td>Understanding</td>
<td>✓</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>What the statement is the patterns of offering help/service?</td>
<td>Applying</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>What is the position being advertised?</td>
<td>Remembering</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>5</td>
<td>How did Lilis Handayani know about the vacancy?</td>
<td>Remembering</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>6</td>
<td>Do you think Lilis is confident about her competence? How do you know?</td>
<td>Evaluating</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>7</td>
<td>Does Lilis indicate her willingness for an interview? Find the evidence from the text?</td>
<td>Evaluating</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>8</td>
<td>What does friendship mean?</td>
<td>Analyzing</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>9</td>
<td>What do you think about the quote in this caption?</td>
<td>Analyzing</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>10</td>
<td>According to you, which sentence or phase under the word “friendship” in the caption?</td>
<td>Applying</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>11</td>
<td>If you were one of the parents, what would you do to deal with the problem in the online system?</td>
<td>Creating</td>
<td>✓</td>
<td>✓</td>
</tr>
<tr>
<td>12</td>
<td>If you were the acting governor, how would you respond to the parent’s concerns?</td>
<td>Creating</td>
<td>✓</td>
<td>✓</td>
</tr>
</tbody>
</table>

The researcher scrutinized the students with reading questions based on LOTS and HOTS. Then, the result was scored and categorized to identify students’ LOTS and HOTS in answering reading questions. The score and categorization were using the grading criteria proposed by Harris (1969), as shown in Table 2.

3. RESULT AND DISCUSSION

Result

Based on data analysis, students were categorized as Poor (11%) in answering LOTS-based reading questions. They reach a score ≤ 39. Then, 8 students were categorized as Enough (44%). They reach a score in the range of 50 – 59. Continually, 8 students were categorized as Good (44%). They reach a score in the range of 60 – 79. Whereas, there were no students who reach the Excellent Category in answering LOTS-based reading questions. Based on the explanation, the student’s average score in answering LOTS-based reading questions was 56. As a result, it is possible to conclude that the students’ ability to answer LOTS-based reading questions is Enough. The categories of students’ abilities to answer LOTS-based reading questions are shown in Table 2.

Data analysis showed 8 students were categorized as Poor (44%) in answering HOTS-based reading questions. They reach a score ≤ 39. Then, 2 students were categorized as Enough (11%). They reach a score in the range of 50 – 59. Continually, 3 students were categorized as Good (17%). They reach a score in the range of 60 – 79. Last, 5 students were Excellent at answering HOTS-based reading questions. They reach a score in the range of 80 – 100. Based on the explanation, the student’s average score in answering HOTS-based reading questions was 62.
questions was 53. As a result, it is possible to conclude that the students' ability to answer HOTS-based reading questions is Enough. Table 3 shows the categories of students' abilities to solve HOTS-based reading questions.

Table 2. The Students’ Ability in Answering LOTS based Reading Questions

<table>
<thead>
<tr>
<th>No.</th>
<th>Score</th>
<th>Students</th>
<th>Percentage (%)</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>80 – 100</td>
<td>0</td>
<td>0%</td>
<td>Excellent</td>
</tr>
<tr>
<td>2.</td>
<td>60 – 79</td>
<td>8</td>
<td>44%</td>
<td>Good</td>
</tr>
<tr>
<td>3.</td>
<td>50 – 59</td>
<td>8</td>
<td>44%</td>
<td>Enough</td>
</tr>
<tr>
<td>4.</td>
<td>≤ 39</td>
<td>2</td>
<td>11%</td>
<td>Poor</td>
</tr>
</tbody>
</table>

Table 3. The Students’ Ability in Answering HOTS Based Reading Questions

<table>
<thead>
<tr>
<th>No.</th>
<th>Score</th>
<th>Students</th>
<th>Percentage (%)</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>80 – 100</td>
<td>5</td>
<td>28%</td>
<td>Excellent</td>
</tr>
<tr>
<td>2.</td>
<td>60 – 79</td>
<td>3</td>
<td>17%</td>
<td>Good</td>
</tr>
<tr>
<td>3.</td>
<td>50 – 59</td>
<td>2</td>
<td>11%</td>
<td>Enough</td>
</tr>
<tr>
<td>4.</td>
<td>≤ 39</td>
<td>8</td>
<td>44%</td>
<td>Poor</td>
</tr>
</tbody>
</table>

In this phase, the result of the difference in students’ ability to answer LOTS and HOTS reading questions was decreased, constant, and increased. In answering LOTS and HOTS reading questions, 11 out of 18 students received a decreasing score, 2 out of 18 students had a constant score, and 5 out of 18 students received an increasing score. It can be assumed that the number of students answering LOTS reading questions is higher than HOTS reading questions. Furthermore, students' average score in answering LOTS reading questions is 56, while their ability to answer HOTS reading questions is 53. It indicates that the difference in the students’ ability to answer LOTS and HOTS reading questions is as wide as it appears. Students' LOTS and HOTS in Answering Reading Questions showed in Table 4.

