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Students' higher-order thinking skills: constructing best practices in teaching English during online learning

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ABSTRACT

Conducting higher-order thinking skills (HOTS) activities in an English language classroom is a complete task for teachers, especially in the outbreak. Teachers need a careful plan and effective teaching strategies to make the students engage with the HOTS activities to increase their English language skills. The present study aims to investigate best practices of higher-order thinking skills in teaching English during online learning. A qualitative approach with a case study design was employed in this study. Two teachers of senior high schools in Pekalongan, Central Java, Indonesia volunteered to participate. Data were collected through classroom observation, semi-structured interviews, and document analysis. The classroom observation and document analysis were analyzed using thematic analysis. Findings of the study reveal that both teachers constructed best practices of higher-order thinking skills in their teaching and learning process. They eliminated one of the criteria of HOTS and skipped it in some learning processes. The teachers in their classroom activities should incorporate all criteria of HOTS, i.e., analyzing (C4), evaluating (C5), and creating (C6), properly. The lesson plans did not become the guidance in fostering HOTS to their students. This study also portrays the challenges faced by the teachers in constructing HOTS-based activities during online learning.

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Introduction

Since the government established the 2013 Curriculum (henceforth K-13), which promotes higher-order thinking skills (HOTS) in learning activities (Ministry of Education and Culture, 2017), English language teachers have been required to foster HOTS to their students in the teaching process. Nowadays, English teachers should be familiar with HOTS, especially since the Indonesian Minister of Education and Culture launched minimum competency assessment, known as AKM, to replace national examinations in 2019. When performing

AKM, students must use critical thinking skills. As a result, HOTS is crucial and must be incorporated into the teaching and learning process.

The importance of HOTS in teaching English is not only because K-13 promotes these skills but also fulfills the demand for 21st-century skills that are supposed to be had by 21st-century students. Education in the 21st-century is marked by the development of several educational characteristics that must be beneficial to students. The first is the development of learning through a student-centered approach. Students as subjects of learning who actively develop their interests and potential are not required to listen to and memorize the teacher-provided subject matter but rather to try to construct their knowledge and skills (Sund & Gericke, 2020).

Contextualization is required for the learning process. Teachers must be able to create teaching materials and employ methods that engage students and connect them to real-world experiences. The teacher helps students find meaning, value, and belief in what they are learning to apply it in their actual activities. The teacher assesses student performance concerning real-world scenarios (Ibarra-Saiz et al., 2021). As a result, students should develop these traits to help them face the challenges of the times, which require students to solve their problems in learning.

The Indonesian Ministry of Education and Culture stated that education in Indonesia is carried out in a network as long as the Covid-19 pandemic remains a threat. The call for online learning has been in effect since March 2020 and will continue until an unspecified date in the future (Ministry of Education and Culture, 2020). The policy on e-learning, which was implemented, has changed many aspects of education in Indonesia. Particularly in the implementation of ineffective learning. This condition can impact students' learning outcomes, particularly HOTS, which requires more teacher guidance even during face-to-face learning.

However, incorporating HOTS into the English teaching process is not an easy task (Ganapathy, Singh, Kaur, & Kit, 2017). The difficulty in applying to HOTS is due to the teachers' knowledge and skill. The teacher's lack of knowledge and skill creates challenges in implementing HOTS in the English teaching process (Veloo et al., 2016). Furthermore, teachers in Indonesia used to take a teacher-centered approach. Teachers must also prepare a good lesson plan that promotes analysis, synthesis, and evaluation in their teaching activities that make the teachers reluctant to apply HOTS. The pandemic, which lasted around a year, makes HOTS implementation more challenging. Learning from home that has to be done during a pandemic makes the teachers apply a teacher-centered approach and non-interactive learning process more often.

