

# Promoting Students' Higher-Order Thinking Skills Through Teacher's Feedback in an EFL Classroom

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#### **ABSTRACT**

Higher-Order Thinking Skills (HOTS) has been mandated in the 2013 Curriculum in Indonesia. Despite a growing number of studies on how HOTS and the 2013 Curriculum are interrelated, only a few studies on how students particularly in a lower level of education have reported their classroom experience with HOTS especially with the help teacher's feedback. Therefore, this study aims at revealing how to promote students' higher-order thinking skills through teacher's feedback. A qualitative research was employed to investigate the phenomenon and one English teacher, and 31 students were involved as participants who were observed and interviewed. The findings showed that teacher implemented four models when assisting students in increasing their HOTS: (1) discussing students' reasoning; (2) providing feedback which functions as scaffolding; (3) offering feedback to students' responses with praise along with "what" questions; and (4) giving suggestions for the students' improvement transformed into challenges.

**Keywords:** Feedback, higher-order thinking skills, hots-based feedback

## 1. INTRODUCTION

Nowadays, Higher-Order Thinking Skills (HOTS) have been a trending issue in the 21<sup>st</sup> learning century (Lee, 2014; Yen & Halili, 2015; Lee et al., 2016; Roets & Maritz, 2017, Setyarini, Muslim, Rukmini, Yuliasri & Mujianto, 2018). Similarly, in Indonesian context, HOTS has been mandated in the revised version of 2013 Curriculum (Pratama & Retnawati, 2018; Retnawati, Djidu, Kartianom, Apino & Anazifa, 2018). HOTS is also required in every discipline, and it has been integrated in an English language learning process (Li, 2016; Setyarini, Muslim, Rukmini, Yuliasri & Mujianto, 2018). As the demand of integrating HOTS in the classroom increases, the answer to the question on how teachers assist students to accomplish the goal remains unclear.

In facts, some students seemed to encounter problems when required to think in a higher level. For example, a research reported that, out of analysing, evaluating, and creating skills—three levels of HOTS—students performed well in analysing and evaluating skills only when a teacher taught HOTS through story telling (Setyarini, Muslim, Rukmini, Yuliasri & Mujianto, 2018). Besides that, TIMSS 2015 divulges that Indonesian students can only perform knowing and

applying skills categorized as Lower-Order Thinking Skills (LOTS). Likewise, according to the result of PISA 2015, Indonesian students encounter difficulties in performing level evaluating and creating skills (OECD, 2016). All the findings may mirror a poor performance of many Indonesian students in HOTS.

HOTS in this study refers to an activity involving cognitive level of thinking based on the Taxonomy Bloom which includes analysing, evaluating, and creating skills (Anderson & Krathwohl, 2001). It is assumed that students' HOTS may be promoted through feedback provision. Feedback is conceptualized as "a process through which learners make sense of information from various sources and use it to enhance their work or learning strategies" (Carless & Boud, 2018). From another perspective, feedback is described as "information with which a learner can confirm, add to, overwrite, tune, or restructure information in memory, whether that information is domain knowledge, meta-cognitive knowledge, beliefs about self and tasks, or cognitive tactics and strategies" (Winne & Butler, 1994 as cited in Petchprasert, 2012). Therefore, based on the two explanations, feedback in this study can be regarded as any information provided by a teacher which help students develop their



performance or their cognitive domains. This study focuses on a model of HOTS-based feedback.

There is no fixed definition of HOTS-based feedback. Even so, its concept is described by combining two definitions, HOTS (Anderson & Krathwohl, 2001) and feedback (Winne & Butler, 1994; Carless & Boud, 2018). To fit the purpose of the study, HOTS-based feedback refers to the provision of any information on students' work or performance in which the given information demands students to analyse and evaluate what they have done and leads them to create a new or revised version of their work or performance.

