Indonesian EFL Teachers' Challenges in Assessing Students' Higher-Order Thinking Skills (HOTS)

Nabila Saniya Abkary[*], Pupung Purnawarman

Dept. of English Education, Universitas Pendidikan Indonesia, Bandung, Indonesia
[*]Corresponding author. Email: nabilasaniya@upi.edu

ABSTRACT

Higher-Order Thinking Skills (HOTS) must be implemented in every subject, including the English Language in the 2013 curriculum by the Ministry of Education and Culture in Indonesia. HOTS is the upper three levels of cognitive learning (analyzing, evaluating, and creating) coined by Bloom, known as Bloom's Taxonomy. The concepts of HOTS are too vague to guide the teacher in teaching and assessing HOTS because the construct of HOTS is abstract and multi-nature. HOTS assessment has also been unbounded because every teacher has their perceptions in assessing different students. Therefore, this study investigates EFL teachers' strategies in assessing students' HOTS and its challenges. The research used a qualitative method, particularly descriptive study—the data about how teachers assess students' HOTS and its challenges collected through questionnaires and an interview. The research participants were EFL teachers of public schools in Indonesia. The findings indicated that from 22 EFL teachers, the strategies used mostly are summative assessment and authentic assessment in assessing students' HOTS. Besides, the teachers never made HOTS questions because of a lack of understanding of HOTS assessment. This implied that teachers faced challenges in assessing students' HOTS. The challenges are divided into two aspects; teachers' understanding of the concept of HOTS assessment and students' aspects.

Keywords: Assessment, EFL, HOTS, English language teacher

1. INTRODUCTION

In the revised Bloom's taxonomy, Higher Order Thinking Skills (HOTS) is in the upper three levels of educational objectives; analyzing, evaluating, creating, and added three levels of knowledge dimension; conceptual, procedural, metacognitive (Anderson & Kraetwohl, 2001). Voogt and Roblin (2010) suggest that the assessment of HOTS can increase critical thinking skills (critical thinking), creativity (creativity), and confidence (learning self-reliance). Therefore, in assessing HOTS, the tasks should include analyzing, evaluating, and creating conceptual and procedural knowledge or metacognition. Many aspects must be assessed, making it difficult for teachers to determine every students' HOTS.

The difficulties in assessing students' HOTS were varied (Ennis, 1993; Halpern, 2003; Norris, 2003; Ku, 2009). Ennis (1993) mentions the problem is that the levels are interdependent and too vague to guide the teacher in teaching and assessing HOTS. Halpern (2003) and Norris (2003) said that one of the obstacles

is lacking proper assessment that effectively and objectively measures students' HOTS. Meanwhile, Ku (2009) added there was not an agreement on how HOTS should be measured.

The problems in assessing students' HOTS are also affecting EFL teachers in Indonesia. Assessment of learning outcomes are essential aspects of the 2013 Curriculum. Moreover, the main aspect of the 2013 curriculum encourages the teachers to develop HOTS in the teaching and learning process successfully. Kusuma et al. (2017) argues that most questions used by schools in Indonesia are cognitive assessment instruments that aim to test on memory aspect, while questions to develop students' higher-order thinking skills are relatively low. The fact, English teachers' competency in assessing students' HOTS is far away from the government's expectation (Cesarandari, Aswandi, & Oikurema, 2019).

Many studies investigate about assessing HOTS in the EFL context. The previous studies conducted by Johansson (2020) is about how HOTS are assessed in online EFL courses. The result shows that in assessing

HOTS, the teachers need to well-planned and designed e-assessment tasks to create both linguistically and cognitively beneficial outcomes. It proves that developing e-assessment tasks to assess HOTS can be done. Besides, Pratiwi, Dewi, & Paramartha (2019) researched on how summative assessments made by English teachers reflect HOTS. The results indicated that students' cognitive levels were still in Lower Order Thinking Skills (LOTS). This was because teachers did not fully understand the concept of Higher Order Thinking Skills.

Therefore, to fill the gap from the previous studies about assessing HOTS in EFL class, this research focuses on how EFL teachers in Indonesia assess students' HOTS to portray their strategies and the challenges they faced in assessing students' HOTS. Hence, the researcher formulates two questions in conducting the research: 1) How are Indonesian EFL teachers assessing students' HOTS? And 2) What are the challenges faced by the EFL teachers in assessing students' HOTS? This research results are expected to give new information and alternative solutions that can improve teachers' ability to assess students' HOTS.