Many researchers have investigated higher-order thinking skills (HOTS) because it is an essential topic for 21st-century learning. Higher-Order Thinking is a skill set that combines transfer, critical Thinking, and problem-solving abilities (Brookhart, 2010). Higher Order Thinking Skills (HOTS) are defined by Faravani and Atai (2015) as problem-solving and critical thinking activities. Brookhart (2010) classified higher-order thinking skills into three categories: (1) transfer, (2) critical thinking, and (3) problem-solving. When the teachers transfer knowledge, students must understand and be able to apply what they have learned in the new context (Krathwohl, 2002). Higher-order thinking ability is defined as students' ability to connect their learning to elements other than those they were taught to associate

with. Then there's critical thinking, which entails reasoning, questioning and investigating, observing and describing, comparing and connecting, discovering complexity, and exploring opposing viewpoints (Barahal, 2008). The objective of the teaching is to prepare students for reasoning, reflecting, and making good decisions in critical thinking. Moreover, solving problems means that when students want to achieve a particular goal, they do not recognize the correct solution or solution automatically used. The issue must be resolved by critical thinking, creative thinking, and effective communication. The aim is to enhance student capacity in academic and personal life to identify and solve problems.

This research needs to be conducted since HOTS skill is essential to teaching the English process, yet it is not an easy task to do, especially in a pandemic era where the students mostly learn from home. The teacher feels it is more difficult to apply because learning from home limits the access and interaction between teachers and students. This article discusses how HOTS is implemented in the teaching English process through the lesson plan and activities during the pandemic. This study proposes one research question: How does the implementation of HOTS in teaching the English process during learning from home time?

Method

This research employed a qualitative approach. According to Creswell (2003), qualitative research entails gathering a text database and analyzing the data by dividing it into groups of sentences. In another way, the researcher reported the data by describing it in sentences. The type of research is then a case study. A case study is a detailed examination of a bounded system (e.g., activity, event, process, or individuals) based on extensive data collection (Creswell, 2003).

The participants of this research were two English teachers from two senior high schools in Pekalongan, Central Java, Indonesia. The participants were recruited by using purposive sampling. According to Creswell (2012), purposive sampling means that the researcher selects the topic and location to obtain valuable data. Teachers who have HOTS knowledge and experience in higher order thinking skills were chosen for this study.

The essential step in conducting research is data collection. To collect data, the researcher used observation and document analysis. The data of this research focus on HOTS activities that the teachers applied to the online learning process. The researcher analyzed eight lesson plans from two teachers, which are four lesson plans from each teacher, that were used to find out how HOTS criteria were implemented in the lesson plan.

The researcher also observed the teaching-learning process to know how HOTS was implemented in the online teaching-learning English process. In observing the teaching-learning process, the researcher read all WhatsApp groups from each meeting, Google Classroom, and the video recordings that were also used by the teachers when conducting online learning. The researcher presents the study's findings below based on the lesson plan analysis and online class observation.

For document analysis, the researcher would analyze the lesson plan created by the teachers based on HOTS criteria. Following data collection, the researcher analyzes the data gathered through documentation and observation to achieve the intended goals. The

procedures are data reduction, data display, conclusion drawing, or verification. Data triangulation is combining three or more sources of information (Sugiyono, 2013).

Findings and discussion

Cultivating students' analyzing skill in higher-order thinking

This part reveals the finding of the data collections gathered from two teachers through document analysis and observation to answer the research question: how the implementation of higher-order thinking skills in teaching English learning process during online learning. The first emerging theme is students' analyzing skill in higher-order thinking-based activities in online learning. According to Krathwohl (2002), analyzing is the process of breaking down a material or concept into its component parts and determining how the parts connect to one another or the overall structure.

The first section of the lesson plan is concerned with the course's identity. Course identity contains information such as the school's identity, core competencies (KI), basic competencies (KD), cumulative grade point average (IPK), learning objectives, and learning models (discovery learning, problem-based learning, project-based learning). The result found that both teachers (Teacher A and Teacher B) complemented the identity of the course in the 4 lesson plans. As stated in her learning objective part, the learning models that Teacher A used in the 4 lesson plans were discovery learning with mind mapping technique (observe, adopt, and modify) and combined with project-based learning (PBL). Teacher A also mentions in the steps of the learning activity part that she used the question-answer learning method, games, and role-play. Teacher B made different lesson plans. She made a one sheet lesson plan recommended by the Indonesia Ministry of Education and Culture, especially for the pandemic time. Teacher B did not mention what kind of learning model she used in her objective learning part. However, in the attachment of her lesson plans, the researcher found that the learning model was discovery learning, project-based learning, and combined with a question-answer learning model, games, and role-play. From the 4 lesson plans, Teacher A and Teacher B almost made the same steps and had the same contents in each lesson plan.

