APPLYING HIGHER ORDER THINKING SKILLS (HOTS) PEDAGOGY: A CASE STUDY OF AN EFL CORE TEACHER

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Abstract: HOTS (Higher Order Thinking Skills) is an indispensable skill crucial for meeting the future demands of the 21st century. It plays a fundamental role in encouraging students to think critically, be more creative, and effectively solve problems. HOTS pedagogy encompasses the entire teaching and learning process, encompassing the selection of teaching and learning strategies as well as the creation of tasks and assessments based on HOTS principles. This study aimed to explore how an EFL (English as a Foreign Language) core teacher understands and implements HOTS pedagogy in the EFL classroom. Qualitative research in the form of narrative inquiry was employed for this investigation, with a single participant chosen through criteria sampling. Data collection was carried out through semi-structured interviews, and data analysis utilized the constant-comparative method. The study's findings shed light on the teacher's planning when implementing HOTS pedagogy, the teaching techniques employed to foster HOTS skills in students, and the utilization of HOTS-based assessments. Additionally, the findings identified an issue with the arrangement of operational verbs in the EFL core teacher's planning and revealed that the use of discovery learning as a teaching technique created disparities in understanding the lesson between passive and dominant students.
Keywords: *EFL classroom; EFL core teacher; HOTS pedagogy.*

INTRODUCTION

In the 21st century, there is a growing recognition of the need to cultivate specific core skills and knowledge in order to prepare future generations effectively. Many countries, educational institutions, and policymakers are placing a deliberate emphasis on designing teaching and learning frameworks that foster critical thinking, leadership, and other vital skills that are anticipated to be crucial in both daily life and the workforce (Care & Lou, 2016). To be more precise, this educational transformation doesn't involve altering the content of the curriculum but rather focuses on a shift in pedagogy. It entails moving from simple, traditional teaching methods that prioritize lower-order thinking skills (LOTS) to an approach that prioritizes the development of higher-order thinking skills (HOTS) (Afandi, et al., 2018).

HOTS is the highest cognitive level in the 21st century and is the ability to connect, manipulate, and transform knowledge as an experience to think critically, logically, reflectively, metacognitively, and creatively in an effort to determine decisions and solve problems in new situations (Arifin & Ratu, 2018). The implementation of HOTS includes changes in curriculum, pedagogies, and learning assessment. In accordance with Ichsan, et al (2019) HOTS implementation can result in a variety of solutions for instance, logical, problem-solving, and critical thinking, , needing the effort to think critically and creatively to address difficult circumstances in decision-making. Therefore, in fulfilling the demands of the 21st-century skills, higher-order thinking skills (HOTS) are inevitably required (Lubis et al., 2019; Ichsan et al., 2020).

HOTS is also expected to fulfil the industrial revolution 4.0 demands of independent, creative, productive, innovative, skilful, and well-behaved individuals and to prepare the demographic bonus in which the number of young productive aged people dominates the population of the country (Mulyasa, 2018). Hence, HOTS is one of the key

components of developing high-quality human resources (Misrom et al., 2020).

In the teaching and learning process, HOTS skills cannot be directly taught to students: what is HOTS or what it is for. It is most likely to be implicitly included in active student-centred learning for example project-based learning (Akyol & Garrison, 2011; Dima et al., 2021). Furthermore, the expected outcome of the HOTS development on students requires the active role of teachers in planning, implementing, and evaluating or assessing HOTS-oriented learning. To be able to plan HOTS-oriented learning, teachers need knowledge of ways, strategies, and methods to train students about HOTS (Bartell et al., 2013; Retnawati, et al., 2018). Thus, the teacher plays an important role to make well-implemented HOTS possible.

