

# A REVIEW OF RESEARCH ON THE IMPORTANCE OF HIGHER ORDER THINKING SKILLS (HOTS) IN TEACHING ENGLISH LANGUAGE

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## Abstract

This review research analyzes literature on the use of higher-order thinking skills (HOTS) in EFL/ESL classrooms. Several recent studies have discovered HOTS helping the students think critically and innovatively. The use of HOTS is aimed to help the students to be independent, problem- solver and decision-makers in the future. Findings from the reviewed showed students are interested in learning HOTS activities but teachers lack expertise and motivation. Teachers should comprehend and apply HOTS in their teaching process with global competencies. Several recommendations are made by the researchers for enhancing the HOTS such as (1) sending the teachers to additional courses and professional development training, (2) providing adequate resources and technical infrastructure that related to HOTS and (3) proper guidelines from the Ministry.

**Keywords--** HOTS, ESL classroom, challenges, recommendation

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## INTRODUCTION

The key target of the Ministry of Education is to cultivate higher-order thinking skills (HOTS) among Malaysian students. Most educators agreed that developing HOTS skills among the students is necessary to improve their skills to produce nations that are competent enough in the industrial revolution era 4.0. In 2013 the Ministry of Education released the Malaysia Education Blueprint 2013-2025 (MEB). Developing thinking skills among students were one of the aspirations highlighted in the MEB. The Primary School Standard Curriculum (KSSR) was introduced in 2013 in the replacement of KSSR. KSSR contains new standards of content and learning which emphasize holistic learning (Ministry of Education, 2013). In 2017, the Ministry of education implemented Secondary School Standard Curriculum (KSSM). KSSM aimed to create equal distribution between academic knowledge and skills notably higher-order thinking skills and leadership skills. In line with the 21st-century learning of education, Blueprint highlights the development of critical and creative thinking, collaborative, creativity and innovative, problem-solving, independent and trying something new. Consequently, the new approach was targeted not only at creating students who are capable of performing in classroom tasks as well as in everyday life.

Generally, the 4.0 industrial revolution era, focuses on learning context that seeks to train students to be autonomous, collaborative, and good time managers in fulfilling the demands of the 21st-century industry. In regard to this, the Ministry of Education raises the portion of HOTS questions in the public examination. HOTS encompasses primary and secondary school exams. According to the policy, 40% of Ujian Peperiksaan Sekolah Rendah (UPSR) questions based on higher-order thinking skills (HOTS) (Hassan, Rosli & Zakaria, 2016). HOTS based questions have covered 40% in Pentaksiran Tingkatan Tiga (PT3), in secondary education. Meanwhile, it covers 50% in Sijil Pelajaran Malaysia (SPM), which is also the final year students (Form Five) in secondary education (Sivapakkiam, Fadzilah, Habsah, Umi, & Rozita, 2016). On the flip side, teachers play a major role in educating the students. They need to empower their students as facilitators and facilitate their learning process by answering their questions

and respecting their questioning skills. It will help the students to broaden their knowledge and motivate them to expand their skills. As stated in their article by Archana & Usha Rani (2017) teachers play various vital roles such as a learner, facilitator, assessor, manager, and evaluator. Hence, teachers need to have strong beliefs about HOTS as it influences their classroom activities.

## LITERATURE REVIEW

### Definitions of HOTS

Higher order thinking skills (HOTS) is a popular concept in Malaysian Education system which comprises KSSR and KSSM. HOTS was developed by Benjamin Bloom in his book, 1956. Bloom's taxonomy was designed to encourage higher-order thinking skills with six levels. These six stages where: knowledge, comprehension, application, analysis, synthesis, and evaluation. However, now the stages of taxonomy's have been updated as remembering, understanding, applying, analyzing, revising, and creating.

According to Sulaiman, Muniyan, Madhvan, Hasan and Rahim (2017) higher order thinking skill is defined as the use of mind broadly to construct or find something unique. Higher order thinking skill allows a person to apply the new knowledge and use it's in a new situation to receive potential answers. High order thinking skill is to think at a higher level rather than merely memorize the fact and telling someone the information exactly as it is said. Higher Order Thinking skills (HOTS) was implemented in schools to allow the students to apply, analyze, evaluate and think creatively. HOTS is defined in terms of (1) transfer, (2) critical thinking and, (3) problem solving (Brookhart, 2010).

### Role of Teachers in the Implementation of Hots

As stated by Rajendran (1999), teachers in Malaysia are only qualified to ask HOTS questions but most of them have very little information on the pedagogical skills. When teachers in schools have good pedagogical skills and knowledge of HOTS, the best way to ensure students able to use HOTS in their daily life is by transfusing this knowledge in everyday lessons to make it easier to see the changes in thinking skills of the students (Rajendran, 1999).

Kurniati and Mursyid (2017) conducted a study to reveal the awareness of teachers on the practice of Higher-Order Thinking Skills (HOTS) in EEnglishLlanguage classrooms, their implementation, evaluation and the challenges. The study included six teachers and the research indicated that in introducing HOTS in EFL classrooms, the qualified teachers had to develop their skills. Nevertheless, none of the previous research examined the experiences of pre-service and in-service English teachers in the field of preparing, implementing, evaluating and transparency in high school level implementation of HOTS.