2. LITERATURE REVIEW

2.1. Higher-Order Thinking Skills (HOTS)

The basic concept of Taxonomy coined by Bloom and his collaborators consists of six major categories: Knowledge, Comprehension, Application, Analysis, Synthesis, and Evaluation. However, Anderson and Krathwohl (2001) declared the new cognitive domain, which includes remembering, understanding, applying, analyzing, evaluating, and creating. The major differences between the concept by Bloom and the revised version by Anderson and Kraetwohl (2001) are the addition of how the taxonomy relates and acts upon different types and levels of knowledge, namely factual, conceptual, procedural, and meta-cognitive (Saul & Wuttke, 2011).

Bloom's Taxonomy divided into two cognitive levels; Lower Order Thinking Skills (LOTS) and Higher Order Thinking Skills (HOTS). According to Mishra and Kotecha (2016), HOTS is represented in the level of analyzing, evaluating, and creating in the revised version. HOTS is the ability and skill to find answers or achieve the goals through various forms of thinking processes (Budsankom et al., 2015).

2.2. Strategies for Assessing Higher-Order Thinking

Brookhart (2010) explained the strategies for giving feedback or scoring tasks that assess HOTS. There are two ways to analyze student responses to items or tasks: one is to comment on the work, and the other is to score

it. The important points are that the items match the learning targets and develop students' HOTS.

2.3. Formative Assessment of Higher-Order Thinking

One of a powerful way to assess HOTS is by observing and discussing student reasoning directly. The formative assessment aim is to evaluate student learning by providing ongoing feedback. It helps the teacher to improve their teaching and the students to improve their learning (Brookhart, 2010).

2.4. Summative Assessment of Higher-Order Thinking

The use of HOTS in summative assessment, a scoring scheme, must be designed in such a way to score students' HOTS well. It means that think critically and creatively must figure into the criteria from which the rubric is developed (Brookhart, 2010).

2.5. Performance Assessment of Higher-Order Thinking

Corcoran, Dershimer, and Tichenor (2004) stated that performance assessment characteristics are asking students to perform or produce something; relate to higher-level thinking and problem-solving skills; using tasks that represent meaningful instructional activities; involving real-world applications; using human judgment in scoring. Performance assessment should be accessible to students with different experiences, learning styles, backgrounds, and abilities (Bass, Magone, & Glaser, 2002).

2.6. Authentic Assessment of Higher-Order Thinking

Whitlock and Nanavati (2013) explained that authentic assessment emphasizes students' skills and what students can do in the context of real-life. Authentic assessment requires students to use a combination of knowledge, skills, problem-solving, and motivation that should be applied in real-life situations. (Gulikers, Bastiaens, & Kirschner, 2004; Borich & Tombari, 2004).

2.7. HOTS in English as Foreign Language (EFL)

The role of teachers in EFL is important since English is being learned mainly in classrooms. Because of this, the teachers are the main source and facilitator of knowledge and skills of this language (Sulistiyo, 2016). Relating with the 2013 curriculum policy, HOTS must be implemented into all subjects and attached to the assessment. Therefore, EFL teachers must be able to

design an assessment that contains Higher Order Thinking Skills (HOTS).

In EFL subject, HOTS can be implemented in the teaching-learning process such as national curriculum policy, textbook availability, teachers, and students' cognitive abilities (Tyas et al., 2019). Therefore, teachers need to increase their pedagogical competence, including classroom evaluation (Ayvaz-Tuncel & Çobanoğlu, 2018). Moreover, Moodley (2015) emphasizes that in order to develop a good assessment, the quality of teachers' performance becomes very important. It means that the fundamental aspects of teachers are mastering the concept of HOTS.

3. METHODS

3.1. Research Design

This research applied a qualitative research design taking on a descriptive study. This research used descriptive study because it reflected an experience or event that happens in reality as completely as possible. The reasons for using qualitative research were, first, because it focused on participants' perspectives. As stated by Walliman (2010) that qualitative can be used to establish reality based on participants' points of view. Second, the data was collected by the open-ended questionnaire and the interview session, which were in the form of words. In line with Creswell (2012), in qualitative design, the nature of data is in the forms of words.

