

## The Barriers in Integrating Higher Order Thinking Skills in Indonesia Context

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**Abstract:** The 21<sup>st</sup> century learning requires students to be critical, creative, collaborative and communicative which considered as Higher Order Thinking Skills (HOTS). These skills would help students to compete in the real workforce in the future. However, even though HOTS have been an issue for years, problems still appear in Indonesia as showed in some international measurement. Regarding the discrepancy between the importance of HOTS in learning process and the fact in the field, this paper highlights the barriers in integrating HOTS in English language teaching in Indonesia context. Based on reviewing several related literatures, it could be generalized that the problems in implementing HOTS come from the teachers and the students.

**Keywords:** *higher order thinking skills integration, English language learning, Indonesia context*

**Abstrak:** Pendidikan pada abad-21 menekankan siswa agar menjadi kritis, kreatif, kolaborative dan komunikatif yang dianggap sebagai kemampuan berpikir tingkat tinggi (HOTS). Kemampuan ini akan membantu siswa untuk berkopetisi dalam dunia kerja nantinya. Tetapi meskipun HOTS telah menjadi isu akhir-akhir ini, masalah tetap saja muncul di Indonesia sebagaimana ditunjukkan dalam beberapa penilaian internasional. Mengenai permasalahan yang muncul dan akan pentingnya HOTS dalam proses pembelajaran Bahasa Inggris, makalah ini akan membahas rintangan yang dihadapi dalam mengintegrasikan HOTS dalam kegiatan pembelajaran Bahasa Inggris di Indonesia. Berdasarkan telaah literatur yang dilakukan, didapatkan bahwa masalah dalam mengimplementasikan HOTS datang dari guru dan siswa.

**Kata-kata kunci:** *integrasi kemampuan berpikir tingkat tinggi, pembelajaran Bahasa Inggris, kontek Indonesia*

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The vast development of the 21<sup>st</sup> century and industrial revolution 4.0 brings significant impact in many sectors, including educational field. It is due to the demand of education in this era which not only focuses on the intellectual development, but also creativity. This is also in line with The Partnership for 21st Century Skills (2011) that emphasizes three-core skills: learning skills, literacy skills, and life skills. The learning skills comprise of critical thinking, creative thinking, collaborating, and communicating. Literacy skills consist of information literacy, media literacy, and technology literacy. Life skills include flexibility, initiative, social skills, productivity, and leadership. In line with that, students need to learn continuously for enhancing their knowledge and skills.

To develop a learning process that integrates character building and 21<sup>st</sup> century skills, starting from 15 July 2013 Indonesia government has implemented Curriculum 2013 to optimize and improve the quality of education (Mulyasa, 2018; Ariyana, Pudjiastuti, Bestary & Zamroni, 2018). To increase the competitiveness of our graduates at the global level, education must provide the good quality teaching and learning process, and appropriate assessment that incorporate HOTS.

The integration of HOTS in teaching and learning process and assessing process in curriculum 2013 is based on several policies: 1) Regulation of Ministry of Education and Culture of Indonesia Number 20 Year 2016 about standard graduate competence, 2) Regulation of Ministry of Education and Culture of Indonesia Number 21 Year 2016 about standard content, 3) Regulation of Ministry of Education and Culture of Indonesia Number 22 Year 2016 about standard process, 4) Regulation of Ministry of Education and Culture of Indonesia Number 23 Year 2016 about standard education assessment, and 5) Regulation of Ministry of Education and Culture of Indonesia Number 24 Year 2016 about core competence and basic competence of curriculum 2013 for primary and high school.

The reports of the result of computer-based national examination 2018 show that Indonesian students found difficulty to solve the higher order thinking questions (Media Indonesia, 2018; Kompas.com, 2018; Badan Standar Nasional Pendidikan, 2019). The students lamented that questions were too difficult, and were not in line with what they had learned in school. Meanwhile, according

to Hamid Muhammad, Indonesia General Director of Primary and Higher Education (Direktur Jenderal Pendidikan Dasar dan Menengah, Dikdasmen), the proportion of HOTS questions was only 10%, so there were only about 4-5 questions for each subject. Responding the situation, Totok Supriyanto, the chief of research and development affair of education and culture ministry, *Badan Penelitian dan Pengembangan Kementerian Pendidikan dan Kebudayaan* (Balitbang), elaborated that the government will always improve the quality of national examination by increasing the proportion of HOTS question for computer-based national exam in 2020 (PikiranRakyat, 2019; Tirtoid, 2019). This decision implies that Higher Order Thinking Skills are really important to be integrated in process of teaching and learning, so that students are capable to solve HOTS-based questions.

