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EFL Teachers' Strategies to Create Zone of Proximal Development to Promote Students' Higher-Order Thinking Skills

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ABSTRACT

Teachers' competency and creativity in promoting higher-order thinking skills (HOTS) materials have become the basic requirement to implement proper learning activities for students. This situation is **related** to Vygotsky's approach called zone proximal development (ZPD). The zone of proximal development refers to the gap between a child's knowledge and what the children currently understand as a result of problem-solving with adult guidance. This study investigates the teachers' strategies in creating students' ZPD to promote students' higher-order thinking skills and the challenges they face. A case study was employed to gather the data from two teachers who taught in a senior high school. The data were taken from the observation and the interview regarding critical thinking instruction in the acceleration classes. The data was analyzed using the framework by Mahan (2020) scaffolding strategy framework. Then, the promotion of students' higher-order thinking skills was classified based on the framework from Marzano and Kendall (2007). The result of the study indicated that the two teachers implemented several scaffolding strategies, such as connections to prior knowledge, uptake of student responses, modelling, and the use of models. The level of higher-order thinking skill questions found during the class activity was analysis and knowledge utilization. Meanwhile, the challenges found were time limitation for acceleration classes, students' attitude, and learning activity preparation. This study suggests that there is a need for teacher training programs that provide insight into the implementation of classroom activities that can develop students' higher-order thinking skills.
Keywords: higher order thinking skill; teacher; strategies; challenges; ZPD

INTRODUCTION

In the past five years, many studies have been conducted on teachers' strategies and challenges in implementing critical thinking instruction in learning activities. However, only some studies focus on investigating EFL teachers' strategies and challenges in promoting Higher Order Thinking Skills (HOTS) in secondary school contexts. Some studies have been conducted by investigating the teachers' strategy and challenges in high-order thinking skill instruction for middle school (Chang et al., 2021; Kwangmuang et al., 2021; Singh et al., 2023; Putri et al., 2022). Some studies reported the teachers' practices and strategies in developing students' critical thinking at the tertiary level (Aziz & Rawian, 2022; Brecka et al., 2022; Lu et al.,2021). Meanwhile, for senior high school settings, many studies focused on analyzing the critical thinking instruction provided by teachers (Anggraeni & Khongput, 2022; Assaly & Jabarin, 2024; Yuniarti et al, 2024). It means that the study to deeply understand the strategies and challenges senior high school teachers encounter in implementing critical thinking instruction needs further exploration, especially for acceleration class students.

In the Indonesian education system, a learning activity that can enhance students' critical thinking becomes a need as it is one of the skills required in 21st-century skills. However, based on the results of the PISA in 2022, Indonesian students' critical thinking skills can be categorized as low. PISA assessment intends to gauge the effectiveness of the educational system by analyzing secondary school student performance, particularly in three key areas: science, math, and reading, and their application in a real-life context (OECD, 2009; Howard et al., 2010). According to the results of PISA 2022, it indicated Indonesia was in the 69th position out of 80 participating countries in the world. In literacy, Indonesia managed to move up 5 ranks, in numeracy, Indonesia rose 5 ranks, and in science, Indonesia rose 6 ranks (OECD, 2023). This problem led to an educational policy involving critical thinking in *Kurikulum Merdeka* (Emancipated curriculum) mandated by the Indonesian

Ministry of Education and Culture. Embedding higher-order thinking skills into the nationwide curriculum is anticipated to instruct students to be the millennials who can communicate, cooperate, think creatively and critically, resolve issues, and accomplish innovations (Putri et al., 2022). Considering the fact that the student's level of critical thinking is still low, it is important for teachers to determine effective learning strategies in order to develop students' critical thinking skills.

Since teachers play a prominent role in developing students' higher-order thinking skills in the classroom, teachers' competency and creativity regarding HOTS materials become the basic requirement to implement proper learning activities for students. The result of students' HOTS development can be completed through the active role of teachers in designing, performing, and assessing HOTS-oriented knowledge (Retnawati et al., 2018; Wijnen et al, 2021). They must be competent in creating the teaching and learning plan, the material, the activities, and the assessments that can facilitate students' critical thinking skills (Abidah et al, 2024; Putri, 2022). In conclusion, teachers must have good knowledge of applying the appropriate strategy to support students' critical thinking.

The strategies used by the teacher in improving students' higher-order thinking skills invite collaboration between the teacher and students. The students must be engaged well in the learning activity with guidance from the teacher to achieve the learning outcome. This situation is **related** to Vygotsky's approach called zone proximal development (ZPD). The zone of proximal development draws attention to the gap between a child's knowledge and what the children currently understand as the result of problem-solving from adult guidance and more proficient peers' assistance (Irshad et al., 2021; Shaffer, 2009; Peng & Tao, 2022). This ZPD can be an approach to develop students' higher-order thinking skills, as it can help students to learn something new with the intervention from their teacher and more capable peers. Six elements are essential in ZPD, such as assistance, mediation, collaboration, the capability to imitate, targets, and difficult times or getting out of the comfort zone (Silalahi, 2019). Those elements are important to be added in the learning activity to achieve an effective learning activity, especially for promoting students' higher-order thinking skills.