3.2. Research Participants

The respondents for this research were 22 English teachers in public schools in Bandung. Their teaching experience ranged from two years to seven years. This research used convenience sampling to select the respondents based on proximity and doesn't consider whether they represent the entire population or not (Walliman, 2010). Using this technique, the researcher can observe habits, opinions, and viewpoints in the easiest possible manner.

3.3. Data Collection

The instruments used in this research were open-ended questionnaires and interviews, following Creswell's (2007) suggestion that open-ended questions would not limit participants' views. The questionnaire was adopted from Fakhomah and Utami (2019) about English teachers' perceptions towards Higher Order Thinking Skills (HOTs). The interview was also conducted to gain in-depth information. This research used the semi-structured interview to obtain information about English teachers' challenges in assessing students' HOTS. In the interview process, the researcher prepared some questions and developed relevant questions based

on the research questions. This type of instrument is recommended to collect more reliable and valid data since the respondents were not led in any way.

The procedure of this research was divided into three phases based on Creswell's (2007) theory. In the first phase of the research, the questionnaire was distributed to EFL teachers in public schools in Bandung by Google Form. After that, the researcher collected the data to investigate the teachers' challenges using the semi-structured interview. The interview was conducted after the questionnaire was given. The researcher used bilingual (English and Bahasa Indonesia) during the interview to get more evidence from the participants easily and to avoid misunderstanding. After all the data were obtained, the researcher transcribed and analyze the result in a descriptive qualitative form. The last, the researcher interpreted deeply about the finding and integrated with the theory and previous study.

4. FINDINGS AND DISCUSSIONS

The data is presented based on the research questions and data collection instruments. There are two sections discussed in the research findings. The first section discussed how EFL teachers assess students' HOTS. The second section described challenges faced by the teacher in assessing students' HOTS.

4.1. EFL teachers' strategies in assessing students' HOTS

The first finding based on research questions was about how Indonesian teachers assess students' HOTS. The Figure 1 shows the types of assessment mostly used by the teacher in school. The purpose was to investigate how this affects the teacher's obstacles while assessing students' HOTS.
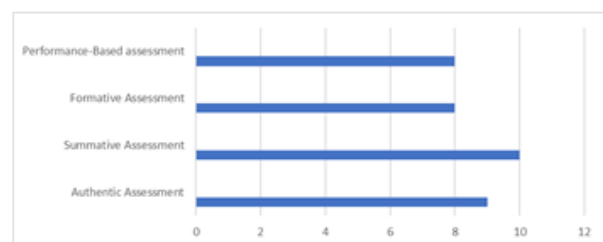

Figure 1 Types of assessment that teachers used in assessing students' HOTS.

As shown in Figure 1, from 22 teachers as respondents, nine teachers used authentic assessment, eight teachers used performance-based assessment and formative assessment, and ten teachers used summative assessment. Thus, the figure shows the teachers' tendency is used summative assessment and authentic assessment to assess students' HOTS.

The interview session also supported these findings. Teacher 1 choose the summative assessment, but she never makes a HOTS question. So, she just assesses students' HOTS based on a rubric from the book. *"I never create HOTS questions because my comprehension of HOTS assessment is still low. I'm afraid that the question is not good enough to assess students' HOTS. So, I prefer the HOTS questions from the books."* In addition, Teacher 3 said that he searched for the HOTS rubric on the internet. *"Usually, I use summative assessment and search the HOTS rubric from the internet and make the HOTS question based on the rubric. Of course, it is based on the material in the book".*

A summative assessment required a scoring rubric that must be devised in such a way to score higher-order thinking well. This requirement meant that thinking must figure into the criteria from which the rubric is developed. The teachers implemented the summative assessment by choosing the appropriate rubric from the book or the internet and never made a HOTS task. It can be implied that the teachers were not confident in designing HOTS questions because their understating about HOTS assessment is still low. Thus, mastering the concept of HOTS assessment become the challenge. Further explanation is in the second finding section on teachers' challenges (Teachers' Understanding about the Concept of HOTS Assessment).