The present study aimed to investigate an EFL core teacher' understanding on HOTS pedagogy and how HOTS is implemented. Many studies recognize the importance of teachers' understanding and perception towards HOTS before they can integrate it into teaching and learning activities (Hasim et al., 2015; Ramasamy et al., 2016; Abdullah et al., 2016; Fakhomah & Utami, 2019) and the positive impacts that HOTS provides on EFL teaching and learning (Aghaei & Rad, 2018; Indriyana & Kuswandono, 2019; Khanif, 2019; Purnama & Nurdianingsih, 2019; Rosli & Maarof, 2017; Simanjuntak et al., 2020; Singh et al., 2020; Sopiani & Said, 2019; Thamrin & Agustin, 2019; Thamrin & Widodo, 2019; Widiyati, 2020; Yoke et al., 2015). However, students in Indonesia are still developed under the basis of LOTS cognitive level (Agus & Margana, 2017).

Therefore, based on the aforementioned studies and the discrepancy given, the present study purposes three research questions: (1) how does the EFL core teacher plan in implementing HOTS in the classroom? (2) How does the EFL core teacher promote HOTS through teaching and learning strategies? (3) How does the EFL core teacher arrange HOTS based assessments.

METHOD

The core focus of this study was to engage with a narrative inquiry in which the writer gathered narrative information from the participant's understanding of and challenges faced in implementing HOTS pedagogy. In agreement with its purpose, a narrative inquiry approach appeared to be the best option for this study as it offered prominence to human experience and captured a detailed explanation of human experience. The narrative inquiry or narrative design is an umbrella term that captures personal and human dimensions of experience over time and takes account of the relationship between individual experience and cultural context (Clandinin & Connelly, 2000).

This study had a single participant. The specific strategy employed was criteria sampling (Miles & Huberman, 1994). The participant met two criteria: (a) an EFL core teacher and (b) has more than 10 years of experience. The participant was a civil servant who served as a junior high school for 26 years and became an EFL core teacher for more than five years. The term core teacher itself is for those who have a high score in teacher competence and are qualified to train the other teachers from the smallest scale such as district level to national level, especially in implementing curriculum 2013 (Zalilia et al., 2019). Finally, the participant, Sue, would be a pseudonym in this study.

The data were obtained through interviews, classroom observations, and document review. The interview protocol had been initially designed before the first interview was conducted. Once the first interview was carried out, the data was transcribed. The second interview was initiated, and the participant got a copy of the answer to check the accuracy of the answer. The interviews were conducted for approximately 45 minutes and 20 minutes respectively, since the type of interview was semi-structured the writer must have added some follow-up questions. The class observation was carried out in six meetings, in two different classes but the same grade, for two different basic competencies (passive voice and report text). The writer acted as a non-participant observer and had both video recording and observation field notes and checklist to observe the learning strategies, discussion method, and assessment for both formative and summative. The result of classroom implementation was matched with the lesson plan as the main source of documentation review.

The data analysis process was based on Creswell and Creswell (2017). As all the data had been collected, the researcher started to transcribe the data. The author transcribed 15 pages of the first interview into English and categorized it into several big themes in a matrix. Follow-up interview data was then assisted. After all the transcription had been completed, the coding of data was started. The data analysis structure was based on the constant-comparative method. It involved reading and rereading the transcripts which focus on the meaning of communication. The process involves the simultaneous coding of

raw data and data categorization (Merriam, 1998). Then, the results from the interview were coded and categorized into several themes. Finally, the writer narratively elaborated each event, story, and experience that the respondents told.

RESULTS AND DISCUSSION
From the data analysis, three emerging themes were identified. The first theme is core teacher's planning. The error occurred in the operational verbs arrangement since the teacher dealt with wide range of students' level of ability. The second theme towards HOTS implementation, it was noticed that HOTS pedagogy required teacher to be really picky in selecting the most appropriate learning and discussion technique. While she consistently employed discovery learning, this technique still brings some demerits such as passive students and dominant students in understanding the lesson. The final theme about HOTS assessment, the teacher admitted having been facing many difficulties to develop HOTS pedagogy although in general she has arranged applicable HOTS based assessment. Further elaborated findings will be discussed in following paragraphs.

Teacher planning for HOTS pedagogy implementation
To answer this research question part, the writer asked it in the interview, analysed the lesson plan, and matched it with what was in the classroom. When the teacher was asked about the urgency of HOTS pedagogy planning and preparation, she explained.