Several studies have shown that the experience of teachers and their implementation of HOTS at EFL classroom are not satisfactory. Future studies need to investigate the motivation of teachers to encourage and facilitate them with appropriate guidance from authorities.

**Theory of Cognitive Development**

According to Vygotskian theory, learning is an active process that promotes the development of high-order thinking and problem-solving in education. Vygotsky believed that, if situations were designed to allow students to use their critical thinking skills, new knowledge would be acquired. He concluded that "learning is an essential phase of developing high-order thinking. Wass R (2012) mentioned in his studies that Vygotskian methods offer a theoretical model for understanding the development of students as critical thinkers. It also provides teachers with ways of thinking about promoting student progress, focusing on students, what they are doing and providing appropriate activities. Therefore, classroom instruction should concentrate on activities encouraging those 'buds of development' or 'maturing processes', rather than those that have already established. In Vygotsky's theory, the development of individuals occurs through the interaction of individual, cultural-historical, and interpersonal (social) influences (Tudge & Scrimsher, 2003).

**Higher Order Questions**

The most commonly applied cognitive level of questions follows the steps provided by Bloom's Taxonomy (1956) which consists of six levels namely knowledge, comprehension, application, analysis, synthesis and evaluation. It was updated on 2001 by Anderson and Krathwohl. Anderson switched the original

language from nouns to verbs. The revised Bloom's taxonomy comprises of remember, understand, apply, analyze, evaluate and create. It focuses on two dimensions that are knowledge: the knowledge that can be gained and cognitive processes: to acquire the knowledge.

Based on these two theories, the researcher wants to approach this new method of teaching and learning to develop the students' thinking skills so they can generate new ideas from multiple angles to evaluate problems and make a good decision in the future. On the flip side, students can think critically and creatively to compete in the worldwide job market.

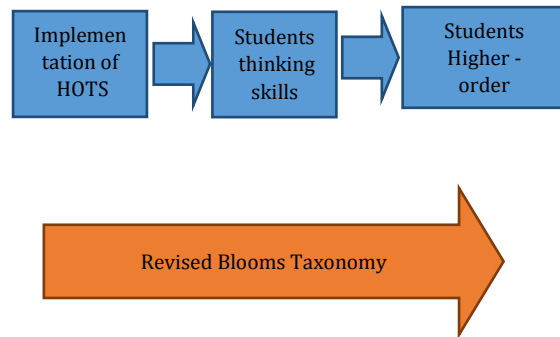


Figure 1. Theoretical and Conceptual framework

**METHODOLOGY**

The study of higher-order thinking skills was carried out from pre-school until tertiary education as an international and national context. However, in this review, the researcher concentrated on teachers' awareness, perception, knowledge, and attributions towards teaching HOTS in their ESL classroom and how it benefits the students and learning process. This review study aims to provide information on HOTS related issues based on the reading from previous researchers who studied HOTS implementation at educational levels. The results were analyzed and presented in the table using document analysis as shown below:

S.No	Author/Article/ Year	Types of study	Research design	Findings
1.	Ima Kusumastuti, Endang Fauziati and Sri Marmanto: Revealing teachers' Beliefs of Higher Order Thinking Skills in teaching reading at Junior High School(2019).	Qualitative	Case Study	Researcher found that there is an inconsistency between teachers' beliefs and their teaching practices.
2.	Muhammad Ansori, Joko Nurkamto and Suparno: Teacher's Beliefs and Practices in the Integration of Higher Order Thinking Skills in Teaching Reading (2019).	Qualitative	Case Study	The teacher's belief about the conception and the importance of HOTS were expressed in classroom practice but did not fully represent what she believes, particularly regarding HOTS assessment.
3.	Yuyun Yulia and Fenita Rizki Budiharti: HOTS in teacher classroom interaction: A case study (2019).	Qualitative	Case Study	Ultimately, the findings showed that the teacher asked several questions about the degree of remembering and secondly on the understanding level. There was minimal probing that encouraged the students to think higher.
4.	Kuniawan Ahmad: The Implementation of Teaching LOTS and HOTS in English Teaching-Learning Process in Senior	Qualitative	Case study	From the finding, the researcher reported that the teacher did not apply the six-level of higher-order