From the learning activity part, the researcher found that Teacher A stated some activities that belong to analysis (C_4). Those activities are; Teachers ask the students to read the text and analyze it based on generic structure and language features. After analyzing the text, the students conclude the text using their own words to answer the questions based on the text. Meanwhile, Teacher B only mentions globally the activities conducted in this part. She did not mention every step that she would hold when the learning-teaching process was being conducted. Therefore, the researcher did not find the activities that belong to analysis (C_4) in all of Teacher B's lesson plans.

The learning process that was conducted by Teacher A used WA and telegram group, Google classroom, and a few times using Google meet. The researcher found that activities that belong to analysis (C_4) were conducted properly in each meeting. In every meeting, teacher A always asks students to read a text or to watch a video related to the material. After that, she asked the students to analyze the text or the video by answering some questions. Teacher A also asked some questions orally to the students that evoked their critical thinking skills. The students in Teacher A's class belong to medium to high-level students because

Teacher A's school is a grade A or cluster A school; the students' scores when entering this school are more than 80. Therefore, students in Teacher A's class could answer the questions actively.

Teacher B started her class in each meeting with some opening questions related to the material. Students needed to answer those questions critically. However, only a few students answered the question in Teacher's B's class. On average, the students in Teacher B's class are medium to low-level students. Therefore, the students felt afraid and reluctant to answer the questions from the teacher. After that, Teacher B also conducted the activities that belong to analysis (C_4): asking the students to read a text or watch the video and then analyze it based on the generic structure and language features of the text. She also asked the students to analyze the text best on the questions that were given after the students had read the text and watched the video—those activities are conducted in every meeting.

According to Margana and Widyantoro (2017), critical thinking (higher-order thinking skills) is recognized as a crucial capability for maximally improving students' academic language. This theory emphasizes the importance of the relationship between thinking and language learning, particularly in writing, speaking, listening, and reading skills. Higher-order thinking skills include some active skills that students can use to manage their productive tasks. Higher-Order Thinking is thought to improve students' productive and receptive skills.

Two research conducted by Ginting and Kuswandono (2020), and Sesmiyanti (2021), found that HOTS is not conducted well in English language classrooms due to the teachers' lack of knowledge about implementing HOTS in English language Classrooms. Sesmiyanti (2021) also found that in online learning teachers are more difficult to apply because the access from teacher to students was limited. Moreover, Ganapathy in their research found that teachers were able to apply HOTS in their classroom using ICT, however, the teachers still need more time to conduct the teaching-learning process using HOTS (Ganapathy, Singh, Kaur, & Kit, 2017).

Fostering students' evaluating skill in higher-order thinking

Informed by data garnered through classroom observation, semi-structured interviews, and document analysis, the second emerging theme is students' evaluating skill in higher-order thinking-based activities in online learning. Evaluation is an action that involves making a decision based on specific criteria or standards. The students or teachers determine the criteria, and the standard can be quantitative or qualitative. The standard can then be applied to specific criteria (Istiqomah, 2018).

From Teacher A's lesson plans, the researcher found that Teacher A conducted a google meet classroom to listen to the students' presentations in one lesson plan. During the students' presentation, Teacher A assesses the students speaking. However, Teacher A did not ask the students to evaluate their friends' work. Therefore, the researcher did not find the activities that belong to an evaluation in Teacher A's lesson plans.

Meanwhile, Teacher B's lesson plans showed activities that belong to evaluation (C_5). In her attachments of the lesson plans, the researcher found that Teacher B wrote some activities of evaluation: asking the students to discuss their writing plan with their partner or in a small group, giving suggestions to their friends' works, asking the students to give

recommendations and feedback about their friend's draft, and making a fair judgment of the draft. These activities appear almost in every lesson plan.

In this class observation, the researcher did not find the activities that belong to an evaluation in Teacher A's teaching process. In some meetings, she asked the students to have a classroom discussion, but she did not ask the students to evaluate a text or another students' work material. The researcher discovered that Teacher B asked the students to make a prewriting plan in the Teacher's classroom. Other students had to give suggestions, recommendations, and feedback on their friend's work. However, Teacher B did not apply this activity in every meeting.