Studies regarding the teachers' strategies in applying critical thinking instruction have been conducted in the past five years. In promoting critical thinking to students, teachers **use** questioning strategies, students' characteristic consideration, explicit instruction, and cooperative learning strategies (Pasutri et al, 2021; Riwayatingsih et al, 2021; Syafryadin et al, 2021). Then, regarding teaching ZPD in the learning activity for nursing students, Kantar et al found (2020) found the three instructional strategies from clinical experiences, teaching beyond student ability, and teaching for autonomy. In the English language teaching context, the implementation of scaffolding as the medium in creating students' ZPD can help improve their vocabulary skill as they learned through the assistance from the teachers and their peers (Irshad et al, 2021).

However, although many studies regarding ZPD creation and higher-order thinking skills have been conducted in many countries, only a few of them investigated the creation of ZPD and higher-order thinking skills for senior high school students from an acceleration class. It is important to develop senior high school students' higher-order thinking skills to prepare them for entering the university level and for their future careers. Then, if there are only some investigations about how the teachers use strategies to promote students' higher-order thinking skills and no solution for the challenges they face, in that case, there will be no improvement in students' critical thinking development. Therefore, to prevent this problem from recurring again, this study focuses on investigating the teachers' strategies in creating students' ZPD to promote students' higher-order thinking skills and the challenges they faced in acceleration classes.

METHODS

A case study was conducted to gather the data from the participants. The data were taken from the observation about teachers' strategies in promoting students' higher-order thinking skills and an interview regarding the challenges in implementing critical thinking instruction with two teachers who taught in acceleration classes. For ethical consideration, the name of the two teachers was written

pseudonym, as Teacher A and Teacher B. The strategies in creating students' ZPD that the teachers used during the observation were classified by using Mahan's (2020) scaffolding strategy framework into six elements: connections to prior knowledge, supportive material, academic language, uptake of student responses, strategic use of instruction, and modeling and use of models. Then, the promotion of students' higher-order thinking skills was classified based on the framework from Marzano and Kendall (2007) due to their comprehensive classification of the level of thinking used to implement the learning activity in the classroom. The instruments of this study were also validated by the expert to prevent research bias. The experts were the lecturers who mastered the critical thinking pedagogy. The interviews regarding the challenges faced by teachers used Bahasa Indonesia to get reliable and comprehensive data from participants. After that, the interviews were transcribed, and only the answer that were related to the determined criteria, such as strategies and challenges in creating students' ZPD, was included in the transcript. The transcription result was also given to participants for confirmation. The interview was then translated into English from Bahasa Indonesia before being analyzed deeply.

RESULTS AND DISCUSSION

Teachers' Strategies in Promoting Students' Higher-Order Thinking Skills

The result of the study indicated that the two teachers implemented several scaffolding strategies in creating students' ZPD and promoting higher-order thinking skills. It was found that Teacher A implemented scaffolding strategies such as connections to prior knowledge and uptake of student responses. The following is an excerpt from the teacher and students' interaction.

Excerpt 1.

Teacher A: "What do you think? Why are we offering and asking for help? What do you think we will learn about it?
Student 1: "Being care for others."
Teacher A: "Wow! Being care for others. How about you (Student 2)?"
Student 2: "How to ask for help in a comfortable way."
Teacher A: "Ah, okay, interesting. Next, how about you (Student 3)?"
Student 3: "How to offer help with good sentences and ways."
Teacher A: "Hmm. How to offer help with a correct sentence and grammatically, and so on. Okay, well, let's see whether your expectations match with the group presentation or not."

At the beginning of the session, before the group presented the material, the teacher gave leading questions to open the session. From the excerpt, it can be concluded that the teacher asked about what the students expect about something that they will learn. Students' ZPD was created during this activity. Given that the students had good vocabulary knowledge, the teacher tried to make them convey their ideas in spoken language and bridge into the next material. She asked some students to answer the question and provide the reason for their answer. This activity promotes students' higher-order thinking skills as they are asked to convey their opinions about the material and match them with their background knowledge. The students then responded to the leading question, and the teacher gave them positive feedback.

In the completion task, Teacher A used the strategy of uptake of student responses to lead the students in finding the appropriate answer. The following is an example of how the teacher led the students in the discussion when the group's answer seemed incomplete.

Excerpt 2.