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	High School(2018).			thinking skills in sequence. It was supposed to from LOTS to HOTS but the teacher started with creating skills and did not use evaluating skills.
5.	Muhammad Ansori: English Teachers' Efficacy in using Pedagogical Techniques to promote Higher Order Thinking Skills (2019).	Quantitative	Survey	The findings of this research have shown that teachers have total confidence in their ability to use interactive, critical thinking and meta-cognitive strategies to facilitate the development of HOTS-based classroom learning.
6.	Suppiah Nachiappan, Afiqah Ahmad Damahuri, Charles Ganaprakasam and Sandra Suffian : Application of Higher Order Thinking Skills (HOTS) in Teaching and Learning through Communication Component and Spiritual, Attitudes and Values Component in Preschool (2018).	Qualitative	Descriptive	The findings showed that the teacher only applied three-level of HOTS namely application, analysis and evaluation in teaching communication component subject while additional creating skills in Moral subject.
7.	Malini Ganapathy, Manjet Kaur Mehar Singh, Sarjit Kaur and Liew Wai Kit: Promoting Higher Order Thinking Skills via Teaching Practices(2017).	Quantitative and Qualitative	Mixed Method	They concluded that lecturers who can use ICT in their classes, create more engaging and successful learning experiences for the students.
8.	Mursyid and Nia Kurniawati: Higher Order Thinking Skills among English Teachers Across Generation in EFL Classroom(2019).	Qualitative	Case Study	From the study, it can be inferred that more awareness of the HOTS concept has been shown by the Gen X teachers compared to the gen Y teachers. The results showed that teachers from all generations are aware of HOTS and they are applying it in their teaching in a different way.
9.	Renol Aprico Siregar and Suci Nugrah Amalia: Pre-Service English Teachers' Attitude toward HOTS to prepare better Assessment(2019).	Qualitative	Instrumental Case Study	The researcher conducted a study on the ABC model that is the affective, behavioral and cognitive domain. Overall, this research showed that all pre-service teachers have a positive attitude towards HOTS as reflected in their positive HOTS decisions and the affective, behavioral and cognitive domain of the attitude.
10.	Heri Retnawati, Hasan Djidu, Kartianom, Ezi Apino and Risqa D. Anazifa: Teachers' knowledge about Higher-Order Thinking Skills and its learning strategy.(2018).	Qualitative	Phenomenological approach	The findings reported that the teacher's knowledge is still sufficient in dealing with HOTS development in the learning process.
11.	Mei Ardaning Tyas, Joko Nurkomto, Sri Marmanto and Hening Laksani: Developing Higher Order Thinking Skills (HOTS) - Based Questions: Indonesian EFL Teachers' Challenges	Qualitative	Survey	There are other factors claimed as challenges in implementing HOTS based questions. The challenges have been categorized into three dimensions, namely the aspects of educators, the aspects of teaching and learning and the aspect of the students.
12.	Desy Nur Fakhomah and Melati Sri Utami: Pre-service English Teacher Perception about Higher Order Thinking Skills (HOTS) in the 21 <sup>st</sup> Century Learning	Qualitative and Quantitative	Sequential explanatory mixed-method	This study indicated that the participants have a high perception of implementing HOTS in the classroom, however, they faced some difficulties in introducing HOTS in English language teachings, such as time management and the students' background knowledge.

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13.	Ima Kusumastuti, Endang Fauziati and Sri Marmanto: Challenges for Higher Order Thinking Skill (HOTS) Implementation: Reports from EFL classroom Teachers	Qualitative	Case study	One of the factors that challenge the teaching process is the limited resources of HOTS. Then, the lack of vocabulary mastery of students is the biggest obstacle in conducting HOTS.
14.	Azian Abdul Aziz @ Ahmad, Fauziah Ismail, Noor Mala Ibrahim and Norhanim Abdul Samat: Investigating the Implementation of Higher Order Thinking Skills in Malaysian Classrooms: Insights from L2 Teaching Practices	Quantitative and Qualitative	Mixed- method	The findings indicated that the L2 teachers were unable to capitalize on their roles and potential in the implementation of HOTS in classrooms because most were unsure about how to prepare, implement and assess HOTS in classrooms.
15.	Sukma Nur Ardini: Teachers' Perception, Knowledge and Behaviour of Higher Order Thinking Skills (HOTS) (2017).	Qualitative	Descriptive	The findings revealed that teachers' perception, knowledge, and behavior need to be improved to achieve 21st-century learning.  The study also stated that teachers are responsible to cultivate HOTS among the students but sadly they are not well knowledgeable on that.
16.	Fajar Dwi Utami, Joko Nurkamto, Sri Marmanto and Lita Liviani Taopan: The Implementation of Higher Order Thinking Skills in EFL Classroom: Teachers' Perception (2017).	Qualitative	Survey	The findings indicated that teachers have positive perceptions in four fields namely awareness on designing, executing, evaluating, and perceptions in responsibility. The positive perceptions by pre-service teachers are higher than the in-service teachers on planning while the other three aspects indicate positive perceptions by all teachers.
17.	Kheshinee Ballakrishnan and Maslawati Mohamad: Teachers' Teaching Methods in Teaching Higher Order Thinking Skills (HOTS) Comprehension Questions (2020).	Qualitative	Case study	The study results suggested that the use of graphic organizers, questioning, brainstorming and students' background knowledge, had inspired the students to read, learn more, and better understand to answer reading comprehension text accurately.
18.	Zainudin Hassan, Jayalatchmee Muthusamy, Lokman Tahir, Rohaya Talib, Sanitah Mohd Yusof and Noor Azean Atan: The 21 <sup>st</sup> Century Learning in Malaysian Primary School: Exploring Teachers' Understanding and Implementation of HOTS (2018).	Qualitative	Case Study	The study revealed that the teachers' HOTS task determines the students' motivation. The researchers reported that skills as applying, analyzing, evaluating and creating have been widely used among primary school teachers.
19.	Nani Rosnani Thamrin and Silvia Agustin: Conceptual Variations on Reading Comprehension through Higher Order Thinking Skills (HOTS) strategy (2019).	Qualitative	Case Study	The lecturer applied two types of learning activities that related to HOTS. During the classroom activities, students able to use prior knowledge and logical reason to think critically to answer the critical reading text.
20.	Clarry Sada: Exploring Teaching Learning Process in Developing Higher Order Thinking Skills (HOTS) to Higher Secondary School (SMA) students in Pontianak (2019).	Quantitative	Survey	The outcome of this study is a failure because the teachers possessed a lack of knowledge. Some teachers do not have knowledge of the teaching models.