> "I believe that everything starts from the planning, from planning we can choose teaching techniques or models that we are going to use. Since HOTS is based on the scientific approach, we need to be really picky in selecting the appropriate teaching model to teach. From a perfect lesson planning, we can use and apply appropriate teaching strategy in class to meet the objectives of the lesson taught." [Sue]

Furthermore, the teacher explained her effort in planning HOTS pedagogy. She added.

> "There is discovery learning, problem-based, and project-based learning for the teaching technique, but there are a lot more for the teaching strategies. From those teaching techniques, we can narrow it down to teaching models or strategies. For example, when teaching writing, we can use picture-to-picture

strategy, to teach speaking we can use roleplay model." [Sue]

The finding towards teacher planning session was gained from lesson plan analysis. The writer segmented the findings into two categories: lesson plans' arrangement and content. Both of analyses were based on theories about HOTS in Indonesian Curriculum 2013.

Overall, it could be assumed that the teacher has arranged applicable and scientific approach-based lesson plans. The activity and assessment are listed clearly along with the steps in the lesson plan. Furthermore, another noticeable point is that the teaching model chosen for those six meetings was only discovery learning, yet the activities in the classroom were varied.

Regarding to the arrangement of lesson plans to meet the standardized rule suggested by the government. In this research, the writer based the eligibility of lesson plan arrangement on the Regulation of Ministry of Education and Culture Number 22-year 2016 stated in (Ariyana et al., 2019). The result of documentation is gained in the form of a lesson plan checklist sheet. It could be concluded that the lesson plans in general have fulfilled the criteria.

The findings regarding the content of lesson plan were taken from how teacher formulated the operational verbs to meet the expected outcomes or the overall learning objectives. The writer considered this part as another underlying factor to discuss since the operational verbs must be based on the set basic competences. Furthermore, the overall findings and analysis are presented below:

Table 1. *Learning indicators analysis*

Basic Competences	Learning Indicators
3.8 Apply the social functions, text structure, and language features of oral and written transactional interaction texts involving giving and requesting information related to circumstances/actions/activities without the need to mention the culprit based on the context of its use (language feature: passive voice)	Indicator meeting 1: 3.8.1 Analyze short passive voice texts. Indicator meeting 2: 3.8.1 Apply Passive voice sentence structure
4.8 Create a short and simple oral and written transactional interaction text that involves giving and asking for information related to the circumstances/actions of activities/events without the	in the form of Present Tense, Past Tense and Future Tense Indicators meeting 3:

need to mention the culprit by paying attention to social functions, text structure, and elements of correct language and according to the context (language feature: passive voice)	1. Create a short dialogue using the sentence structure. 2. Passive Voice Present the dialogue in front of the class
3.9 Compare the social functions, text structures, and language features of some oral and written report texts by giving and requesting information related to other subjects in the classroom. 4.9 Report text 4.9.1 Understand the contextual meaning related to social functions, text structure, and language features of short, simple oral and written report text related to topics covered in other subjects in grade IX. 4.9.2. Develop very short and simple report texts, oral and written, related to topics covered in other subjects in grade IX by focusing on social functions, text structure, and language features, correctly and contextually	Indicator meeting 1: • Identify a short report text and information from the text. Indicators meeting 2: 4.9.1 Understand the content of report text. 4.9.2. Find detailed and explicit information from the short report text. Indicator meeting 3. • Write a short and simple report text.

Table 1 revealed some findings on how the core teacher formulated the learning syntaxes based on basic competence. It is evident that in the data shown, the basic competencies are same as what is listed in the regulation of the Ministry of Education and culture number 22-year 16 attachment 43. However, when the core teacher formulated the learning indicators, it could be assumed that she did not follow the order of taxonomy Bloom. To illustrate it, in the first meeting the teacher stated, "Analysing short report text", yet in the basic competence, the students are expected to apply. According to operational verbs, apply belongs to C3, however analysing is one level ahead than C3. In contrast to previous basic competence, the indicators for the remaining three meetings for report text followed the order of Revised Bloom Taxonomy level. "…compare social function, text structures………" compare as operational verb belong to C4, identify, and write/compose are categorized C4 and C6 respectively. Despite the fact from the finding that there were some miss orders in formulating the operational verbs for the lesson plans. The core teacher once explained about the operational verbs that she used was not always consistent to what syllabus or curriculum

has set as she needed to consider a lot of factors such as students' level of ability.