The findings are in line with the Bloom's taxonomy referring to an academic model that is frequently used to evaluate lessons and learning outcomes (Alsowat, 2016). Bloom's Taxonomy has been revised to include six levels: remembering, understanding, applying, evaluating, and creating. The cognitive domain's highest level is creation. The highest three levels of Bloom's Taxonomy are analyzing, evaluating, and creating (Madhuri et al., 2012). These are referred to as HOTS presented in the following figure.

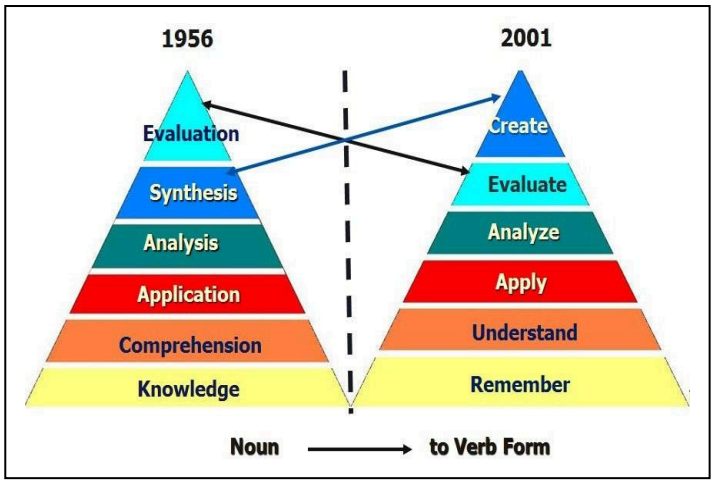

Figure 1. Bloom vs Anderson and Krathwohl

Figure 1 illustrates that HOTS is defined in Bloom's taxonomy (Bloom, 1956) as skills beyond knowledge and comprehension, including analysis, synthesis, and evaluation. According to Narayanan and Adithan (Narayanan & Adithan, 2015), the cognitive skills promoted in HOTS, which include synthesis and creation, can be defined as assembling, designing, formulating, and developing.

To put it another way, HOTS implementation necessitates teachers to assist students in applying their knowledge during the learning process. Moreover, Berg (2004) differentiated HOTS into three types of thinking: content, critical, and creative. Bloom's Taxonomy can also be used to identify HOTS at the application, analysis, synthesis, and evaluation levels (Bradshaw, Bishop, Gens, Miller, & Rogers, 2002).

Krathwohl (2002) have revised the Bloom's taxonomy by amending the cognitive stages of learners. The cognitive process is remembering (C1), understanding (C2), applying (C3), analyzing (C4), Evaluating (C5), and creating (C6). Teachers should design their learning objectives based on taxonomy bloom when developing students' Higher Order Thinking Skills (HOTS). The first three aspects of taxonomy bloom are C1 (remembering), C2

(understanding), and C3 (creating) (applying). HOTS occurs in C4 (analyzing), C5 (evaluating), and C6 (creating). Therefore, HOTS is considered the higher part of Bloom's taxonomy. Even though HOTS starts from C4 (analyzing), teachers should not directly initiate the lesson from HOTS. It should be started from C1, C2, and C3 (Lower-order thinking skills (LOTS).

Elevating students' creating skill in higher-order thinking

Based on data collected through classroom observation, semi-structured interviews, and document analysis, the last emerging theme is students' creating skill in higher-order thinking-based activities in online learning. Anderson and Krathwohl (2001) define "creating" instruction as "when students make a new product by mentally organizing some elements that were not present before, and the process of creating is mostly used to coordinate the students' experience in learning." Even though "creating" necessitates students' creative thinking, this is not entirely free of creativity expression due to the demands of the situation or learning task. As a result, the highest level of cognitive process dimension is created. The researchers discovered learning activities classified as the implementation of creating levels based on data obtained through lesson plans analysis and online classroom observation.

The eight lesson plans from both teachers showed that both Teacher A and Teacher B consistently implemented creating at the end of their lesson plans. Teacher A asked the students to create an advertisement to advertise their products and post the ads on the students' social media. Teacher A also asked the students to make an essay about their future, make a dialogue, and record it in the video. These activities have shown that Teacher A applied the higher part of the Bloom taxonomy that belongs to HOTS which is creating (C6). Teacher B, in her lesson plans, also wrote the activities that belong to creating (C6): creating congratulating cards, making a dialogue about self and recording it, making a video that relates to the material, and also doing a collaborative writing project about the descriptive text of famous place or tourist destination.