Meanwhile, in authentic assessment, the teachers need to relate the assessment with the context and measure students' skills when needed in real life. From the interview, Teacher 2 explained how he assessed students' HOTS; *"I usually used an authentic task to assess students' HOTS. The first step is I differentiate the cognitive level and focus on C4, C5, C6; it's analyzing, evaluating, and creating. Second, I made an instrument in excel based on basic competencies (KD). The last, I search HOTS assessment rubric that appropriates with the students' needs."*

Assessment is an important aspect of the teaching and learning process because it can measure students' ability to think critically and creatively (Fitriani, 2019). There are many types of assessments to stimulate students' HOTS. The research results provide the type of assessment used by EFL teachers to assess students' HOTS in Bandung public schools. Investigating the first research questions, which asked about how Indonesian EFL teachers assessing students' HOTS. Based on the result of the questionnaire, the teachers apply various assessments and different strategies. Overall, the tendency shows that teachers used summative assessments to assess students' HOTS. Related to the findings, the teachers implemented the summative assessment by choosing the appropriate test and rubric from the book or the internet without making a HOTS questions by themselves. The results do not fit with the theory that the teachers usually create the test in summative assessment at school because they know the level of students' knowledge and skills (Pratiwi et al., 2019). This indicates that the teachers do not have qualified comprehension of assessing students' HOTS. This is in line with a previous study conducted by Driana and Ernawati (2019) that teachers did not fully understand HOTS.

Besides, it was also found that the teachers used authentic assessment in assessing students' HOTS. Based on the interview, teacher 2 implemented authentic assessment based on Basic Competency, which supported the students relating the task with contextual issues in real-life. This is in line with Widana (2017) statement that 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 environment as stimulus material. Moreover, Authentic assessments encourage students to engage in higher-order thinking and real-world problem solving (Abosalem, 2016). This imply that authentic assessment can be a strategy to assess students' HOTS.

4.2. EFL teachers' challenges in assessing students' HOTS

The second finding based on the research question was the challenges in assessing students' HOTS. The research findings indicated two major challenges faced by the teachers in assessing students' HOTS; teachers' understanding of the concept of HOTS assessment and students' aspects.

4.2.1. Teachers' Understanding about the Concept of Assessing HOTS

In assessing students' HOTS, some teachers find it difficult to understand the concepts of HOTS assessment. For example, in the interview session, Teacher 1 said: *"Because of the lack of understanding about what HOTs itself so that understanding the concepts of HOTs assessment became more difficult. There are a lot of theories and concepts that we need to concern before selecting and making HOTS assessment.".* In the first finding based on research question one, even though Teacher 2 used authentic assessment based on Basic Competency, he still faced some problems in assessing students' HOTS. *"Yes, sometimes teachers have their own RPP with clear KI and KD, the teachers need to compare the answer of students whether it includes aspects of knowledge, attitudes, and skills. The goal is to determine the achievement of Competency Achievement Indicators (GPA) of a Basic Competency (KD)".*

Moreover, Teacher 4 found difficulties in teaching method and making a task along with the rubric. *"The difficulties are in teachers' competence to comprehend*

the HOTS requirements in creating class activity and making questions. Also, teachers' ability to find out the proper rubric." Besides, teacher 5 stated that they did not understand the principle of assessing HOTS and how to make HOTS questions, *"I haven't really understood about the principle of assessing student HOTS, so for assessing student HOTS, I gave them some tricky questions and examining how they answer that question from a different perspective but not knowing if it's HOTS or not."* Other difficulties of assessing HOTS as explained by Teacher 3, she never learned about HOTS before when studying in a bachelor's degree or when she joined teacher training. Thus, from the first finding, *"Yes. I've never found the term during my bachelor's degree or teacher training programs before."*

These findings are in line with the research conducted by Retnawati et al. (2018) that teachers still cannot differentiate among abilities, skills, learning methods, or learning activities in HOTS. Although HOTS always appear in teacher training activities and socialization of Curriculum 2013, teachers cannot understand its concept. The interview results show that, in general, the teachers find it difficult to understand the concepts of HOTS assessment because of their educational background, and too many aspects of assessing HOTS must be understood without a guideline.

4.2.2. Students' Aspects

Students' aspects become a challenge in assessing HOTS because the teacher had to manage students' various backgrounds and characteristics in the classroom. The new school admission system in Indonesia, known as the school zoning policy, made the class heterogenous. The impact is the teacher would have to be able to adjust their teaching to suit the students' different learning abilities. Teacher 5 stated that the challenges come from the varieties of students' characteristics. *"I teach a heterogeneous class with different characters and also different common ground of students' ability. So, as a teacher, organizing that kind of problem in order to make a good and fair assessment to all of my students could be quite challenging."*

Moreover, Teacher 4 found it difficult to make HOTS items because she had to adapt to different students' abilities. *"I already have difficulties in making a HOTS question, especially for students with different abilities."* In addition, Teacher 6 stated, *"Yes, because we need to deal with the varieties of students' ability level. As a result, a single test or instrument is not enough to assess every students' abilities."* These findings imply that teaching in heterogeneous class is challenging in assessing students' HOTS. The teachers

must assess different students' abilities in one HOTS assessment.