**DISCUSSION**

Ima Kusumastuti, Endang Fauziati and Sri Marmanto (2019) conducted a case study to reveal High School English teachers' assumptions about HOTS in reading tasks. They chose a public-

school teacher who attended courses on HOTS while the other teacher from the private sector who did not attend any courses. The public-school teacher with fifteen years of teaching experience while the private school teacher with six months'

experience only. Generally, both teachers agreed that students able to convey the new knowledge in a new circumstance. However, both had different perceptions on applying critical thinking. The teachers reported that there are difficulties in conducting HOTS due to student-centered classroom which is not effective. Students still prefer teacher-centered learning to guide them. The researchers concluded that students' lack of vocabulary knowledge causes inconsistency between teachers' beliefs and their planning in classroom practices.

Muhammad Ansori, Joko Nurkamto, Suparno (2019) carried out a case study to explore teacher's belief in teaching reading by applying HOTS and how it would be reflected in classroom practices. The researchers used an English teacher as a sample to investigate the factor influencing the teachers' beliefs. Throughout the study, the researchers noticed the teachers' assumption about the conception and importance of HOTS. The role of a teacher plays a vital aspect in classroom practice because the strategies as group work, questioning skills, and games they used promote HOTS to deliver positive outcomes. However, assessment of HOTS was still being a question mark since teachers were not fully practicing that in the classroom due to several factors as lack of training, lack of guidance in teaching and learning practice, school, and student factors and lack of support from authorities. Due to that, the researchers could not generalize their studies and suggested for further research.

Yuyun Yulia and Fenita Rizki Budiharti (2019) mentioned that questioning skills increase students' critical thinking. When the teacher questioned, students provided reluctant answers which improve students' engagement in classroom participation. The more they answered and participated, the better English language proficiency they achieved. Based on data collection, the teacher asked various questions by applying Bloom's classification during classroom interaction. However, the outcome was not satisfying because teachers were using a lower level of thinking skill (LOTS) in their lesson. It gave an impact on students' creativity and critical thinking. Later on, they lost interest in developing language skills which resulted in a lack of competency in using the second language. By the end of the study, the researchers suggested that teachers improve their language exposure and proficiency.

Kuniawan Ahmad (2018) investigated the teacher's implementation of LOTS and HOTS in the ESL classroom. The researcher observed the materials used by the teacher to conduct the class. The teacher used the learning sheet based on a textbook that contains simple conversation reading text. The researcher noticed that the teacher was not using HOTS in sequence. He tends to mix up the six levels as he wished as there was no proper guideline. From the observation, the researcher noticed that the teacher started the lesson by applying creating skills at first whereby it can confuse the students. In another situation, the teacher did not use evaluating skills at all. Here, the researcher stressed out that the teacher should know the essence of each level and apply the six levels of HOTS in sequence. Due to the lack of positive outcomes, the researcher suggested other researchers focus on teachers' understanding and perception of LOTS and HOTS.

Muhammad Ansori (2019) conducted a survey on English teachers' efficacy to teach HOTS. By providing an online questionnaire, the researcher used SPSS to calculate the mean and standard deviation of the respondents. He commented that female respondents likely to show more interest compare to male respondents. The descriptive analysis showed that interactive techniques were one of the preferred modes of studying in the classroom. Secondly, teachers have high self-efficacy in implementing critical thinking techniques due to its necessity in producing 21st-century learning. Thirdly, teacher's

ability to use multimedia in learning process enhance the use meta-cognitive pedagogical techniques. The result proved that teachers have confidence in using the techniques mentioned above to promote HOTS in their classroom. He concluded his study by stating that teachers' high efficacy will lead to a positive outcome in using all the three pedagogical learning.

Suppiah Nachiappan, Afiqah Ahmad Damahuri, Charles Ganaprakasam and Sandra Suffian (2018) aimed to study the implication of HOTS through Communication component, Spiritual, Attitudes and Values component by observing a practicum teacher in a preschool. The Hermeneutic method was used by the researcher to understand the behavior of the teacher and students and their interaction during the lesson to get in-depth information. By referring to that teacher's Daily Lesson Plan (DLP) analysis was made. It was found that the teacher only applied three levels of HOTS namely applying, analyzing and evaluating in communication component while he did not use any HOTS in teaching and learning Malay and English. However, to teach Spiritual, Attitudes and Values components, the teacher additionally thought creating skills to generate the students' ideas critically and creatively. Overall, the teacher did not completely apply all the six levels in classroom practice. There is a slight difference notified in the subjects that he thought.