Student 5: "Is it okay to write the name in the cover letter not just Ms West for example?"
Group Member A: "Why do we have to write it as Ms West? it is to show our respect to someone else. So, it is surname."
Teacher A: "Yes, it's a part of culture, there are two types of letter formal and informal. And Student 5's question. Why don't we write it only with her first name?Actually we can write it only the first name, if you browse there will be a web. I will share it later But we learn about something more structured one, we learn from the formal one. We learn the basic

first. We consider about the culture. You may use the first name, but we have to know to whom it will be sent. Before you sent the application what you do first Student 5?"
Student 5: "Find the information about the company."
Teacher A: "Right. You have to do research first. It will help you to make a decision."

From the excerpt, it can be seen that the teacher led the students to understand more about the relationship between cultural values and the writing of a cover letter. She understood that the students already knew about the writing structure of the cover letter after being presented by the group, and guided them in finding the relation with the culture.

Meanwhile, Teacher B implemented uptake of student responses to brainstorming the students' ideas upon the completion of the task. In this strategy, the teacher tried to elaborate on the students' ideas regarding the questions given. The questions were provided in the worksheet.

Excerpt 3.

Teacher B: "What question would you like to ask a wise man like Pundabi? If there is a wise man that near here in Malang like in Batu and he can answer all your questions."
Student B: "Am I eligible?"
Student C: "How can you become a wise man? How can you answer all the questions?"

Another scaffolding strategy used by Teacher B was during the first observation, using modelling and models. It was found that when Teacher B divided the students into groups. Then, she asked them to find a folklore text and answer the questions provided by the Teacher. As can be seen from the previous activity, the teacher provided the example of a folklore text first. This means that the teacher gave a model to the students. Then, she assigned them to find another example of folklore by themselves. This means that the task can create students' ZPD as they already know about the structure and what the folklore would like, and later they have to find another example of the text with a different title.

The Level of Teachers' Strategies in Promoting Students' Higher Order Thinking Based on The Taxonomy by Marzano and Kendall (2007)

Teacher A and Teacher B implemented several strategies, and they can be classified into several taxonomies based on Marzano and Kendall (2007). Teacher A tended to promote students' higher-order thinking skills through the group discussion. She let the students discuss the material during the group discussion independently. However, if there was a question that the students seemed to be confused about answering, Teacher A would lead the students to think about the answer. The following is the list of teachers' questioning strategies and the level of question based on Marzano and Kendall (2007).

Table 1

Teacher A Questioning Strategy Based on Marzano and Kendall's Taxonomy (2007)

Teacher A's Questioning	Level of the question Taxonomy Based on Marzano & Kendall (2007)
"What do you think what we will learn from offering help, *kira-kira ngapain sih kita* offering help?"	Analysis, specifying (higher order thinking skill)
"If I ask you to give a score about their performance, what will you give? From their expression and their pronunciation."	Analysis, specifying (higher order thinking skill)
"Is it important to know how to ask for help and offer help? Maybe you can share your opinion."	Knowledge utilization, decision making (higher order thinking skill)
"Suppose we have two friends, and one of them tends to ask for help mostly. And the other friend makes an offer to you. Which one do you prefer to be honest?"	Knowledge utilization, decision making (higher order thinking skill)
"Do we have to write the structure based on the group that two have presented?"	Comprehension, integrating (lower order thinking skill)
"Do you know a cover letter?"	Retrieval, recalling

Teacher A's Questioning	Level of the question Taxonomy Based on Marzano & Kendall (2007)
"By the way, you make your application based on what?"	(lower order thinking skill) Retrieval, recalling (lower order thinking skill)

From the table, it can be seen that Teacher A mostly asked the students questions with the higher-order thinking skill level. She asked the students to choose and had their opinion regarding their answer. Every student would have their own preferences. Then, after they chose the answer, the teacher would ask the reason why they chose their answer. This kind of analysis question has no right or wrong answer. The students were free to think and voice their opinions. Only on several occasions did the teacher have the students answer low-order thinking questions.

From the observation, these kinds of questions occurred when the teacher wanted to make sure about the students' understanding of the material. This kind of question also occurred when she wanted to lead students to find the appropriate answer for the discussion.

On the other hand, Teacher B promoted students' higher-order thinking skills through questioning and students' assignments. The students were asked to read the text before the class, and they had to answer the questions provided by the teacher. The following is the list of questions for the students' assignment.

