Proceeding of the International Conference on Future of Education, Vol. 2, Issue 1,2019, pp. 46-51

ISSN 2630-7413 online
DOI: https://doi.org/10.17501/26307413.2019.2105

# Exploring the Indonesian English Teachers' Perceptions Towards Higher Order Thinking Skills (HOTS) in the 21st Century Learning

Nurika Mustika[1*], Joko Nurkamto[1], Suparno[1] and Alfi Nur Azizah[1]

[1]*Sebelas Maret University, Indonesia*

**Abstract:** Higher Order Thinking Skills (HOTS) are crucial in the 21st century learning process since it requires a high ability to think critically and teachers to have appropriate skills to face technological and global challenges. Therefore, it is essential to study about HOTS and the relation with teachers' perceptions. The research aimed to investigate teachers' perceptions towards HOTS and to know how they are reflected in teaching and learning process. This research used mixed method design. In obtaining the data about teachers' perceptions towards HOTS, the researcher used a questionnaire and in-depth interview. The questionnaire was distributed to 10 teachers from different schools and background knowledge in Java. The results showed that the teachers who were aware of the importance of HOTS tend to foster their students in mastering HOTS and to have high skills in problem solving and critical thinking, while the teachers who were lack of awareness will focus on giving their students tasks relating with the recalling ability only. Additionally, it was also found that teachers having positive perceptions towards HOTS taught their students using the method that fosters their students to have high skills in problem solving and critical thinking.

**Keywords:** Teachers' Perceptions, Higher Order Thinking Skill (HOTS), 21st Century Learning

## Introduction

It is undeniable that our global societies are advancing rapidly toward a more integrated and connected world – and in this century, faster than ever before. Additionally, the success of a country is determined by its education quality. It is imperative then that our education practices must keep pace. Indonesian government, in this case, has been design a curriculum which is considered to be suitable with 21st century learning. Highlighting the 21st century learning, there are three sets of skills that must be had by students: (1) Life and Career Skills, (2) Learning and Innovation Skills, and (3) Information, Media and Technology Skills; each of them can be broken down into several skills (Trilling and Fadel, 2009). As a result, Indonesian government through Ministry of Education establishes HOTS based learning which can help students achieve those skills (Kemendikbud, 2018). Higher Order Thinking Skills (HOTS) as the national goal of education can be seen on the National Education System Law, Number 20 of 2003: "…developing students' potentials to become a critical, creative, and independent citizenship". From the statement above, it can be implied that the aim of Indonesian Education System is to develop the students' potentials to have HOTS and to facilitate a learning environment that allows students to acquire knowledge and HOTS. Unfortunately, the awareness of the importance of building a learning process that emphasizes HOTS is often confronted by a traditional paradigm that still focuses on the aspects of knowledge and material mastery.

In this case, teacher's perceptions have a big influence on the implementation of HOTS-based teaching and learning process. Moreover, Barcelos (2003, p. 15) also states that language teachers' perceptions influence what they do in the classroom. Theoretically, perception is the process of how a person selects, organizes, and interprets the information inputs to create a meaningful overall conception (Kotler, 2000). Hsieh (2002) in Cahyaningsih (2017) indicates that teacher's perception is affected by his/her demographic, educational, and career background. It is in line with Donaghue (2003) that mentions teacher's perception is derived from sources such as experience and personality. The explanation above shows that perception plays significant roles in the

Corresponding Author Email: * nurikamustika11@gmail.com

teaching and learning process. Considering that perceptions affect the way teachers create materials and teaching strategies, it is such an obligation for teachers to understand about the concept of Higher Order Thinking Skills (HOTS). This is mentioned by Kings, Goodson, and Rohani (2013) that appropriate teaching strategies and learning environments facilitate the growth of HOTS. In addition, Higher Order Thinking Skills (HOTS) are believed to be beneficial to prepare students for challenges both in academic life and in daily basis (Pogrow, 2005). Further, it is undeniable that teachers must understand what HOTS are.