It is in line with the research conducted by King, Goodson, and Rohani (2012) that students need to have enough prior knowledge because it serves as a basis for using their HOTS in answering questions. HOTS also play a significant role in applying, connecting, or manipulating the prior knowledge in order to effectively solve new problems (Thomas & Thorne, 2009). Therefore, Saul and Wuttke (2011) suggest that assessments addressing HOTS should adapt to diverse student needs.

Another aspect experienced by Teacher 1 is that it is hard to assess students' HOTS from essay form because every student has their perspective. *"Yes, especially in essay form. It is hard to determine the standard of assessment. For example, when students are required to analyze the author's bias in a text or write an essay. I often confuse in considering the normative aspect to asses like how students solve the question or arrange the ideas in the written form. As a result, I often use a personal point of view to assess the student's answer since assessing analysis is quite abstract. Since HOTS requires student's comprehension in advance, sometimes, the students do not fully understand the concept and its relationship with functional purposes. So, when it comes to the assessment, I often find a lot of misleading answers due to the modified question, which is attachment to HOTS."* Also, Teacher 2 said that it is difficult to determine every students' answer. *"Students' answer is unexpected; some of them write perfunctorily. So, as a teacher, we did not see the right answer to them."* It can be concluded that every student has different perceptions in answering HOTS questions, which made the teacher difficult to adjust with an assessment rubric.

The second research question is about the challenges faced by EFL teachers in assessing students' HOTS. Assessment is considered one of the challenging aspects of the teaching and learning process (Abosalem, 2016). Therefore, in this research, many EFL teachers faced challenges in assessing students' HOTS. Based on the results found, it can be concluded that the challenges faced by EFL teachers in assessing students' HOTS can be divided into two main parts. The first part is teachers' understanding of the concept of assessing HOTS. Based on the Ministry of Education and Culture of Indonesia's policy, assessment and HOTS are essential aspects that must be implemented in the 2013 curriculum. Hence, the teachers have important roles in preparing the students to face future challenges.

Meanwhile, in the data results, teachers 1, 4, and 5 find it difficult to understand HOTS aspects, such as assessing HOTS, teaching method, making a task, and the rubric. Even though some of the teachers have attended HOTS training and workshop, but it is not

effective. This analysis is supported by the theory from Seman, Yusoff, and Embong (2017) that the consequences of the teachers who were not having proper understanding and knowledge about HOTS cause the inability to design and implement effective instructions during the teaching and learning process.

This study also found that students' aspects such as background, learning ability, and learning style become major challenges for EFL teachers in assessing HOTS. Most of the teachers reported that it is hard to manage various students' backgrounds and characteristics in a heterogeneous classroom. This is also in line with the study conducted by Seman et al. (2017), every student's uniqueness was challenging for teachers to focus on the subject matter and HOTS. The studies stated in Budsankom et al. (2015) showed many factors are affecting HOTS, such as classroom environment, family, psychological, and intelligence. Moreover, Budsankom et al. (2015) explained that these factors are interdependent and supported each other. Hence, those factors should be adjusted to the teaching and learning process to support and promote HOTS development. Also, it was found that the teachers have difficulty in assessing students' essays because every student has a different perspective to answer the questions. The theory supports this case from Setiawati et al. (2019) that the HOTS assessment instrument is multiform. It means to allow the students to give different answers based on their thought process and point of view because it measures analytical, critical, and creative thinking processes in which every student has their own unique or different responses from the other.

5. CONCLUSION

The results of this research indicated that Indonesian teachers used various types of HOTS assessments, and most of the teachers faced challenges in assessing students' HOTS. Most of the teachers used summative assessment and authentic assessment in assessing students' HOTS. However, some teachers still don't know how to make HOTS questions and only rely on the handbook/textbook.