Malini Ganapathy, Manjet Kaur Mehar Singh, Sarjit Kaur and Liew Wai Kit (2017) investigated lecturers who were teaching English for degree students. It aimed to identify how far public University lecturers were using ICT in promoting HOTS among tertiary education. The lecturers used different types of ICT tools in their teaching and learning process. All of them applied desktop applications such as Word, Excel, Publisher, etc. Internet and Web 2.0 was their main learning tool. Statistics indicated that 100% of the lecturers applied the ICT tools above to conduct their lessons. They showed the least interest in using digital communication such as computer-mediated communication, telegraphy, and computer networks. For the activities, lecturers preferred brainstorming and problem-solving to promote HOTS while field trips were the least popular activity among lecturers. However, a large number of lecturers reported that they still lack knowledge in integrating ICT in the tutorial. The researcher concluded the study by stating that ICT provides a positive platform in catching students' interest.

Mursyid and Nia Kurniawati (2019) investigated teachers' perceptions towards HOTS, implementation of HOTS and the constrains in implementing HOTS in the EFL classroom. They found that teachers from generation-x are well informed about HOTS compared to teachers in generation-y because they have fewer experiences. Teachers from generation-x and -y were able to develop their lesson plans and materials comprehensively. However, teachers in generation-x involved students in class activities while teachers from generation-y admitted did not implement HOTS in their classroom but they focused on the understanding level. However, both generation teachers have utilized multimedia in their teaching. Both generation teachers faced challenges due to limited knowledge, lack of experience in developing lesson plans, lack of ability in infusing creativity and teachers focused on transferring the knowledge rather than practicing students' thinking skills. To conclude, teachers from generation-x understood the concept of HOTS in EFL classrooms while teachers from generation-y have only basic theories of teaching and lack of teaching practice.

Renol Aprico Siregar and Suci Nugrah Amalia (2019) researched pre-school teachers' attitudes towards HOTS in preparing the assessment. The researchers conducted the study by applying the ABC model that is the affective, behavioral and cognitive domain. Almost all participants showed positive affection regarding HOTS. Generally, most participants applied analysis,

evaluation, and creation to improve the affective component. From the behavioral viewpoint, the pre-service teachers expressed a positive mindset towards postulating the categories of higher-order thinking skills as the requirements for the achievement of the students in their future careers in English language learning. According to cognitive aspects, participants showed positive cognition as shown by behavioral aspects. Overall, this research revealed that all pre-service teachers have a positive attitude towards HOTS as reflected in their positive HOTS decisions and the affective, behavioral and cognitive domain of the attitude.

Heri Retnawati, Hasan Djidu, Kartianom, EziApino and RisqaD. Anazifa (2018) carried out a study to evaluate teachers' knowledge about HOTS. Throughout the study, they analyzed teachers' knowledge and importance of HOTS, students' improvement in HOTS, how HOTS can be assessed and teachers' ability to solve problems related to HOTS. To identify the outcome, the researchers used Bogdan and Biklen model (1982). Even though the majority of the teachers were aware of the importance of HOTS yet they had low knowledge of the functions of HOTS. During the assessment, teachers were still in doubt on how to measure HOTS when students provide a variety of answers. At the end of the study, the teachers realized the importance of HOTS which will improve soft skills as innovation among them. The awareness among teachers will support the changes made in the Indonesian Curriculum 2013 to create skilled students.

Mei Ardaning Tyas, Joko Nurkomto, Sri Marmanto and Hening Laksani (2019) assisted a study on challenges faced by Indonesian English teachers in developing HOTS- based questions for secondary school. From the data collected, it is identifiable that teachers have different perceptions of HOTS. Most of them still did not have a clear picture of HOTS and could not differentiate the functions of HOTS in problem-solving. The misconceptions of HOTS cause the teachers to design difficult questions but it is not based on HOTS skills. However, the findings showed that EFL teachers do understand the importance of HOTS and the benefits it could bring to the students. Those teachers who did not attend any courses in 2013's curriculum faced constraints in creating HOTS based questions since they did not have experiences and could not develop questions as the teachers who attended the course. At last, limited materials are another challenge faced by teachers in the teaching and learning process.

Desy Nur Fakhomah and Melati Sri Utami (2019) focused on pre-service teachers' perception of implementing HOTS in the classroom and the problems faced by the teachers and students. Four elements were discussed to analyze teachers' perceptions of HOTS as how does HOTS integrate with innovation, teachers' thought on clarity, complexity, and quality of HOTS. The researchers found that teachers do agree that HOTS is essential to teach in order to create critical thinking skills among students who need to face globalization. To obtain clarity, teachers were still lack of clear explanation and guidelines about HOTS. They were still not clear on the differences they need to make in implementing HOTS. Based on the findings, the researchers concluded that teachers feel difficulties in teaching HOTS. It is due to the time required to generate quality teaching and also to prepare materials as print, video and electronic.