In regard to the context, the lesson plan used has been arranged based on HOTS. It is evident that the syntaxes of teaching and learning process since all the lesson plans observed posed discovery learning as the teaching model, all the teaching and learning syntaxes must follow discovery learning steps. Moreover, what stated in the lesson plan is in line with what should be in the discovery learning. Since the teacher planning also includes how teacher prepares the teaching and learning process, it is revealed from the classroom observational notes that the teacher usually spent five to ten minutes to prepare the learning media and to arrange the students' seats. The teacher usually arranged the students' seat based on the learning activities that she had planned in the lesson plan.

The implementation of HOTS pedagogy
Teaching model and strategies to promote HOTS pedagogy in the classroom
From the finding, it is undeniably true that the teacher consistently implemented discovery learning as the teaching model for the six class observation meetings. Based on previous related studies, discovery learning focuses on providing students with direct active learning opportunities (Arafah, 2020), and teachers encourage and guide students to discover concepts, meanings, and relationships through experimentation or investigation (Purnamasari et al., 2021). Discovery learning has the benefit of assisting students in improving their abilities and cognitive processes (Safitri & Setiawan, 2020; Yuliana, 2018). The discovery learning strategy can also help students enhance their abilities and knowledge (Rahmayanti, 2021).

Discovery Learning model integrates five main principles, problem solving, learner management, integrating connecting, information analysis, and failure and feedback (Pappas, 2014). It is in accordance with Ariyana, et al. (2019). In implementing the discovery learning model there are several steps that must be applied, such as stimulation, problem statement, data collection, data processing, verification, and generalization. As observed in class meetings and lesson plans, it could be assumed that the teacher has integrated five core elements of discovery learning in teaching English while promoting HOTS. Additionally

Experts' beliefs about discovery learning method are pivotal points to determine whether the teaching and learning activities and strategies

implemented are appropriate for discovery learning model. The definition of strategy or teaching method itself is every single activity determined by the teacher which is aimed to achieve the purpose of learning (Suprihatiningrum, 2013). It is in accordance with Wardah (2021) who opines that teaching strategies are specialized responses to a problem or task, operational techniques for reaching a certain learning objective, and prepared methods for organizing and processing information. To sum up, to implement discovery learning while promoting HOTS in English language teaching, the teacher needs to provide encouraging activities to expect students to discover the facts or the contents of the topic through observing and experimenting activities because the teacher does not present them at the beginning of the lesson directly.

Variety of stimulus given in the beginning of lesson
In regard to the findings, the core teacher always started the lesson by asking, or encouraging students to think. In day 1 teacher brought realia of a traditional food from Palembang, the next day she showed a PPT slides from which the students need to analyze. On the third day, she began the lesson by giving a misarranged dialogue. On day 4, the teacher showed a picture and drew a table to complete. Next, the teacher showed a text and a picture. Therefore, it was noticeable that the teacher usually provided picture, realia, or video as stimulus to trigger students' curiosity and involvement in teaching and learning. Follow-up steps taken boost students' interest, the teacher usually asked questions. To illustrate, in the first meeting of investigation, after showing up with *laksan*, the teacher asked about student's favourite food. In the second meeting, followed up questions were a bit more critical; the students were asked about how they could know the sentences belong to present, past for future. The sentences were particularly in the form of passives. Hence, follow up questions level might be differed from one meeting to the other meetings.

Types of assigned activities
Based on the observation field, the most used type of assigned activity was in the form of table completion. It was found that in meeting 1, 2, 4, 5. The students were initially asked to observe, it could be by watching, reading, finding information or even guessing. The students were further asked to gather some data and then came up with a deeper analysis. It is common thing to see the students get confused and asked for confirmation. Instead of

directly explaining what was exactly meant to say, the teacher usually gave more illustrations or examples to help students understand. Moreover, most of the collecting data, analysis and confirmation phases were done in groups which have both merits and demerits. On the one hand, the students were helped to build understanding by discussing it within their group. On the other hand, some students remained passive and relied on other students to understand the concept of the lesson taught.