From the observation of the teaching-learning process via WA group, google classroom, and zoom recording, Teacher A, in every meeting, asked the students to create something due to their learning process. Teacher A asked the students to make a digital advertisement and post it on their social media. Teacher A also conducted a consultation session during a particular lesson hour, and the students could use that to consult their work on whether they made a mistake or not. In this session, students presented their works, and the Teacher gave feedback. In another lesson, Teacher A asked the students to write an essay about their plans for the future. Teacher A asked the students to make a video and post it on YouTube for speaking skills.

Based on online classroom observation, Teacher B, to implement creating (C6), asked the students to explain the family pictures. In these activities, Teacher B tried to make the students create their spoken target language when explaining to their family members. Teacher B also gave some questions while explaining students' family pictures. In another lesson meeting, Teacher B asked the students to write a descriptive text collaboratively in a small group of students and presented it in the form of a video recording. Teacher B had never used video conferences in conducting the teaching-learning process due to her students' condition.

Based on the lesson plan description analysis, the researcher found that Teacher A understood the lesson plans following higher-order thinking skills (HOTS) criteria. However, some parts could not be found in the lesson plans. For example, in Teacher A's lesson plans, the researcher did not find the point of evaluation (C5), which is one of the indicators of HOTS criteria based on the revising of the Bloom taxonomy (Krathwohl, 2002).

Meanwhile, in teacher B's lesson plans, the researcher could find all those steps in learning activities because Teacher B did not write the steps in her lesson plans. She only mentions the general activity for each meeting. However, Teacher B mentions the activities that belong to analysis (C4), evaluation (C5), and creating (C6) in the attachments that she enclosed at the end of the lesson plans. However, this does not mean that Teacher B did not understand the lesson plan following HOTS criteria. Teacher B used the lesson plan model recommended by The Ministry of Education and Cultural, which is a one sheet lesson plan. Both teachers also did not mention the material to be used in nurturing HOTS to their students. Besides, Teacher A made the lesson plans according to the HOTS criteria. At the same time, Teacher B did not mention the steps for HOTS criteria in her lesson plan, especially in learning activities.

From the lesson plans, the researcher found that Teacher A provided a well-prepared lesson plan following the HOTS criteria, starting from LOTS to HOTS, even though she did not mention evaluation (C5) in her lesson plans. The HOTS activities mentioned in Teacher A's lesson plan only addressed reading, writing, and speaking skills. She did not include listening skill in her lesson plan. Teacher B did not mention listening skills in her lesson plan in line with Teacher A. The researcher only found that Teacher B wrote the study's objectives as the students can read, write and speak.

Based on the description from the teaching-learning process observation, the researcher found that Teacher A, even though she understood how to make lesson plans following HOTS criteria, did not implement HOTS properly. According to Afflerbach et al. (2015), when implementing HOTS-based learning, there must be activities that excite students to enhance their abilities to analyze, evaluate, and create. It will be accomplished if learning occurs in an active learning environment with students at the center. Teacher A's teaching-learning activities used WA group, google classroom, and google meet.

The researcher did not find that Teacher A applied evaluation (C5) during the teaching-learning process. After Teacher A asked the student to analyze the text or the video, she held a question-answer method that evolved students' critical thinking conducted properly because Teacher A's students have good prior knowledge and medium to high proficiency in English level. However, after she conducted those steps, she directly gave the students a task to create an advertisement that had to be posted on the students' social media. In other words, Teacher A skipped evaluation in her teaching-learning process.

In contrast, Teacher B did not provide the lesson plans that showed the HOTS criteria in Teacher A. However, Teacher B did all steps of HOTS in the teaching-learning process. At the beginning of her teaching, she started the class with critical questions that could evoke the students' critical thinking. Then she continued with the text or video to be analyzed based on generic structure, language features, and extrinsic and intrinsic features. Teacher B also provided the higher-order thinking skills (HOTS) questions related to the text and the video.

After the students analyzed the text or video, Teacher B asked the students to make a writing plan. The other students had to give suggestions, recommendations, and feedback to evaluate the students' writing plan. Teacher B asked the students to create a writing product, present it in a video recording, and post it on their social media to get a fair evaluation from the teachers and friends. Both teachers did the same thing in nurturing HOTS activity in their online classroom in the teaching-learning process. Teacher A and Teacher B started with Lower-Order Thinking Skills before applying HOTS. The activities could be found in the analyzing process, such as memorizing the vocabulary, giving simple questions, translating, or doing grammar exercises (McLoughlin & Mynard, 2009).