In order to provide students with the HOTS-based feedback, some strategies or guidelines proposed by Shute (2008) and Brookhart (2008, 2010) are adopted in this study. The following guidelines are Shute's (2008 as cited in Butakor, 2016) ideas about feedback which is used formatively to develop students' HOTS: (a) the teacher should provide feedback which shows a gap between the current level and the specified one; (b) the teacher should offer feedback which is specific in order to inform students about certain responses and give details on how to enhance these responses; and (c) teachers should offer feedback which functions as a scaffolding. Similarly, Brookhart (2010) also proposed the following guidelines of feedback provision to promote and assess students' HOTS formatively: (a) the teacher can have conversations with students about their reasoning; (b) the teacher provides students with substantive written feedback; (c) the teacher offers problems to students; (d) the teacher provide students with feedback on both the correctness of their response and the quality of their elaboration; and (e) the teacher gives one suggestion for improvement. After all, the present study uses the following framework:

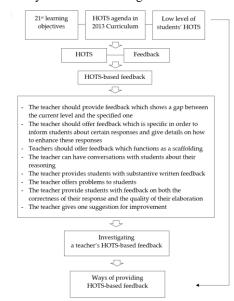


Figure 1 The framework of the study

To respond with such issues, many educators have attempted to develop HOTS-based learning activities, one of them is through feedback provision (Brookhart, 2010; Limbach & Waugh, 2010; Butakor, 2016). In line with this, Limbach and Waugh (2010) suggest that feedback practices and learning assessment can be carried out to increase the ability to think critically. Moreover, Indriyana and Kuswandono (2019) mention that feedback can be provided to develop students' HOTS. For instance, students learning a procedure text in English classroom could "review, refine, and improve their understanding" of the material after they had received feedback (Indriyana & Kuswandono, 2019). In such condition, the feedback was intended to upgrade the students' ability in criticizing (Indriyana & Kuswandono, 2019).

Previous studies on feedback and the promotion of higher thinking have been conducted by some scholars. For instance, a study by Xianwei, Samuel, and Asmawi (2016) which focuses on exploring the process of critical peer feedback shows that feedback was provided based on "a six-step model of critical thinking" by Bloom's Taxonomy. In addition, Yusmato, Soetjipto, and Djatmika (2017) shows that carousel feedback and round table cooperative learning models increase both students' HOTS and social learning outcomes. Last but not least, Yilmaz and Yilmaz (2019) report that feedback forms such as images, videos, and texts did not create a significant difference on students' critical thinking skill.

As the previous studies have limitation, they also leave gaps to be researched. All those studies focus on the feedback (some are along with other variables) for increasing students' higher thinking. However, they do not explore the process of feedback provision by teachers to stimulate students' HOTS. Although Xianwei, Samuel, and Asmawi (2016) investigate how feedback is delivered, the feedback providers are peers, not teachers. Furthermore, all mentioned studies involve students who learn English, yet most of them are in the university level. Studies which include students in lower levels (e.g., middle schools) are limited. Thus, to fill the gaps, the current study intends to explore how a teacher gives HOTS-based feedback to Junior High School students in an EFL classroom.

#### 2. METHOD

This study employed a case study design with a qualitative approach. A case study design is relevant to this research since there is a "case" to be investigated (Fraenkel, Wallen, & Hyun, 2012). The case in this study is an interaction between a teacher and one classroom consisting of 31 students of grade 7 and their efforts in implementing feedback to promote students' higher-order thinking skills. Another consideration for adopting this design is that the design is suitable for



exploring a process (Creswell & Creswell, 2018) of how a teacher offers HOTS-based feedback.

This study took place at one state junior high school in West Bandung, West Java, Indonesia. The participants have been chosen because they have unique criteria. The teacher has been exposed to HOTS training programs and often takes part in conducting researches under the topic of HOTS. During preliminary observation, the teacher also integrates HOTS in teaching English subject and provides students with HOTS-based activities and feedback which assist his students to develop their higher level of thinking. He also incorporates digital media which make the learning process more interesting. To some extent, such combinations may be helpful because it will be likely to shed light on how to promote students' HOTS in English classroom.