Additionally, application of HOTS in pedagogy and assessment could promote HOTS among students and directly improve student achievement (Boaler & Staples, 2008; Franco, Sztajn, & Ramalho, 2007). Accordingly, learning process could only be beneficial to students if they are directly involved in the thinking process (Vygotsky, 1962). Consequently, teaching and learning in the 21<sup>st</sup> century should give focus on student-centered and independent learning, project-based learning and collaborative learning, as well as authentic assessment (Şener, Türk, & Taş, 2015).

However, even though HOTS have been a hot issue for years, problems still appear in Indonesia that can be seen from some international studies as references to determine HOTS achievement. For example, based on World's Most Literate Nations (WMLN, 2016) Indonesia was at number 60 out of 61 countries. In Program for International Student Assessment (PISA), the literacy of Indonesian students were at number 57 of 65 countries in 2009, 64 of 65 countries in 2012, and 63 of 72 countries in 2015 (OECD, 2009, 2012, 2015). Not only Indonesia's rank was far lower than most participated countries, but also Indonesia had a mean score (397) that was below OECD average (493). The data from the result of Test of English for International Communication (TOEIC) on Test Takers Worldwide (2015) did not reveal a better condition that Indonesia ranked 43<sup>rd</sup> out of 46 countries, while in Test of English as a Foreign Language (TOEFL) ITP, Indonesian mean score was 477 (Education

Testing Service, 2015). Even in smaller scope, Indonesia is in the 8<sup>th</sup> of 16 countries in Asia. Within South Sumatera Province, the citizens' English literacy performance was still problematic where teachers' mean score of TOEFL was 485 (Diem & Atmanegara, 2014). Furthermore, based on Mirizon, Diem and Vianty (2018) report on the studies conducted during 2009-2015 (Fitriana, 2009; Risa, 2013; Pamuji, 2013; Sartika, 2014; Gumartifa, 2015; & Hutagalung, 2015), the average score of reading comprehension of university students in Palembang was also low (59.03). Since the test did not only ascertain whether students could reproduce knowledge, but also assessed how well students could extrapolate from what they learned and apply that knowledge in different settings, it is worth saying that Indonesia students still have unsatisfying skills in terms of higher order thinking skills.

However, in the implementation of learning, HOTS cannot be directly taught to students (Retnawati, Djidu, Kartianom, Apino & Anazifa, 2018). Therefore, students should be trained about HOTS through learning activities that support its development. An active learning and student-centered learning are considered as the best activities to enhance HOTS (Akyol & Garrison, 2011; Limbach & Waugh, 2010). Moreover, it is believed that teacher gives significant contribution in teaching and learning process in order to be successful in achieving learning objectives and developing students' thinking skills, therefore teacher must be able to give good example to students. In line with this, to flourishingly develop students' HOTS, the active role of teachers in planning, implementing, and evaluating HOTS-oriented learning has to be seriously and consistently conducted (Ramdiah, Abidinsah, Royani & Husamah, 2019; & Mulyasa, 2018).

Somehow, there is discrepancy between the importance of HOTS in learning process and the fact in the field. Based on some studies, it was found that the knowledge of teachers in Indonesia related to HOTS were not sufficient enough covering their understanding HOTS to improve and measure students' HOTS (Renawati, Djidu, Kartianom, Apino & Anafiza, 2018). On the other side, the implementation of HOTS itself was not conducted well (Ramdiah, Abidinsah, Royani & Husamah, 2019). The result of the study also showed that teachers in Banjarmasin prepared the lesson well, but

this was not done consistently (continuously); some teachers did not maximally prepare the lessons according to the recommended educational standards. Yulianti and Lestari (2018) found that the level of thinking ability of students in answering HOTS practice questions still needed improvement. Students who have high learning abilities are better at answering HOTS-oriented questions compared to students in the medium and low categories. Then, it is recommended that learning modules that can facilitate learning activities that lead to HOTS are provided so that students are skilled in answering and making HOTS-oriented practice questions for elementary school students when they become a teacher. Therefore, this paper is going to highlight some barriers in integrating Higher Order Thinking Skills (HOTS) in English language teaching in Indonesia.

### **Higher Order Thinking Skills (HOTS)**

There are a lot of definitions of higher order thinking skills. First of all, Thomas and Thorne (2009) define HOTS as the way of thinking that is more than remembering fact, recalling fact, or applying a rule, formula and procedure. Higher order thinking skills make students to do something based on a fact, correlate those facts, categorize, manipulate and place them in new context, and able to use those facts to find a new solution for certain problem. On the other hand, Brookhart (2010) states that HOTS could fall into three categories: (1) those that define higher order thinking in terms of transfer, (2) those that define it in terms of critical thinking, and (3) those that define it in terms of problem solving. HOTS as transfer is defined as the ability to apply knowledge and skill that has been learnt into a new context. As a transfer, HOTS contain analyzing, evaluating, and creating. On the other hand, as critical thinking, HOTS are defined as the ability to judge and criticize through logic and scientific reasoning. Lastly, HOTS as problem solving can be defined as the ability to identify problem and solve it by using the most appropriate strategies. Therefore, based on the explanation above, the writer infers that HOTS are the ability that make students to think critically by integrating several facts and knowledges to evaluate a particular phenomenon and make the best solution for that problem.