Brookhart (2010) defines higher order thinking in three terms: (1) in terms of transfer, (2) in terms of critical thinking, and (3) in terms of problem solving. In terms of transfer, HOTS are a transfer process requiring the students to be able to apply their knowledge and skills they developed during their learning into a new context which they have not thought of before. Higher-order thinking is conceived as students being able to relate their learning to other elements beyond which they were taught to associate with. In terms of critical thinking, HOTS are the ability of the students to be able to reason, reflect, and make sound decisions on their own without prompting from their teachers or assignments. In terms of problem solving, HOTS are the ability to identify and solve problem in their academic work and in life. Kemendikbud (2018) also mentions that higher order thinking skills can be broken down into three essential aspects namely, transfer of knowledge, critical and creative thinking, and problem solving. From the definitions mentioned above, it can be concluded that HOTS can be defined in three terms including transfer, critical thinking and problem solving. Moreover, it can be inferred that HOTS based learning is indicated through the existence of transfer of knowledge, critical thinking and problem solving.

In understanding the position of HOTS, Bloom's Taxonomy (1956) is used as a tool which provides explanations about the position of HOTS in the cognitive level. Bloom's Taxonomy (1956) classifies the cognitive level into six major headings arranged from the simple to complex one. Bloom's taxonomy (1956) comprised the following six categories: knowledge, comprehension, application, analysis, synthesis and evaluation. Recently, it was revised by a group of Bloom's students (Anderson and Krathwohl, 2001) .The Anderson and Krathwohl revision (2001) retains six cognitive process categories: remembering, understanding, applying, analyzing, evaluating and creating. There are several main changes in the taxonomy. One involves changing some nouns to verbs for example, instead of knowledge (a noun), the word remembering (a verb) is used. Conklin (2011) mentions that top three levels of Bloom's Taxonomy of the Cognitive Domain is categorized as HOTS while the other three are categorized as LOTS (Lower Order Thinking Skills). The figure below shows the difference between the last two levels of Bloom's Taxonomy.

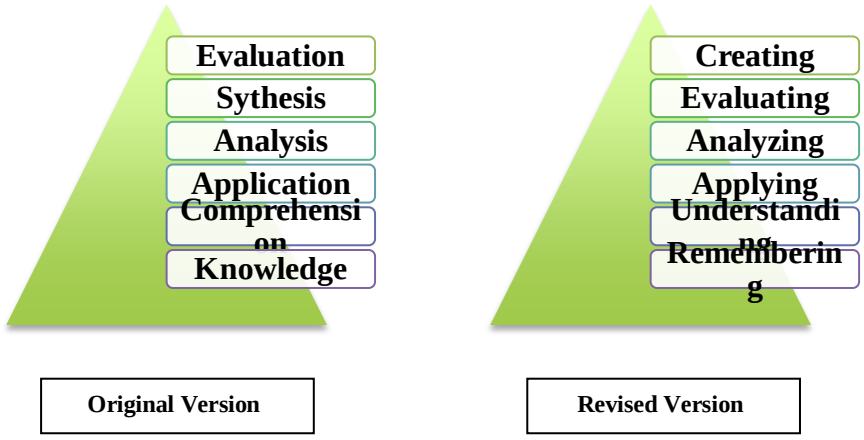


*Figure 1. Original Bloom's vs. Revised Bloom's Taxonomy (Conklin, 2011, p. 51)*

The following are the reviews of some related researches about teacher's perception and its relation to HOTS. Afandi, Sajidan, Akhyar, and Suryani (2018) conducted a research to identify pre-service science teachers' perceptions about HOTS in the 21st century by employing a quantitative design using a survey research method involving 120 pre- service science teachers from Tanjungpura University. The results indicated that the students were aware of the importance of HOTS and learning that emphasizes the aspects of HOTS to face the challenges of the 21st century. It is indicated by the mean score of pre- service science teachers' perceptions about the importance of HOTS to meet the challenges in the 21st century (M = 4.29, SD = 0.61). Moreover, Ardini (2018) also conducted a research entitled Teachers' Perception, Knowledge and Behaviour of Higher Order Thinking Skills (HOTS) using a descriptive qualitative research to find out teachers' perceptions, knowledge and behavior of HOTS in the 2013 curriculum and the learning model mostly applied by the teachers. The research involved twelve teachers from different schools in Semarang. The result showed that the teachers' perceptions, knowledge and behaviors are very good (5%), good (85%), and enough (10%). In addition, Hashim, Osman, Arifin, Abdullah, and Noh (2015) also carried out a research entitled Teachers' Perception on Higher Order Thinking Skills as an Innovation and its Implementation in History Teaching which aimed to address teachers' perceptions on Higher Order Thinking Skills as an innovation and to identify at what level teachers utilize Higher Order Thinking Skills in history teaching. It was found that all of the teachers admitted that the need, clarity, complexity and quality of HOTS as an innovation, had been addressed either moderately (67.2%) or well (32.8%). However, in implementing HOTS, the overall findings indicate that two- thirds of the teachers (66.6%) were still low- level users of HOTS in history teaching. This research has indicated that educational change depends on what teachers 'do' and 'think'.