To collect the data, observation and a semi-structured interview were conducted with the teacher. Due to the COVID-19 outbreak, the observation in the classroom was conducted in a very limited number of time and was video-taped. The observation aimed at investigating how the teacher provided HOTS-based feedback to the students. Following the observation, the teacher was asked seven questions related to ways of feedback provision for developing or promoting students' HOTS. The interview result was then triangulated with data from the observation.

Data gathered from the observation were transcribed then they were qualitatively analysed by using a framework of HOTS-based feedback guidelines (Shute, 2008 & Brookhart, 2010). Similarly, data from a semi-structured interview were transcribed. Then, they were analysed through thematic analysis using the same framework. Finally, the data were presented and interpreted.

The procedure of how this research was undertaken is shown in the following diagram.

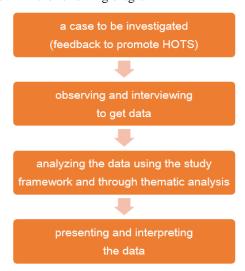


Figure 2 The research procedure

**Table 1.** A model of HOTS-based feedback given by the teacher

No	Ways of Feedback Provision	Notes/Examples
1	Discussion students' reasoning skills	Asking "Why?"
2	Providing feedback which functions as scaffolding	Giving a model/ example such as "The example of a story describing about milk is that, there was a seller who was in a trouble or who needed help" or providing pictures related to the stories
3	Giving feedback on students' responses with praise followed with "what" questions	Praising students and addressing question such as "Good! What else?"
4	Giving suggestions for students' improvement transformed into challenges	Giving challenging questions such as "OK you have been able to identify the people (within the story). Now look at your task. Can you identify why this person did this while the other character remained silent?"

#### 3. FINDINGS

The findings of the study present how the teacher provided a model of HOTS-based feedback to promote students' higher-order thinking skills. Based on Table 1, there found four ways of giving feedback to provoke students' higher-order thinking skills. Those are not hierarchical ways because each of them can be used for promoting different skills of HOT. Findings related to them are described below.

### 3.1. Discussing Students' Reasoning

First of all, the teacher discussed students' reasoning by addressing "why" questions as a reaction towards students' responses. In this case, the questions being asked were intended to explore further reasons from the students. For example, in the context of predicting an action which a character was doing in the story, as in the Excerpt 1 below, the first question from the teacher was to uncover students' reasons when the students guessed about what would happen in a series of a story. During the observation, the pattern of asking questions was also found. The pattern was:

"Why [followed by students' response or guess]?" and "Why do you think...?" The excerpt below shows how this feedback was given:



### Excerpt 1

148 T: What else? Then, there is a lady here ( ), obviously, what is she doing here?

149 S: Daydreaming

150 S: Thinking

151 S: (She) wants to go to the movie.

152 T: (She) wants to go to the movies, good what else?

153 S: Eu:::

154 T: Why is he daydreaming? < HOTS-based feedback>

155 S: (She) doesn't have money to go to the movie.

Similarly, the second "why" question was addressed as feedback to reveal the reasons for the choices that the students made. The teacher offered a "why" question right after the students' response. Such feedback was provided in the context of choosing the most preferred character to the students. The excerpt below presents how the feedback was offered:

### Excerpt 2

409 T: Anyone? (0.5) Who do you want to be? Yes

410 S: Dr. Philips

411 T: Why? < HOTS-based feedback>

412 S: Because he intends to help eu:: a lady who was sick earlier=

This finding was also in line with the data from an interview. The teacher asserted that he asked students to make a choice then he posed open-ended questions such as "why" to reveal their reasoning. The teacher believed that, if the students were not offered with a follow up question, they might only imitate the other friends' choices.