One of the most well-known taxonomies in education is Bloom's. In the cognitive domain of Bloom's Taxonomy (1956), it

involves knowledge and the development of intellectual skills. It also includes the six major categories; knowledge, comprehension, application, analysis, synthesis and evaluation. In the mid-nineties, Anderson Karthwol D, a former student of Bloom, revised the cognitive domain in the learning taxonomy and made some changes. However, the revision did not change the core of Bloom's cognitive level that is all evolve around the same cognitive thinking skills. The revision is illustrated in the following table.

**Table 1. Revised Bloom Taxonomy (Anderson & Krathwol, 2001)**

Original Domain	New Domain
Evaluation	Creating
Synthesis	Evaluating
Analysis	Analyzing
Application	Applying
Comprehension	Understanding
Knowledge	Remembering

*HOTS in Curriculum 2013*

By leaning the program developed by Ministry of Education and Culture of Indonesia to improve the quality of graduates, the development of learning process is orienting to HOTS-oriented learning. Thus, the implementation of Curriculum 2013 starting from planning, teaching and learning process, and evaluating process must be integrated with HOTS. HOTS-oriented learning can be created by considering standard competence of graduate and standard content of Curriculum 2013, and some learning principles formulated by Indonesia government. Regarding the Regulation of Ministry of Education and Culture No. 22 Year 2016 about standard process, there are 14 learning principles proposed by the government. Those learning principles could be formulated below:

- Students transform from the ones who receive information from teacher to the ones who seek information.
- The source of information and knowledge is not barely from teacher.
- As the reinforcement of scientific approach, textual approach is transformed into process approach
- Competence-based learning has a heavy emphasis instead of content-based learning to.
- Partial learning is shifted to integrated and multidisciplinary learning.
- From learning that emphasizes

single-correct answer is converted to multidimensional answers (many possible answers).

- From verbalism learning is switched to applicative learning.
- Learning process enhances the improvement and integration of hard skills and soft skills.
- Learning process that empowers students to be life-long learners.
- Process of learning which applies the values by giving example, building student's willingness, and enhancing student's creativity.
- Learning process occurs everywhere either in school, home or society.
- Learning process that believes that everyone can be a teacher (source of knowledge), everyone can be a student, and every place can be a class.
- To improve the effectivity and efficiency of learning, the integration of technology information and communication is needed.
- The paradigm which believes that every student is different and has own culture and background.

From those principles, it can be inferenced that curriculum 2013 demands a learning process that makes students involve actively in learning process that they need to be proactive in looking for the information they need to solve any problem they may encounter. Moreover, the other point is that learning process is not only occurs in classroom, but also it can be outside classroom as the source of knowledge and information is not merely the teacher. Students might gain the information they need from any sources.

### Challenges in Teaching HOTS

Higher Order Thinking Skills have been explicitly incorporated in Curriculum 2013 to emphasize on teaching pupils to "know how" instead of to "know what". However, the problems still pop up when teachers implement HOTS in learning process. Accordingly, the cultivation of thinking skills at primary school level is important in the context of the current development. Efforts to promote and develop thinking skills should begin at the primary school level because this level is considered as the best time to cultivate the basic foundation for further education (Ikhsan and Norlia, 2005; Mohamad and Nasruddin, 2008 ). However, the findings on the implementation of thinking skills in teaching and learning still indicated that teachers lacked knowledge in

thinking skills and were unskilled in applying thinking skills (Zamri and Jamaludin, 2000; Zulkarami, 2011). Teachers also lacked practice in creative thinking skills, graphic management, asking high-level open questions and teaching for HOTS on the whole (Sukiman et al., 2013).

In the context of perception, teachers interpreted the challenges in teaching for HOTS with various flavors that characterized teaching and learning in classroom. First of all, some teachers still assumed that HOTS are identical to difficulty. The more difficult the question, the more HOTS it is. Somehow, HOTS itself is about how teachers make the students think creatively to solve problems.