Table 4. Students’ LOTS and HOTS in Answering Reading Questions

<table>
<thead>
<tr>
<th>No.</th>
<th>Score</th>
<th>Number of Students</th>
<th>Percentage</th>
<th>Category</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>LOTS</td>
<td>HOTS</td>
<td>LOTS</td>
</tr>
<tr>
<td>1</td>
<td>80 – 100</td>
<td>0</td>
<td>5</td>
<td>0%</td>
</tr>
<tr>
<td>2</td>
<td>60 – 79</td>
<td>8</td>
<td>3</td>
<td>44%</td>
</tr>
<tr>
<td>3</td>
<td>50 – 59</td>
<td>8</td>
<td>2</td>
<td>44%</td>
</tr>
<tr>
<td>4</td>
<td>≤ 39</td>
<td>2</td>
<td>8</td>
<td>11%</td>
</tr>
</tbody>
</table>

Mean Score out of 100: 56

Discussion

The results showed differences in students' abilities in answering LOTS and HOTS reading questions. Students should think well to achieve learning goals (Ani Rahmawati, Nur Lailatin Nisfah, 2019; Kusuma et al., 2017). Moreover, students are currently required to have critical thinking skills, communication, collaboration, and creativity to compete (Mustika & Susanti, 2020; Suherman et al., 2020). These abilities must be trained properly so that they have better abilities. Therefore, teachers must design good learning activities in the classroom. Effective learning activities will prepare students to receive information from the teacher to practice their thinking skills (Afriyanti et al., 2021; Hamdi et al., 2018). In addition, other activities that must be prepared are assessments. Assessment can be said as an action in making a decision (Novika Auliyana et al., 2018; Tiara & Sari, 2019). In addition, the assessment also helps teachers discover students' knowledge and skills after participating in learning activities. Assessment is used to evaluate student's progress and determine how well they have mastered certain subjects (Krismony et al., 2020; Sukmasari & Rosana, 2017). One of them measures students' thinking skills.

Based on the assessment criteria, the results of this study indicate that the differences in students' abilities in answering LOTS and HOTS reading questions are at Enough level. Findings from student responses to LOTS and HOTS-based reading questions use LOTS and HOTS indicators to assess students' ability to answer LOTS and HOTS-based reading questions (Jelita & Putra, 2021; Laksana, 2017). Lower-order thinking skills include remembering, understanding, and applying (Surya et al., 2018). On the other hand, higher-order thinking skills are classified into three categories: analyzing, evaluating, and creating (Anwar et al., 2020; Apino & Retnawati, 2017; Zulfiandi et al., 2020). This study uses LOTS and HOTS to classify students' ability to answer reading questions. With these low-level thinking skills, students can usually only remember and interpret...
information, including C1, C2, and C3. Higher order thinking skills (HOTS) present critical thinking skills to students, which include the ability to analyze (C4), evaluate (C5), and create (C6) (Husamah et al., 2018; Musliha et al., 2021).

Motivation, students’ attitudes in the EFL class, and reading strategies affect language learning. Vocabulary knowledge, prior knowledge, meta-cognitive information, and reading methods affect students’ reading competence. Teachers incorporating higher-order thinking skills in teaching and learning will provide students with experience, especially higher-order thinking skills. The findings of previous studies also state that students’ higher-order thinking skills can be trained by teachers (Hassan et al., 2016; Ibrahim et al., 2020; Seibert, 2021). Other findings also state that effective learning activities can improve students’ higher-order thinking skills (Sari et al., 2020; Suherman et al., 2020; Suratmi et al., 2020). English teachers should provide a lot of practice and training to students in dealing with LOTS and HOTS questions, especially in answering reading questions. Students must be able to answer various LOTS and HOTS questions.

4. CONCLUSION

The student’s ability to answer reading questions based on LOTS and HOTS was categorized as Enough. The average score of Students’ LOTS and HOTS in answering reading questions was 56 and 53. The English teacher should provide a lot of practice and training for the students dealing with LOTS and HOTS questions.

5. REFERENCES