"I give feedback, for example, I compare A and B and let students to choose one of them. It's HOTS actually...if I give them open-ended questions... the students can do reasoning" (Teacher interview 22/3/2020)

# 3.2. Providing Feedback which Functions as Scaffolding

The second way to develop students' HOTS was that offering feedback which functions as scaffolding. Based on the data from the observation, the teacher provided such feedback in the form of models (examples) under the topic being discussed in the classroom. Along with the models, the teacher came up with a question addressed to students either after or before the models. This feedback provision occurred in the context of giving a model of the beginning of the story as shown in the following excerpt.

### Excerpt 3

74 S: Healthy

75 T: What the story will be? Then, what else? Anyone

want to give an example? The example of a story describing about milk (.) is that, for example= < HOTS-based feedback>

76 S: =It starts from cows=

77 T: =There was a seller who= <*HOTS-based* feedback>

78 S: =Then=

79 T: =Was in a trouble or who needed help. Does anyone want to try to tell a story? What is the idea? What is probably the story about? <*HOTS-based feedback*>

Such finding was also revealed in the interview. The teacher stated that students should not be expected to immediately revise their previous responses after receiving feedback once. Through feedback, students must know what they are doing so that they will not make the same mistakes as they commit formerly.

"Yes, through scaffolding, it is also to provide feedback...My focus is that (to make) the students know what they are doing...when they encounters the same problem, the same case, they will not make the same mistakes." (Teacher interview 22/3/2020)

Data from interview also reveal that scaffolded feedback may be offered by showing the students pictures. The teacher suggests that the pictures are aids to stimulate or encourage the students to do mentioning, identifying, and predicting. Moreover, the teacher claims that the students have reached levels of HOTS as they are able to predict.

"They (the students) start from just mentioning, identifying, then suddenly their level goes up until finally they predict...the students can achieve all the stages because maybe they get a support from the pictures they have seen earlier" (Teacher Interview 22/3/2020)

# 3.3. Giving Feedback on Students' Responses with Praise and "What" Questions

Based on the data from the observation, the teacher commented on the students' work by praising them. The teacher conveyed such positive feedback by producing utterances "good" and "very good" when the students' answers or responses were literally correct or acceptable. Right after the compliment was given to the students, the teacher posed "what" questions to explore more of the students' responses. For example, in the context of disclosing students' opinion about what made the story being discussed interesting, the model of this feedback is presented in the following excerpt:

### Excerpt 4

308 T: = Giving milk. What else?

309 S: Returning a favour

310 T: Returning a favour OK good. What else? *<HOTS* 



based feedback>
311 S: We should help others selflessly

While the result of the observation showed that praise was delivered in such phrases as "good" and "very good", the interview result showed that the teacher also praised student performance by saying "it's nice" and "nice try". On the contrary, the teacher mentioned that once the students were on the right track and received praises, they would not be given any further feedback to explore deep responses which require higher-order thinking skills.

...I never do that, because first, I am afraid that the students feel being intimidated by the teacher...I don't want the students to think that there is favoritism...I will run out of my time, so if the student is already on the track, yes that is ok, good that's it..." (Teacher Interview 22/3/2020)

# 3.4. Giving Suggestions for Students' Improvement Transformed into Challenges

The fourth identified way of offering feedback is giving suggestions to promote students' HOTS. Such feedback was identified in the interview result. The teacher asserted that direct suggestions—for example, informing the students to reach a certain level of HOTS or stating that the students were already in a certain level of HOTS then immediately suggesting them to achieve another level-would not be given. The teacher provided an example of direct suggestion which he would not offer in such utterance as Now you are at the analysis level, later you should reach the evaluation level. The teacher believed that, if such direct suggestion were given, the students might not understand what to do to achieve the required skill of HOT. Hence, the teacher revealed that he would come up with feedback suggestions given in the form of challenging questions to develop the students' HOTS, particularly to explore the students' ability in reasoning and elaborating skills.