In fact, this was also troublesome for some teachers, especially teachers who were in the comfort zone with conventional teaching and learning methods. As there is shift in teaching process that was teacher-centered to students-centered, some teachers might face difficulty to apply the new way of teaching. As proposed in Curriculum 2013, there are several approaches that could develop HOTS of students. They are discovery/inquiry learning, Problem-Based Learning (PBL), and Project-Based Learning (PJBL). Therefore, teachers should recognize that it is necessary for them to internalize those approach in order to enhance students' skills of higher order thinking.

On the other hand, it is also a great concern of how to teach the necessary skills while the allocation of time is limited. As it is explained in the Regulation of Ministry of Education and Culture Number 22 Year 2016 about standard process about time allocation, it could be implied that teacher only have limited time-allocation to apply teaching and learning process that can promote students' HOTS. Meanwhile, to administer the syntaxes of the approach, it takes time. So that, it is problematic that the time is limited for teacher to implement it.

Moreover, it is still an issue regarding teachers' understanding and knowledge of HOTS. With respect to teacher knowledge of HOTS, majority of teachers only had very basic knowledge of HOTS and they had misconceptions on some key components of HOTS. It can be concluded that teachers need to be given extensive training about HOTS. The biggest challenge for these teachers were to teach something that they do not fully understood; and to transfer skills that they do not fully master to pupils. Teachers who do not understand HOTS would not have the

competencies in HOTS which in turn would affect their skills in teaching for HOTS. Therefore, majority of the teachers should work with the methods of teaching and the thinking tools suggested by Ministry of Education and culture which were available in Process Standard.

On the other hand, pupils' learning ability, mastery of basic or prior skills, focus, nature and learning style are also challenges for the teachers. As some students with low cognitive ability, might be too dependent on their teachers. As the result, teachers will spoon feed and guide their students all the way. This is especially difficult with students who are not able to achieve proficiency in basic skills. It is challenging for teachers to restructure lessons to ensure that all students could achieve both content knowledge and HOTS. The uniqueness of every student is challenging enough for teachers to focus on the subject matter and HOTS because teachers viewed HOTS and subject matter as two separate objectives not as using HOTS to achieve objectives of subject matter.

To face these challenges successfully, it is important for teachers to master various fields of knowledge to make themselves flexible and relevant, while it allows them to absorb all current changes. Thus, continuous learning can ensure that teachers will always be ready to keep up with the changes, challenges and to have high teaching efficacy.

## REFERENCES

- Anderson, O. W., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives*. New York, NY: Longman.
- Husamah., Fatmawati, D., & Setyawan, D. (2018). OIDDE learning model: improving higher order thinking skills of biology teacher candidates. *International Journal of Instruction*, 11(2), 249-264
- Miri, B., David, B. C., & Uri, Z. (2007). Purposely teaching for the promotion of higher-order thinking skills: A case of critical thinking. *Research in Science Education*, 37 (4), 353–369. doi:10.1007/s11165-006-9029-2.
- Mirizon, S., Diem, C. D., & Vianty, M. (2018). Students' specific comprehension skills in English based on school location, grades, and gender. *Indonesian Journal of Applied Linguistics*, 7(3), 538-548.
- Mulyasa, H. E. (2018). *Implementasi kurikulum 2013 revisi*. Jakarta, Indonesia:

- Bumi Aksara.
- Moseley, D., Baumfield, V., Elliott, J., Gregson, M., Higgins, S., Miller, J., & Newton, D. (2005). *Frameworks for thinking: A handbook for teaching and learning*. New York, NY: Cambridge University Press.
- Rahma, S., Abidinsyah., Royani, M., & Husamah. (2019). Understanding, planning, and implementation of HOTS by senior high school biology teachers in Banjarmasin- Indonesia. *International Journal of Instruction, 12*(1), 425-440.
- Ramdiah, S., Abidinsyah., Riyani. M., & Husamah. (2019). Understanding, Planning, and Implementation of HOTS by senior high school Biology teachers in Banjarmasin-Indonesia. *International Journal of Instruction, 12*(1).
- Retnawati, H., Djidu, H., Kartianom., Apino, E., & Anazifa, R.D. (2018). Teachers' knowledge about higher-order thinking skills and its learning strategy. *Problem of Education in the 21st Century, 76*(2), 215-230.
- Scott, L. A. (2017). *21st century skills early learning framework. Partnership for 21st Century Skill (P21)*. Retrieved from [http://www.p21.org/storage/documents/EarlyLearning\\_Framework/P21\\_ELF\\_Framework\\_Final.pdf](http://www.p21.org/storage/documents/EarlyLearning_Framework/P21_ELF_Framework_Final.pdf).
- Sener, N., Turk, C., & Tas, E. (2015). Improving science attitude and creative thinking through science education project: A design, implementation and assessment. *Journal of Education and Training Studies, 3*(4), 57 – 67.