Ima Kusumastuti, Endang Fauziati and Sri Marmanto (2019) focused on the problems faced by the teachers in teaching HOTS lessons. The teachers reported that they have a positive attitude towards HOTS but still lack of knowledge and lack of references for junior students. Due to that, the process of learning has hampered. Another challenge was in preparing the assessment. To generate students who can think critically they need knowledge not only from textbook but also from real-life

experiences which they can apply during the assessment. One of the participants requested the government to create a web page where teachers can study from that. They responded that slow learners faced difficulties in giving feedback and it dragged the teachers' time. However, they received positive responses from fast learners since they felt curious and comfortable. The researchers concluded their study by stating that teachers' knowledge in understanding HOTS have to increase to assist the students.

Azian Abdul Aziz @ Ahmad, Fauziah Ismail, Noor Mala Ibrahim and Norhanim Abdul Samat (2017) organized a study to examine teachers' acknowledgment in promoting HOTS among secondary school students. The researcher focused on four elements such as planning, implementation, assessment, and responsibility of teachers. The results showed that teachers realized their responsibility towards teaching HOTS and able to use HOTS related materials. Nevertheless, they were not sure how to plan the lesson and implement it in the classroom practice and assess it accurately. By conducting a quantitative method, the researchers reported that the correlation between teachers' belief and perception with self-reflections did not show any significant on the implementation of HOTS in the English classroom. Moreover, 96% of the teachers were still applying lower-level questions in their classroom which were not triggering students' critical thinking. The researchers concluded by reporting that other factors influence the teaching practice as students, pedagogical and institutional factors.

Sukma Nur Ardini (2017) aimed to conduct a study on teachers' awareness and behaviour on teaching HOTS. From the data collected, it revealed that teachers do encourage the use of HOTS as stated in the 2013 curriculum by the Indonesian government. They were getting familiar with HOTS but they still need to improvise their learning process to trigger students' creativity. To develop students' meta-cognitive skills teachers applied higher-level of HOTS questions but the researcher noticed it was inconsistent. Evaluating skills were applied the least among teachers to assess the students' capability. Among the several learning models introduced in 2013's curriculum, the problem-based learning model was mostly used in the English classroom because in language learning usually problems were given first then students need to find the solution. The other learning models were not used frequently due to students' mastery level in vocabulary is still weak.

Fajar Dwi Utami, Joko Nurkamto, Sri Marmanto and Lita Liviani Taopan (2019) conducted a study in Indonesia on teachers' perceptions towards HOTS in EFL Classroom. In this study, the researchers examined four field, namely the perceptions of teachers on preparation, perceptions of teachers on execution, perceptions of teachers on evaluation and perceptions of teachers on obligation towards HOTS teaching-learning activities. The finding indicated that pre-service teachers display more positive outcomes in all four areas than in-service teachers. The teachers were able to create materials related to HOTS by using additional resources, textbooks, and the internet to design their own materials. If a classroom occupied by more than 25 students, the teachers could not evaluate them individually. Both pre-service and in-service teachers gave positive feedback about creating an assessment to evaluate students' HOTS level. Overall, the study showed that teachers took responsibility to implement HOTS.

Kheshinee Ballakrishnan and Maslawati Mohamad (2020) aimed at knowing the methods and strategies used by the teachers. To activate student's prior knowledge teachers applied graphic organizers, questioning and brainstorming. These methods increased the students' curiosity to think critically. It led them to answer HOTS level questions in classroom activity and in test

papers. When students started to generate ideas by thinking critically and creatively, they will be able to understand the reading comprehension and answer it. The teachers involved had a different perception of using the graphic organizer method. One teacher found this method is helpful but the other teacher commented that it is not applicable due to time constraints. Both teachers agreed on using the questioning method to teach reading comprehension since it triggered students' involvement in the classroom practice. Thirdly, the brainstorming method also accepted since it triggers students' prior knowledge and guides them to develop current knowledge. Overall, all the methods received positive feedback from teachers and students. Zainudin Hassan, Jayalatchmee Muthusamy, Lokman Tahir, Rohaya Talib, Sanitah Mohd Yusof and Noor AzeanAtan (2018) carried out a study to explore teachers' awareness on HOTS and how did they transform it in the learning process. From the interviews, the teachers commented that they have knowledge about HOTS but still require for better improvement so they can deliver the outcome clearly to the students. Teachers' prior knowledge of HOTS is essential to assess students' learning. HOTS in the classroom setting is important, especially in problem-based learning. Next, in the evaluation phase students' ability to think critically, assessment strategies, questions, and answers were judged. Overall, the researchers explored several strategies used by teachers in primary school. In summary, the study revealed that the teachers' HOTS task determines the students' motivation. The researchers reported that skills as applying, analyzing, evaluating and creating have been widely used among primary school teachers.

Nani Rosnani Thamrin and Silvia Agustin(2019) investigated the conceptual variations in reading texts by using HOTS. The lecturer applied two types of learning activities that related to HOTS. Based on the data, the students applied critical thinking in reading tasks. They were able to predict the additional information from the text but not all the time it worked out. Sometimes, they stopped in between the tasks due to a lack of mastery in vocabulary. For applying skills, the students were able to summarize the text and inform their peers in several sentences. Thus, students were able to use their own words in paraphrasing. Plus, the students were able to generate questions by using the quotation and evidence stated in the text. Students' way of thinking was similar in three concepts as procedural knowledge, comprehension and creativity, and intelligence.