"I don't give direct suggestions...for the suggestion I will put it in the form of a challenge...the goal of my question is that, I want to upgrade their level, actually." (Teacher Interview 22/03/2020)

# 4. DISCUSSION

The findings indicate that the teacher gave feedback to develop students' higher-order thinking skills by (1) discussing students' reasoning; (2) providing feedback which functions as scaffolding; (3) offering feedback on the students' responses along with "what" questions; and (4) giving suggestions for the students' improvement transformed into challenges.

Those models evident in the teacher-students interaction are in line with Brookhart (2010) suggesting that "having conversations with students about their reasoning" includes in feedback provision to assess HOTS. To uncover students' reasoning, the teacher offered feedback by addressing "why" and "why do you think...?" questions. This is similar to some previous findings that "why, how, how about, and what if" questions enable students to use their HOTS (Yen & Halili, 2015; Setyarini, Muslim, Rukmini, Yuliasri & Mujianto, 2018).

Such questions found in this study are categorized as open-ended questions functioning as tasks or problems that need to be responded by students. For the latter, the questions come after the students' responses or behaviours, and so they play a role as feedback. They are asked to extend the students' responses. Moreover, open-ended are employed to encourage students to think and give responses at cognitive higher levels, promote creativity as well as engage them by digging up their thoughts (Feng, 2013).

This study strengthens previous studies about the impact of open-ended questions on abstract skills. For example, Lee and Kinzie's (2012) study pinpoints that open-ended questions pointed at reasoning and prediction were likely to generate students' responses illustrating cognition in a higher level. Besides, Çakır and Cengiz (2016) reveal that the opened-ended questions become an important means to involve children in conversations which are cognitively challenging and provoke higher-order thinking.

To uncover more of students' thoughts, the teacher also provides feedback which functions as scaffolding. Scaffolding often refers to Bruner's (1978) learning theory which is described as cognitive support provided by teachers to students in order to assist the students to solve problems which they could not do by themselves. In this study, a model and pictures related to the material being studied were given as the teacher's feedback. This finding is in line with a theory proposed by Shute (2008) and also supported by Hartman (2002) suggesting that scaffolded feedback may consists of "hints, cues, prompts, models, direct instruction and partial solution".

When the teacher offers models or examples as feedback, this means that the teacher would like to give explicit explanation, analysis and discussion of the text model (Hammond, 2001; Emilia, 2010), though in this study the text model was orally delivered without a written text. In another case, research by Padmadewi and Artini (2018) reports that the teacher employed scaffolding to develop critical thinking and higher-order thinking skills. Although their study did not explicate if the scaffolding was used as feedback, the finding is in line with the present study where a scaffold was given



in the form of an example related to the material being studied.

In giving feedback as scaffolding, the teacher also prompts students with pictures. This indicates that the teacher intends to stimulate the students' understanding (Dewi, 2013). In relation to feedback, it was reported that pictures or images along with videos categorized as feedback forms are regarded to provide opportunities for students to enliven their clarifications, thoughts, considerations and critiques and they support the critical thinking advancement (Yilmaz & Keser, 2016). Even so, feedback form which includes images, videos and texts did not have a significant difference in students' critical thinking skills (Yilmaz & Yilmaz, 2019).

In regard to developing students' higher-order thinking skills, the teacher gives feedback in the form of praise. Such feedback was offered when the student produced correct, appropriate or critical responses. This is in line with the theory conveyed by Brookhart (2010) in which she gave an example that a teacher said, "good use of the formula!" to remark the students' correct responses. Brookhart (2010) mentions that the feedback was not only given to the correctness of the students' responses but also to the quality of their explanation. Nevertheless, in this study, praise was given along with "what" questions instead.