Table 2

Teacher B Reading Skill Assignment

Teacher B's Assignment	Level of the question Taxonomy Based on Marzano & Kendall (2007)
What does the king want Pundabi to do?	Retrieval, recalling (lower-order thinking skill)
Why is Ali afraid?	Comprehension, integrating (lower order thinking skill)
What question would you like to ask a wise man like Pundabi?	Analysis, specifying (higher order thinking skill)
Why do the king's guards search the young boy?	Comprehension, integrating (lower order thinking skill)
Why does the king want to leave the widow's hut?	Comprehension, integrating (lower order thinking skill)
What do you think the mystery of the Golden Serpent is?	Comprehension, integrating (lower order thinking skill)
The king doesn't find the Golden Serpent, but he pays Pundabi anyway. Why?	Analysis, specifying (higher order thinking skill)
What does Pundabi do with the gold?	Retrieval, recalling (lower order thinking skill)
Do you think Pundabi was truly wise? Why or why not?	Analysis, specifying (higher order thinking skill)

From the table, it can be seen that the teacher tended to promote the students' higher-order thinking skills through the questions in the students' assignments. The table indicated that Teacher A mostly used the low-order thinking skill questions. Those questions were classified as low-order thinking skill because the answer had already been stated in the passage, and the students could search for them. It means that the level could be classified as retrieval and comprehension. In the next session, the teacher asked the students to find a narrative text in group. Then they were required to answer the following questions based on the text that they found.

Teachers' Challenges in Creating a Zone of Proximal Development to Promote Students' Higher-Order Thinking Skills

The first challenge found by the teacher was mostly about the implementation of the activity to promote students' higher-order thinking skills. First, it dealt with the time limitation in presenting the material. The learning activity in the acceleration class was only conducted in three months, and like the regular class, every week, it had only 90 minutes in each session. Due to this condition, the teacher should be creative in adjusting the material and ensure that all the material is delivered within three months. It affected the learning pace and material delivery in the classroom session.

> *"I only implemented discussion and review sessions in this class. I cannot vary the learning activities, such as incorporating games like in the regular class, to improve their critical thinking. I felt that I needed to save time efficiently for this class."*

Another challenge faced by the teacher was the difficulty in finding appropriate material for the students. Teacher B stated that she had difficulties in determining the learning material that could promote students' higher-order thinking skills and curiosity because she thought the students had already mastered the content. She further added that this sometimes made the students be less curious about learning the material. For example, if she provided a text for the students, they already understood it well, resulting in students' less curiosity about the material.

> *"They are really smart. So sometimes I want them to be more curious in learning the material. I want them to feel more of a challenge. But it's difficult because they actually already know the material or the text well."*

In the interview session, Teacher B stated that there is a need to conduct a teacher training program or a workshop that can provide the teachers with insight regarding the promotion of higher-order thinking skills. This kind of workshop can help the teacher to gain a new skill to promote students' higher-order thinking skills to the students.

Furthermore, at the other time, the students' critical thinking skills become a challenge in relation to their attitude toward learning the material. Teacher A stated that some students tended to be offensive in criticizing the answer to the specific questions during the discussion time. This offensive behavior was found when their answer was stated incorrectly. The problem was their attitude in clarifying this kind of misconception, indicating their impolite behavior.

> *"Sometimes we find that there are similar answers for specific question. Well, the answer key is A Because it already has a logical reason why the answer is A. But there is a student who insists too much in aggressive manner that the answer is B even though it is not the correct answer. I think the challenge for teaching high achiever students is that they feel that they are smart and yes I am worried about this kind of behavior."*

Teacher A added that another reason why this student's offensive behavior occurred was due to their sense of competitiveness in the classroom. The acceleration class has a high standard, and all students compete with each other to be eligible students or have the chance to participate in the National Selection by Achievement Program (SNBP). This type of selection requires a twelfth-grade student to excel in their academic performance as they are evaluated based on their portfolio, report cards from semester one through five, and other academic accomplishments to register in a university. Because of this high standard of SNBP, the students tended to make sure that their score was good enough to be chosen as the representative for SNBP.

CONCLUSION

This study found that among the six elements of scaffolding strategies proposed by Mahan (2020), the teachers only implemented three strategies: the connection of prior knowledge, uptake of student responses, and modeling, and the use of models. Then, this study also found that both teachers had similarities in applying the scaffolding strategies, such as applying the uptake of students' responses.

The level of higher-order thinking skill questions was also found during the class activity. It was found that Teacher A's questioning activity was mainly related to the level of analysis and knowledge utilization. Meanwhile, Teacher B tended to implement the question at the analysis level. In addition, this study found several challenges in promoting students' higher-order thinking skills, especially for acceleration class students, such as time limitation, lack of instructional knowledge, and students' attitudes. This study suggests that there is a need for teacher training programs that provide insight into the implementation of classroom activities that can develop students' higher-order thinking skills. Finally, the limitation of the current study was in how it investigated the strategies and challenges expressed by teachers. Hence, future study that investigates how ZPD is created in students' interactions with their peers is recommended.

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