The challenges teachers faced in assessing students' HOTS were divided into two aspects; teachers' understanding of HOTS assessment and students' aspects. Besides, not all the teachers understand the concept of HOTS assessment; that is why the teacher finds it difficult to assess students' HOTS. The finding can be concluded that the understanding of HOTS assessment and the ability of teachers to prepare HOTS is still low. Moreover, most teachers teach a heterogeneous class; it means that students have different expertise, characteristics, and background in one class. Thus, the teacher should find an appropriate rubric to fulfil all students' needs.

In a nutshell, to successfully resolve the challenges found in this research, teachers need to master various knowledge fields to make the teaching and learning process meet the goals based on the 2013 Curriculum. At the same time, teachers need to adapt to all current changes. Thus, continuous learning can ensure that teachers will always be ready to keep up with the changes, challenges, and high teaching effectiveness.

REFERENCES

Abosalem, Y. (2016). Students' learning styles and their misconceptions in dividing fractions View project Assessment Techniques and Students' Higher-Order Thinking Skills. *International Journal of Secondary Education*, *4*(1), 1–11. https://doi.org/10.11648/j.ijsedu.20160401.11

Anderson, L. W., & Kraetwohl, D. R. (2001). *A Taxonomy for Learning, Teaching, and Assessment*. New York: Longman.

Ayvaz-Tuncel, Z., & Çobanoğlu, F. (2018). In-service Teacher Training: Problems of Teachers as Learners. *International Journal of Instruction, 11*(4), 159-174. https://doi.org/10.12973/iji.2018.11411a

Bass, K. M., Magone, M. E., & Glaser, R. (2002). *Informing the design of performance assessments using a content-process analysis of two NAEP science tasks*. Center for the Study of Evaluation, National Center for Research on Evaluation, Standards, and Student Testing, Graduate School of Education & Information Studies, University of California, Los Angeles.

Brookhart, S. M. (2010). How to Assess Higher-Order Thinking Skills in Your Classroom. In *VA: ASCD*.

Borich, G. D., & Tombari, M. L. (2004). *Educational assessment for the elementary and middle school classroom*. Prentice-Hall.

Budsankom, P., Sawangboon, T., Damrongpanit, S., & Chuensirimongkol, J. (2015). Factors affecting higher-order thinking skills of students: A meta-analytic structural equation modeling study. *Academic journals*, *10* (19), 2639-2652.. https://doi.org/10.5897/ERR2015

Cesarandari, S., Aswandi, & Oikurema. (2019). *Applying the Higher Order Thinking Skills (HOTS) to Spoken Analytical Exposition in Oral Presentation Assessment*. *9*(2), 1–5. https://doi.org/10.9790/1959-0902010105

Corcoran, C., Dershimer, E., & Tichenor, M. (2004). A teacher's guide to alternative assessment: Taking the first steps. *The Clearing House, 77*(5), 213-216.

Creswell, J. W., Hanson, W. E., Clark Plano, V. L., & Morales, A. (2007). Qualitative research designs:

Selection and implementation. *The counseling psychologist*, *35*(2), 236-264.

Creswell, J. W. (2012). *Educational Research Planning, Conductiong, and Evaluating Quantitative and Qualitative Research* (4th ed.). Boston: Pearson.

Driana, E., & Ernawati. (2019). Teachers' understanding and practices in assessing higher order thinking skills at primary schools. *Acitya: Journal of Teaching & Education*, *1*(2), 110–118.

Ennis, R. H. (1993). Critical thinking assessment. *Theory Into Practice*, *32*(3), 179–186. https://doi.org/10.1080/00405849309543594

Fakhomah, D. N., & Utami, M. S. (2019). Pre-service English teacher perception about Higher Order Thinking Skills (HOTS) in 21st century learning. *International Journal of Indonesian Education and Teaching*, *3*(1), 41–49.

Fitriani, W. W. (2019). The realization of HOTS on summative test items designed by English teacher group discussion. *English Focus: Journal of English Language Education, 2*(2), 132-144. https://doi.org/10.24905/efj.v2i2.64

Gulikers, J. T., Bastiaens, T. J., & Kirschner, P. A. (2004). A five-dimensional framework for authentic assessment. *Educational Technology Research and Development, 52*(3), 67.

Halpern, D. F. (2003). *Thought and knowledge: An introduction to critical thinking (4th ed.)*. Mahwah, NJ: Lawrence Erlbaum Associates.