Based on the background mentioned, this research aimed to investigate teachers' perceptions towards Higher Order Thinking Skills (HOTS) and to know how they are reflected in teaching and learning process. Moreover, this research is expected to be beneficial to contribute to the English teachers and other researchers. It is expected that this research will give the English teachers brief understanding about the importance of having both positive perceptions about Higher Order Thinking Skills (HOTS) and understanding the way to apply that perceptions into teaching and learning. Moreover, this research is expected to help other researchers understand the fact about the practice of HOTS- based teaching.

**Methodology**

This research focused on describing certain phenomena in detail. Therefore, it used a mixed method as a research design in which both quantitative and qualitative data were collected. The subjects of the research were chosen purposively. There were 10 English teachers from different senior high schools in Java chosen as the subjects of the research. They were selected to participate in this research based on their teaching experience and knowledge about Higher Order Thinking Skills (HOTS). The subjects of the research must fulfil the criteria that are they must have at least 1-year teaching experience and be familiar with the concept of HOTS. The questionnaire and in-depth interview were used to collect the data. The questionnaire was distributed directly to the respondents. The questionnaire included questions about teachers' personal information, their teaching experience, and their perceptions towards Higher Order Thinking Skills (HOTS). In-depth interview was used to get depth information that could not be obtained from the questionnaire. The interview was focused on the teachers' knowledge about HOTS, their perceptions towards HOTS and implementation of HOTS in classroom. The data were analyzed and transcribed into a descriptive qualitative form.

**Results and Discussions**

In investigating teachers' perceptions towards Higher Order Thinking Skills (HOTS) and how they are reflected in teaching and learning process, the researcher used the questionnaire for answering the first research question and the interview for ensuring the first question and answer the second research question. The following are the demographic data gotten from the questionnaire.

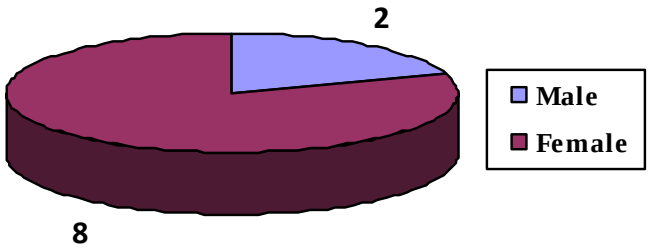


*Figure 2. Demographic Data based on Gender*

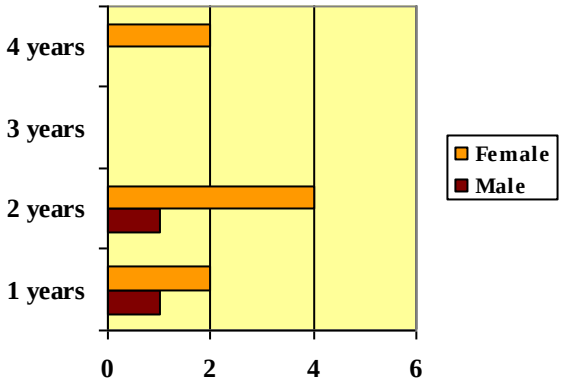


*Figure 3. Demographic Data based on Teaching Experiences*

Based on the chart above, most of the respondents participating in this research have two years of teaching experience. Additionally, most of them are women. Moreover, the questionnaire also showed that they have positive perceptions towards HOTS. They believe that HOTS are important to be taught in classrooms. They also believe that HOTS can help students prepare their skills for future careers. In the interview, the English teachers were given several questions related to their knowledge about HOTS, their perception towards HOTS and the implementation of HOTS in the classroom. Discussing about the first parts of the interview, the knowledge about HOTS, it was found that most of them understand the concept of HOTS. Further, they can explain the concept of HOTS. The interview also supported the results of the questionnaire. The interview showed that most of the English teachers have positive perceptions towards HOTS. Focusing on the implementation of HOTS in the classroom which is affected by teachers' perceptions, this research discusses about how their perceptions are reflected in the teaching and learning process. The results showed that the teachers who are aware of the importance of HOTS tend to foster their students in mastering HOTS and to have high skills in problem solving and critical thinking, while the teachers who lack awareness will focus on giving their students tasks relating to the recalling ability only. It was also found that teachers having positive perceptions towards HOTS taught their students using the method that fosters the students to have high skills in problem solving and critical thinking. Thus, their perceptions and knowledge about HOTS are reflected in the teaching and learning process by using several learning methods that foster HOTS such as Problem-Based Learning, Project-Based Learning, Discovery Learning and Inquiry Learning. Those learning methods require the students to construct their knowledge during the active learning process while the teacher serves as a facilitator. It is in line with Schunk (2004) who states that the constructivist views education as a way for students to build meaning during the active learning process and to provide a stimulating learning environment. The following are the percentage of learning methods used.