Praise is "intricately connected to how students view their intelligence" (Dweck, 2007). The impact of praise varies. It can motivate students or vice versa (Al-Ghamdi, 2017). Some studies reveal that giving praise to the students' intelligence made them proud in a short time, trailed with a long string of unfavourable outcomes (Dweck, 2007). For instance, general praise, or personal feedback like "good girl" or "great effort" ordinarily communicates positive assessments and emotions about the students yet contains few information of task (Hattie & Timperly, 2007) and it does not give any assistances to make an improvement of students' learning (Al-Ghamdi, 2017). If students have no ideas why they get praised, they are not encouraged to change (Ferguson, 2013). In addition, students may not be willing to put more efforts and may tend to feel satisfied with their previous achievements when they are often praised (Lipnevich & Smith, 2008).

Despite its negative effects, praise becomes a means to develop students' performances academically and it probably provides students with appropriate ways to implement for doing better tasks (Al-Ghamdi, 2017). It is assumed that praise may be a bridge which mediates students to promote their HOTS. Unfortunately, research investigating the effect of praise on HOTS development is very limited.

After receiving teacher praise, students become more engaged in the learning process and it may have potential to develop higher-order thinking. A study by Firdaus (2015) shows/reveals that there was a positive impact on students' engagement, such as verbal participation. Students took part in sharing opinion both in class and group discussion after getting praised (Firdaus, 2015). Therefore, this study finding implies that the teacher praise may not only intend to make the students feel satisfied or motivated but also to draw their thoughts which can be facilitated through discussion.

In order to hold discussion, initiation may be needed. In this interaction, the teacher is potential to be an initiator to start the discussion by addressing questions to students. It is assumed that the teacher offering "what else?" questions immediately after praising his students might mean to open up the discussion which aimed at extending students' thinking skills. By addressing questions to the students, the teacher intends to dig more of the students' ideas (Bywater, Chiu, Hong, & Sankaranarayanan, 2019) and invite the students to refine their thinking. After all, it is assumed that praise causes students to be more engaged in oral communication which results in the use of HOTS during the interaction.

Furthermore, giving feedback to stimulate students' HOTS is done by offering suggestions for improvement. This is in line with the theory developed by Brookhart (2010) and Shute (2008) affirming that feedback should be granted to make the students' responses better. There could be many ways to assist students to improve their HOTS-based responses. A teacher must offer specific feedback (Shute, 2008; Hattie & Timperley, 2007) and provide detailed information about how the students can improve their responses (Shute, 2008). Nevertheless, such theories contrast with this study finding which indicate that the teacher did not give direct suggestions or detailed information for the sake of the student improvements. Instead, the teacher transformed his suggestions into challenges. This means that the teacher indirectly wanted to provide students with opportunities to level up their higher-order thinking skills by engaging the students directly in solving a challenge.

Based on the finding, it shows that the challenges the teacher wished to pose were putting questions which could stimulate the students to hone their skills in giving reasons and elaborating. It might be useful for the students because the questions addressed by the teacher have a critical role in evoking the students' thoughts (Franke et al., 2009 as cited in Bywater, Chiu, Hong, & Sankaranarayanan, 2019).

All in all, what promotes thinking is good questions not correct answers, and the foremost successful strategy to think is to address questions which motivates individual thinking (Feng & Wei, 2019).



## 5. CONCLUSION

On the basis the aforementioned findings, this study concludes that the teacher provided feedback to promote students higher-order thinking skills in four ways. The teacher offered feedback by discussing students' reasoning, providing feedback which functions as scaffolding, giving feedback on the students' responses followed by "what" questions, and giving suggestions for students' improvement through challenges. Since all the identified ways of feedback provision are not hierarchical, the teacher may use one of them to promote a particular skill of higher-order thinking. The teacher must know which skill that he wants to develop from the students. For example, if the teacher would like to promote the evaluating skill, feedback on asking for students' reasoning can be given. This study also implies that higher-order thinking skills may not naturally ingrained or inherited in students. The students should be stimulated or trained to have and develop such skills instead. As this study has limitation, further researchers should obtain more data to see and go deeper how teachers offer a model of HOTS-based feedback and to find out which way is effective to promote students' HOTS.

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