Johansson, E. (2020). The assessment of higher-order thinking skills in online EFL courses: A quantitative content analysis. *English Studies, 19*(1), 224–256.

King, F., Goodson, L., & Rohani, F. (2012). Higher order thinking skills: Definition, teaching strategies, assessment. *Thinking*, *18*, 458. Retrieved from http://www.cala.fsu.edu/files/higher_order_thinking_skills.pdf

Ku, K. Y. L. (2009). Assessing students' critical thinking performance: Urging for measurements using multi-response format. *Thinking Skills and Creativity*, *4*(1), 70–76. https://doi.org/10.1016/j.tsc.2009.02.001

Kusuma, M. D., Rosidin, U., Abdurrahman, A., & Suyatna, A. (2017). The development of higher order thinking skill (HOTS) instrument assessment in physics study. *IOSR Journal of Research & Method in Education (IOSRJRME)*, *07*(01), 26–32. https://doi.org/10.9790/7388-0701052632

Mishra, R., & Kotecha, K. (2016). Are we there yet! inclusion of Higher Order Thinking Skills (HOTS) in assessment. *Journal of Engineering Education Transformations*, *0*(0), 2–5. https://doi.org/10.16920/jeet/2016/v0i0/85686

Moodley, V. (2015). In-service teacher education: Asking questions for higher order thinking in visual literacy. *South African Journal of Education, 33*(2), 1–18. https://doi.org/10.15700/saje.v33n2a430

Norris, S. P. (2003). The meaning of critical thinking test performance: The effects of abilities and dispositions on scores. In D. Fasko (Ed.), *Critical Thinking and Reasoning: Current Research, Theory and Practice*. Cresskill, NJ: Hampton Press.

Pratiwi, N. P. W., Dewi, N. L. P. E. S., & Paramartha, A. A. G. Y. (2019). The reflection of HOTS in EFL teachers' summative assessment. *Journal of Educational Research and Evaluation*, *3*(3), 127–133.

Retnawati, H., Djidu, H., Kartianom, Apino, E., & Anazifa, R. D. (2018). Teachers' knowledge about higher-order thinking skills and its learning strategy. *Problems of Education in the 21st Century*, *76*(2), 215–230.

Saul, C., & Wuttke, H. D. (2011, May). Personalized assessment of higher-order thinking skills. In *CSEDU (2)* (pp. 425-430). https://doi.org/10.5220/0003480204250430

Seman, S. C., Yusoff, W. M. W., & Embong, R. (2017). Teachers challenges in teaching and learning for Higher Order Thinking Skills (HOTS) in primary school. *International Journal of Asian Social Science*, *7*(7), 534–545. https://doi.org/10.18488/journal.1.2017.77.534.545

Setiawati, W., Asmira, O., Ariyan, Y., Bestary, R., & Pudjiastuti, A. (2019). Buku Penilaian Berorientasi Higer Order Thinkings Skills (HOTS). *Dirjen GTK Kemendikbud*, *53*(9), 1689–1699. https://doi.org/10.1017/CBO9781107415324.004

Sulistiyo, U. (2016). English language teaching and EFL teacher competence in Indonesia. *Proceedings of ISELT FBS Universitas Negeri Padang, 4*(2), 396-406.

Thomas, A., & Thorne, G. (2009). How to increase higher level thinking | center for development and learning. The Center for Learning and Development Blog. Retrieved from http://www.cdl.org/articles/how-to-increase-high-order-thinking/

Tyas, M. A., Nurkamto, J., & Laksani, S. M. H. (2019, October). Developing Higher Order Thinking Skills (HOTS)–based questions: Indonesian EFL teachers' challenges. In *Proceeding of the 2nd International Conference on Future of Education* (Vol. 2, No. 1, pp. 52-63). https://doi.org/10.17501/26307413.2019.2106

Voogt, J., & Roblin, N. P. (2010). 21st century skills discussion paper. *University of Twente*.

Walliman, N. (2010). *Research Methods: The Basics*. Routledge. https://doi.org/10.4324/9780203836071

Whitlock, B., & Nanavati, J. (2013). A systematic approach to performative and authentic assessment. *Reference Services Review, 41*(1), 32-48.

Widana, I. W. (2017). Higher Order Thinking Skills Assessment (HOTS). *Jisae: Journal of Indonesian Student Assesment and Evaluation*, *3*(1), 32–44. https://doi.org/10.21009/jisae.031.04