Clarry Sada (2019) conducted this study to investigate teachers' knowledge about HOTS. The weakness was some participants possessed knowledge about curriculum 2013 while some not. Due to that, some teachers did not have knowledge of the teaching models. Participants do understand critical thinking yet did not practice the principle of HOTS. So, they were not able to use it in the teaching process. Several suggestions were given by the researcher because the outcome of the study was a failure. He suggested that teachers need to attend professional and development course to be updated with the new curriculum. So, they understand the vision and mission of the curriculum and understand the learning models as problem-based learning, project-based learning and discovery learning to create critical thinkers.

The studies reviewed revealed that majority of the teachers have different perceptions of HOTS (Ima Kusumastuti, Endang Fauziati and Sri Marmanto,2019)(Mursyid and Nia Kurniawati ,2019)(Mei Ardaning Tyas, Joko Nurkomto, Sri Marmanto and Hening Laksani ,2019) , lack of practice in classroom context (Muhammad Ansori, Joko Nurkamto, Suparno,2019), focusing on lower order thinking skills (LOTS) frequently compare to HOTS (YuyunYulia and Fenita Rizki Budiharti ,2019)(Azian Abdul Aziz @ Ahmad, Fauziah Ismail, Noor Mala Ibrahim and Norhanim Abdul Samat,2017), did not apply HOTS in sequence (Kuniawan

Ahmad,2018),(SuppiahNachiappan, Afiqah Ahmad Damahuri, Charles Ganaprakasam and Sandra Suffian ,2018), low knowledge of the functions of HOTS (HeriRetnawati, Hasan Djidu, Kartianom, Ezi Apino and RisqaD. Anazifa ,2018)(Ima Kusumastuti, Endang Fauziati and Sri Marmanto ,2019)(Clarry Sada ,2019), limited resources and materials (Mei ArdaningTyas, Joko Nurkomto, Sri Marmanto and Hening Laksani ,2019), lack of clear explanation and guidelines (Desy Nur Fakhomah and Melati Sri Utami,2019), weak mastery of vocabulary among students (Sukma Nur Ardini, 2017). Teachers have knowledge about HOTS but still require for better improvement (Zainudin Hassan, Jayalatchmee Muthusamy, Lokman Tahir, RohayaTalib, Sanitah Mohd Yusof and Noor AzeanAtan,2018) .However , several studies reviewed that teachers have positive attitudes towards implementation of HOTS as using different pedagogical strategies in EFL/ESL classrooms (Muhammad Ansori ,2019), using ICT tools (Malini Ganapathy, Manjet Kaur Mehar Singh, Sarjit Kaur and Liew Wai Kit ,2017), applying ABC model that is affective, behavioral and cognitive (Renol Aprico Siregar and SuciNugrah Amalia ,2019), designing own materials and assessment (Fajar Dwi Utami, Joko Nurkamto, Sri Marmanto and Lita Liviani Taopan ,2019), using graphic organizer, questioning method and brainstorming (Kheshinee Ballakrishnan and Maslawati Mohamad ,2020), conceptual variation method (Nani Rosnani Thamrin and Silvia Agustin,2019).

## CONCLUSION

Education is the main factor to develop the quality of citizen, therefore, teachers are demanded to make a great impact of their teaching and learning quality by having more innovations, one of them is through implementing Higher Order Thinking Skills in the class process. HOTS has been integrated in the school syllabus in Malaysia under the Malaysian Education Development Plan(PPPM) that started from year 2013 till 2025 as it aims to generate knowledgeable and critical pupils who were able to compete at the international level. The implementation of HOTS in classroom environment is believed to enable students to think critically through active learning. To achieve success in preparing students who are globally fit government, teachers and relevant stakeholders should work together.

## REFERENCES

1. Abdul Aziz @Ahmad, A., Ismail, F., Ibrahim, N. M., &Samat, N. A. (2017). Investigating the Implementation of Higher Order Thinking Skills in Malaysian Classrooms: Insights from L2 Teaching Practices. *SainsHumanika*, 9(4-2). <https://doi.org/10.11113/sh.v9n4-2.1361>
2. Ansori, M., Nurkamto, J., & Suparno (2019). Teacher's Beliefs and Practices in the Integration of Higher Order Thinking Skills in Teaching Reading. *ELS Journal on Interdisciplinary Studies in Humanities*, 2(4), 541-555
3. Ardini, S. N. (2018). Teachers' Perception, Knowledge and Behaviour of Higher Order Thinking Skills (HOTS). *ETERNAL (English Teaching Journal)*, 8(2). <https://doi.org/10.26877/eternal.v8i2.3045>
4. Ballakrishnan, K., & Mohamad, M. (2020). Teachers' Teaching Methods in Teaching Higher Order Thinking Skill (Hots) Comprehension Questions. *International Journal of Academic Research in Business and Social Sciences*, 10(2), 362-378.
5. Brookhart, S. (2010) How to Assess Higher-Order Thinking Skills in Your Classroom. Alexandria, VA: ASCD
6. Desy Nur Fakhomah, & Melati Sri Utami. (2019). Pre-service English teacher perception about Higher Order Thinking Skills (hots) in the 21st century learning. *IJJET*, 3(1), 41-49. <https://doi.org/10.24071/ijiet.2019.030104>
7. Ganapathy, M., Mehar Singh, M. K., Kaur, S., & Kit, L. W. (2017). Promoting Higher Order Thinking Skills via Teaching Practices. *3L The Southeast Asian Journal of*