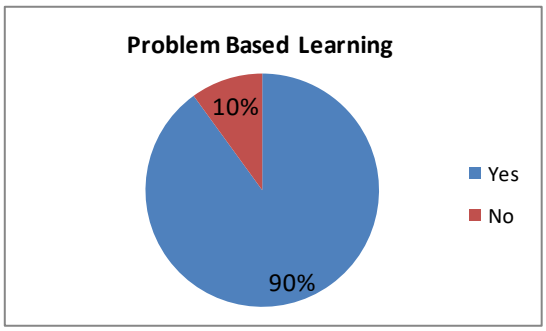


*Figure 4. Problem-Based Learning*

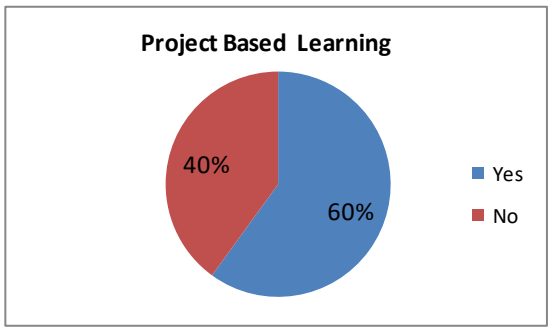


*Figure 5. Project-Based Learning*

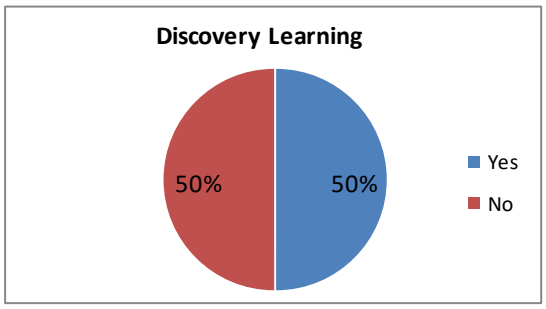


*Figure 5. Discovery Learning*

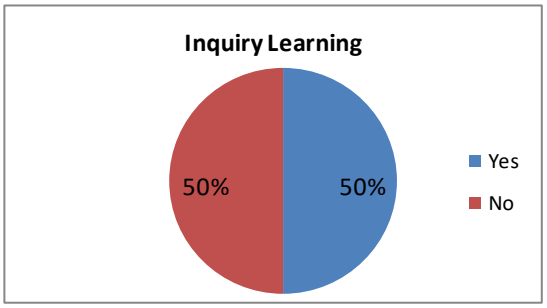


*Figure 6. Inquiry Learning*

In summary, based on the chart above, problem-based learning is the learning method that is mostly used by the English teachers. James (2006) in Fauziati (2014) mentions Problem-Based Learning (Prob. BL) is categorized as an effective teaching method in the 21st century that has some benefits such as students can develop greater communication, critical thinking, and problem solving skills. Moreover, Problem-Based Learning which gives the emphasis on students' learning activity really helps students to become autonomous learners; they can transfer the skills learned in the classroom to the real world lives.

Additionally, their perceptions towards HOTS and their knowledge about HOTS are also reflected in the process of selecting teaching strategies. Some of the English teachers mentioned that they used questioning strategies to promote HOTS in the classroom. They used questioning for certain reasons to check what the students have learnt, to check the effectiveness of their own teaching and to get students to be engaged in their learning. In this case, all of the English teachers used Bloom's Taxonomy as their guideline in creating questions.