Discussion strategy
The next element to be discussed is the discussion strategy. As can be seen from the finding, most of the meetings required students to work in groups or to have group discussions, especially in collecting the data. Accordingly, Brown (2006) mentioned that group work discussion is more preferably in discovery learning since group work allows for the skills and knowledge gained in the small group work to be reinforced and each student's discovery will lead to another's discovery while individual work in a discovery learning environment is less desirable as much of the learning by the individual is for the individual only. In group work or discussion, the noise level might be higher yet revolves around the ideas of the students, not just factual material but viewpoints, hypotheses, and clarification of concepts. It is in line with Syafyahya & Yades (2020) in their research mentioning that group work or group discussion brings about some benefits, such as creating a more exciting atmosphere as they are expressing their thoughts, and opinion and building an understanding of the discussed topic, arising social relationship among pupils, making it easier to understand the result of the discussion and enriching students' awareness to follow the set rules.

HOTS based assessment
In regard to the principles and criteria, the teacher opined similarly to what expert (Brookhart, 2010) said, the core teacher mentioned that a clear instruction and specific task to be assessed are compulsory in determining assessment. Additionally, the importance of appropriate stimulus in the form of text, picture, or other resources as well as updated and frequently renewed questions are other considered factors in HOTS assessment. It was supported by what is found in the classroom observation and lesson plan analysis. The questions and assigned tasks were not really difficult yet contain encouraging stimuli to

engage students actively and think more creatively and critically.

Concerning the type of questions in HOTS-based assessment; the core teacher believes that it is not solely in the form of an essay, the type of questions might be varied. Accordingly, Mohamed and Lebar (2017) stated that HOTS can be measured using a variety of items including multiple-choice item, matching, and essays. The teacher added that HOTS-based question requires stimulant to trigger students to think. Moreover, the wording of questions should be formed to encourage students to think beyond the information given, for instance, questions could ask about students' opinions and logical reasons, let students imagine some possible situations which are not found in the text, and motivate students to think critically.

In both the initial and second interview sessions, the core teacher emphasized a lot about the fact that many teachers have been facing difficulties to create HOTS based assessments. Some opined that the questions must be in the form of very difficult and demanding questions, while others get confused to pick the appropriate stimulus to begin a HOTS-based task. She also shared some experiences in which she had to change the learning steps to what is written in the lesson plan due to student's inability to get the stimulus, yet she came up with easier and more contextual activities to keep the learning process going.

To develop HOTS based assessment, a teacher should consider some factors.

> "Talking about assessment, we have to refer back to what we have in our basic competence which then is reflected in learning objectives. Furthermore, we have to consider the students ability. As a teacher, we need to make students able to think critically and creatively. The topic or context could be related to certain issues, the last HOTS assessment also needs to promote problem-solving". [Sue]

The answer is similar to what Widana (2017) explained, a teacher firstly should take a look at basic competency (KD) then raise the contextual issues as stimulus. Furthermore, the teaching and learning process cannot be solely in the form of theoretical subject yet it should promote problem solving toward existed problems or issues. The teacher had tried to impart real-life issues to HOTS based assessment as can be seen when the teacher asked students to talk about Indonesian traditional food.