The observation showed a significant difference between Teacher A's class and Teacher B's class in the online teaching-learning process. In Teacher A's class, the students were active. The students answered all the questions and asked the questions actively during the online classroom, either using WA group, google classroom, or google meet. The students used the meeting session via google meet effectively to ask for everything they needed to finish their project. Teacher A made a well-prepared teaching material put in the google classroom that could develop the students' competencies and behavior.

In contrast with Teacher B's class, the students in this class were not active. Of the students who answered the question, only two or three students. The teacher seemed to fail in making the plan to make students active during the class. This condition occurred because Teacher B always used the same media to teach, WA group and google classroom. Teacher B has never used video meeting conferences to conduct the class. Therefore, Teacher B often only gave the task via google classroom asynchronously. However, Teacher B had made the teaching material in google classroom well-prepared, and she also formulated the emphasis on developed competencies. Teacher B also developed students' behavior habits.

In the teaching-learning process, some points have to be considered by both teachers in conducting HOTS activities in the online classroom. The researcher found that both teachers did not put some notice to these points, which are: the first point, according to both lesson plans and several meetings, Teacher A and Teacher B, in the most meeting, just provided the teaching materials in google classroom and asked the students to study and do the tasks without any feedback from the teachers. Both teachers just considered speaking, reading, and writing skills in their teaching-learning process without planning and developing listening skills. It happened because the teaching-learning process carried out online gave some limitations to the teachers to conduct listening skill activities. This condition contrasts with the study conducted by Heron and Palfreyman (2021) reporting that HOTS could become a guide for the students to develop their ideas and train to improve their speaking ability without being hesitant.

From those points above, it can be concluded that the implementation of HOTS in online English classrooms of two schools in Pekalongan was not going well. There was a HOTS criterion that the teachers skipped. Furthermore, there was a skill that the teachers did not develop due to online learning that also reduced the allotment of the lesson from the regular lesson hour. The teachers also failed to make the class active because the task given during the learning process did not evolve students' critical thinking and active behavior. However, Covid 19 pandemic made the students learn actively. Moreover, the teachers also felt it hard to plan the teaching-learning process that entirely used HOTS that required the students to

be active during the class. It was not an excuse for the teachers not to prepare strategies to support conducive learning processes during a pandemic.

Conclusion

The present study demonstrates that the EFL teachers from two senior high schools in Pekalongan, Central Java implemented higher-order thinking skills in their teaching and learning processes. However, a criterion of HOTS skipped by teachers A is C_5 (evaluation), and teacher B omitted (C_4) analysis. Not all the activities were students centered. Most of the activities were teacher-centered because, in online learning, both teachers tend to use google classroom as a medium to deliver teaching material asynchronously. However, the teachers understood how to develop a HOTS lesson plan and conduct a teaching-learning process that engages HOTS. In some meetings, the teachers have applied HOTS even though the students did not give many active contributions to the learning process. The implementation of HOTS in the two schools did not apply appropriately in the online English classroom. This condition occurs because the allotment of lesson hours in online English learning decreases from regular lesson hours.

Moreover, in online learning, the teachers were challenged to find exciting media for students that could make the students active in learning. The teachers were also challenged to overcome students' ability differences in learning. In this study, the researcher found that the teachers lacked creativity in implementing HOTS to make the students more active while learning English. The teachers also did not implement HOTS regularly in every meeting because not all the basic competencies can be implemented in HOTS, like listening. Then, the teachers did not understand how to implement HOTS for listening skills. Therefore, they tend to ignore developing this skill.

The suggestion is primarily addressed the teachers. The teachers should make a well-prepared lesson plan that promotes HOTS in every step of the learning activity and should use the lesson plans in their teaching process. The teachers should teach according to the prepared lesson plan, even though it is challenging to apply. The teacher also should be creative in making the lesson plan for online learning with the limited learning hours. Therefore, the four skills can be developed. The learning process still focuses on students, and the learning process still can develop the competencies and behaviors to make the students become good problem solvers in the real-life.

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