**Conclusion**

This paper describes the teachers' perceptions towards Higher Order Thinking Skills (HOTS) and how they are reflected in the teaching and learning process. The English teachers mostly have positive perceptions towards HOTS. Moreover, they also believe that HOTS-based learning is suitable with 21st century learning. The results show that the teachers who are aware of the importance of HOTS tend to foster their students in mastering HOTS and to have high skills in problem solving and critical thinking, while the teachers lacking awareness will focus on giving their students tasks relating with the recalling ability only. Additionally, it was also found that the teachers having positive perceptions towards HOTS taught their students using the method that fosters their students to have high skills in problem solving and critical thinking.

Although the research has reached its aims, there are some unavoidable limitations. First, due to the time limit, this research was conducted only in Java. Second, the number of participants was only 10 English teachers from

different senior high schools in Java. Further, it is suggested for other researchers to broaden the research area. Other researchers are also recommended to investigate the reflection of teachers' perception towards HOTS on teaching and learning practices especially on the process of selecting the book used.

**Acknowledgement**

The authors would like to express their profound gratitude to Lembaga Pengelola Dana Pendidikan (LPDP) for sponsoring this research.

**References**

Afandi, Sajidan, Akhyar, M., & Suryani, N. (2018). Pre- service science teachers' perception about high order thinking skills (HOTs) in 21st century. International Journal of Pedagogy and Teacher Education (IJPTE), 2(1). Retrieved on December 17th, 2018 from https://jurnal.uns.ac.id/ijpte/article/view/18254

Anderson, L. W., & Krathwohl, D. R. (eds. with P. W Airasian, K. A. Cruikshank, R. E. Mayer, P. R. Pintrich, J. Raths, & M. C. Wittrock). (2001). A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives. New York: Longman

Ardini, S. N. (2018). Teachers' Perception, Knowledge and Behaviour of Higher Order Thinking Skills (HOTS). ETERNAL (English Teaching Journal), 8(2).

Barcelos, A. M. F. (2003). Researching Beliefs about SLA: A Critical Review. In Beliefs about SLA: New Research Approaches (P. Kalaja, pp. 7–33). Dordrecht: Kluwer Academic Publishers.

Bloom, B. S. (ed.). (1956). Taxonomy of educational objectives. Handbook 1: Cognitive domain. New York: David McKay.

Brookhart, S. M. (2010). How to assess higher-order thinking skills in your classroom. USA: ASCD

Cahyaningsih, R. D. (2017). Teacher's Perception on Folklores in English Textbook in Sma 1 Bae Kudus (Doctoral dissertation, Universitas Muria Kudus).

Conklin, W. (2011). Higher-order thinking skills to develop 21st century learners. Teacher Created Materials.

Donaghue, H. (2003). An instrument to elicit teachers' beliefs and assumptions. ELT journal, 57(4), 344-351.

Fauziati, E. (2014). Methods of Teaching English as a Foreign Language (TEFL): Traditional Method, Designer Method, Communicative Approach, Scientific Approach. Surakarta: Era Pustaka Utama.

Hasim, A., Osman, R., Arifin, A., Abdullah, N., & Noh, N. (2015). Teachers' perception on higher order thinking skills as an innovation and its implementation in history teaching. Australian Journal of Basic and Applied Sciences, 9 (32), 215- 221. Retrieved on December 17th, 2018 from https://www.researchgate.net/publication/305767701_Teachers'_Perception_on_Higher_Order_Thinking_Skills_as_an_Innovation_and_its_Implementation_in_History_Teaching

Kementrian Pendidikan dan Kebudayaan. (2018). Buku Pegangan Pembelajaran Berorientasi pada Keterampilan Berpikir Tingkat Tinggi. Jakarta: Kementrian Pendidikan dan Kebudayaan Republik Indonesia.

King, F. J., Goodson, L., & Rohani, F. (2013). Higher Order Thinking Skills. Retrieved from http://www.cala.fsu.edu.

Kotler., P. (2000). Analysing, Planning, Implementation, and Control. New Jersey: Prentice Hall International, Inc.

Pogrow, S. (2005). HOTS revisited: A Thinking Development Approach to Reducing the Learning Gap after Grade 3. Phi Delta Kappan, 87, 64-75. https://doi.org/10.1177/003172170508700111

Schunk, D.H. (2004). Learning Theories: An Educational Perspectives. New Jersey: Pearson Education.

Trilling, B., & Fadel, C. (2009). 21st century skills: Learning for life in our times. John Wiley & Sons.