Further findings about HOTS based implementation in this study are summarized in the following table:

Table 2. *HOTS based task and assessment analysis*

Assigned task and assessment	Revised Bloom Taxonomy
1st Meeting	
• Identifying facts about traditional food in the form of passive	C4
• Analyzing sentences and finding the structure of sentences	C4
• Drawing conclusion about the material / passive voice	C5
• Reading text consisted of five questions, each question belongs to C2, C2, C2, C1, C4 (average C2)	C2
2nd Meeting	
• Analyzing the use of correct "tobe" based on the adverb of time/ from of tenses given	C4
• Changing the sentences in the passive form of present, past, and futures passive voice (individual work)	C5
3rd Meeting	
• After the students analyzed the expression and the use of passive voice form in questions and dialogue, the students create their own dialogue	C6
4th Meeting	
• Analyzing a text about a cat, the focus was to get students to know the form of a verb, tense, and generic structure of the text	C4
• Reading passage consisted of 8 questions, each question belongs to C4,C4,C4,C5,C5,C4, C4,C4 respectively (average C4)	C4
5th Meeting	
• Analyzing the species, habits, habitat and physical appearances of texts	C4
• Reading Text The students were asked to find detail and implicit meaning in a report text. The questions were 5 which each	C4

belongs to C4, C4, C4, C4, C5 respectively. (Average C4)	
6th Meeting	
• The students were asked to choose one animal to be the subject of their writings, the students then were given table to fill about: species, habitat, habits, physical characteristic, function.	C4
• The students wrote a short report text based on the information.	C6

Based on the observation and documentation review, it could be assumed that the core teacher, in general, has assigned tasks in the form of both individual and group discussions, and assignments promoting HOTS. Overall, the most often assigned tasks were in the form of group discussions with identifying information and analyzing structure and language features in the form of table completion, as it is in line with Isbandiyah & Sanusi (2019) who believe that to be called as a HOTS-based assessment, a question or a task should at least encourage students to analyze. It was also found that for the individual task or work the teacher had structure analysis for instance in passive voice structure analysis. Besides the cognitive components, in six meeting observations, the teacher also had skill competencies, for example writing a report text, arranging passive voice dialogue, and presenting a dialogue.

In regard to the taxonomy levels, the core teacher has designed the tasks and assignments based on three top Bloom Taxonomy levels. However, it was undeniably found that there were still some questions categorized as lower-level questions. It was found in the reading questions for report text materials.

In the interview section, the participant also highlighted how challenging it is to promote HOTS-based assessment if it requires an oral test or in the form of long and compact reading text.

> "In the term of questions or evaluation, if HOTS questions or evaluation must be in form of oral test, it sometimes is assisted in teaching learning steps, I have to think deeper to attract students' attention, to encourage them to think and to give direct feedback. It could be done by asking same question but is delivered in different way to make it easier to understand while another concern in HOTS evaluation is that some students are still in LOTS level, they moreover are too lazy and feel reluctant to read a long and compact text, to think and to ask." [Sue]

Despite the fact that HOTS is urgently required in modern society in that students are unavoidably expected to pose high level thinking, logical and critical thinking, creativity and problem solving (Setiawati, 2019; Putra & Abdullah, 2019). The teacher capability in designing and developing HOTS based assessment instruments should always be upgraded through teacher trainings (Maryani & Martaningsih, 2020)

To sum up, based on what is documented in both findings and discussion, the core teacher has fulfilled what HOTS require for the implementation in the classroom. Despite all errors or unexpected outcomes of overall implementation, the core teacher so far has done well to keep the teaching-learning promoting HOTS going well.

CONCLUSION
The emerging need of HOTS skill is inseparable to today's society demands as the life of 21st century requires people to have basic skills integrated in HOTS for instance the critical thinking, problem solving, reasoning skills. Thus, HOTS must be instilled as early as possible and the role of teachers in promoting this skill is inevitably pivotal. Based on the narrative research that has been carried out, it can be concluded that starting from the planning to the assessing, HOTS pedagogy conducted by the investigated core teacher was generally based on what is expected from the ministry of Education 2013 despite all the limitation. Nevertheless, the issue about HOTS based assessment which particularly created by core teacher had not been particularly initiated previously. The participant in this study also expected for more government concern to help teachers practically understand how to create HOTS based questions and tasks. This study novelty revealed that even the experienced core teacher still admits expecting more insights regarding HOTS based assessment and strategies as what she still experiences in daily implementation. Furthermore, since the current study is narrow in scope and only involved a single participant, further research involving more participants and a more extensive study is vital to understand how core teachers implement HOTS pedagogy in a wider scale.

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