- English Language Studies*, 23(1), 75–85.  
<https://doi.org/10.17576/31-2017-2301-06>
8. Heri Retnawati, Hasan Djidu, Kartianom Kartianom, & Ezi Apino. (2018). Teachers' knowledge about higher-order thinking skills and its learning strategy. *Problems of Education in the 21st century*, 76(2), 215–230. Retrieved from file:///C:/Users/USER/Downloads/8164-24266-1-PB%20(2).pdf
  9. Ima Kusumastuti, Endang Fauziati, Sri Marmanto. (2019). Revealing teachers' beliefs of Higher Order Thinking Skills in teaching reading at junior high school. *3rd English Language and Literature International Conference (ELLiC) Proceedings*, 3, 155–162. Retrieved from <https://jurnal.unimus.ac.id/index.php/ELLiC/article/view/4701>
  10. Kuniawan Ahmad. (2018). The Implementation of Teaching LOTS and HOTS in English Teaching-Learning Process in Senior High School. *Retain*, 6(1), 121–128. Retrieved from <https://jurnalmahasiswa.unesa.ac.id/index.php/retain/article/view/24294>
  11. Kusumastuti, I., Fauziati, E., & Marmanto, S. (2019). Challenged for Higher-Order Thinking Skill Implementation: Reports From EFL Classroom Teachers. *International Journal of Language Teaching and Education*, 3(2), 108–117.  
<https://doi.org/10.22437/ijolte.v3i2.7579>
  12. Muhammad Ansori. (2019). English teachers' efficacy in using pedagogical techniques to promote Higher Order Thinking Skills. *celtic: A Journal of Culture, English Language Teaching, Literature & Linguistics*, 6(2), 1–13.  
<https://doi.org/10.22219/celtic.v6i2.9860>
  13. Mursyid, M., & Kurniawati, N. (2019). Higher order thinking skills among English teachers across generation in EFL classroom. *English Review: Journal of English Education*, 7(2), 119–124. doi: 10.25134/erjee.v7i2.1775.
  14. Nachiappan, S., Ahmad Damahuri, A., Ganaprakasam, C., & Suffian, S. (2018). Application of Higher Order Thinking Skills (hots) in teaching and learning through communication component and spiritual, attitudes and values component in preschool. *Southeast Asia Early Childhood Journal*, 7, 24–32. Retrieved from <http://202.45.132.61/index.php/SAECJ/article/view/1007>
  15. Sada, C. (2019). Exploring Teaching Learning Process in Developing Higher Order Thinking Skill (HOTS) to Higher Secondary School (SMA) Students in Pontianak. *Journal of Education, Teaching and Learning*, 4(1), 228–232. STKIP
  16. Siregar, R. A., & Amalia, S. N. (2019). Pre-service English teachers' attitude towards HOTS to prepare better assessment. *JEELS (Journal of English Education and Linguistics Studies)*, 6(1), 51–72.  
<https://doi.org/10.30762/jeels.v6i1.1072>
  17. Thamrin, N. R., & Agustin, S. (2019). Conceptual variations on reading comprehension through higher order thinking skills (HOTS) strategy. *English Review: Journal of English Education*, 7(2), 93–100. doi: 10.25134/erjee.v7i2.1777.
  18. Tyas, M. A., & Nurkamto, J. (2019). Developing Higher Order Thinking Skills (HOTS) – Based Questions: Indonesian EFL Teachers' Challenges. *Proceeding of the 2nd International Conference on Future of Education*, 2(1), 52–63. <https://doi.org/10.17501/26307413.2019.2106>
  19. Utami, F. D., Nurkamto, J., Marmanto, S., & Taopan, L. L. (2019). The Implementation of Higher-Order Thinking Skills in EFL Classroom: Teachers' Perceptions. *Proceeding of the 2nd International Conference on Future of Education*, 2(1), 64–72.  
<https://doi.org/10.17501/26307413.2019.2107>
  20. Yuyun Yulia & Fenita Rizki Budiharti (2019a). HOTS in teacher classroom interaction: A case study. *EduLite Journal of English Education, Literature, and Culture*, 4(2), 132–141. <https://doi.org/10.30659/e.4.2.132-141>
  21. Zainudin Hassan, Jayalatchmee Muthusamy, Lokman Tahir, Rohaya Talib, Sanitah Mohd Yusof, & Noor Azean Atan. (2018). The 21st Century Learning in Malaysian Primary School: Exploring Teachers' Understanding and Implementation of HOTS. *Advances in Social Science, Education and Humanities Research*, 274, 326–336.  
<https://doi.org/10.2991/iccite-18.2018.69>