Teacher's questioning and students' critical thinking in EFL classroom interaction

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ABSTRACT

The present study intended to examine the levels of questions based on Bloo Taxonomy used in EFL classroom interaction, to investigate the teacher's question techniques and to analyze the roles of teacher's questioning on students' critical think This study applied qualitative descriptive method. Classroom observation, field notes interview were employed. The study engaged an English teacher at SMA Neger Tolitoli. The result showed that the teacher asked four out of six levels of questions. teacher asked all lower-order levels questions (knowledge, comprehension application) whereas he only asked fewer analysis questions as higher-order le questions (never asked synthesis and evaluation questions). Furthermore, the teac applied all questioning techniques proposed by Turney. They are structuring, focus redirecting, distributing, pausing, teacher reacting, prompting and changing the leve cognitive demand. This study also found the new technique, namely joking. However, results revealed that the roles of teacher's questioning only in the lower-order thinking the students which could not facilitate the student's critical thinking but it can lead students to think critically. Therefore, it was recommended to maximize the use of high order levels questions in order to train the students think critically.

Keywords: Lower-order levels questions, higher-order levels questions, question techniques, critical thinking

Introduction

In classroom setting, teacher's talk has vital role in language learning since the teacher controls the topic of discussion to reach the aims of the objectives of teaching and learning process. One asset of teacher talk is teacher's question. As Adedoyin (2010) stated that "teacher's questions are of significant values for many instructional purposes, eliciting students' reflection and challenging deeper students understanding and engagement in the classroom.

"Richards et al (20014:476) also argued that "the question is used most frequently as a teaching technique to initiate the classroom talk." I assert that the students give any responses and participate more in any discussion if the teacher most frequently ask them in teaching and learning process. Thus, as for the functions of questions, they can be to check the students' understanding, stimulates students' thinking, or increase classroom interaction. However, the good questioning is a skill of effective teaching which require the good techniques and knowledge about the art of questioning skills. Therefore the investigation on teacher's questioning has been crucial issue in the language teaching.

There have been many research studies which explored teacher's questioning behavior and contributed precious result for language teaching and learning. Khan and Inamullah (2011); Shen and Yodkhumlue (2011) investigated that the teacher asked more lower-cognitive questions than higher ones. Hamiloglu and Temiz (2012) argued that there is achievement on students' learning as the proof regarding the effect of teacher's questions. This difference basically can be understood since each study is hold in different place with different participants. This difference means that the study on teacher's questions is still worth investigated.

However, those studies mainly focused on the influence of teachers' questions on classroom interaction or students' oral output. Few research studies have examined the influence of teachers' questioning and students' critical thinking in Indonesia context. It is known that critical thinking is pivotal ability which contributes to the development of the human being. It helps learners analyze, evaluate, construct their thinking, solving problems and reasoning. According to Facione (1990), critical thinking refers to the process of meaningful, judgment a merit of idea which needs reflection of evidence, settings, methods, and criteria. It was designed based on the cognitive domain of Bloom's taxonomy. Nunan and Lamb (1996) argued that the objectives of teacher questions are to elicit information, to check understanding, and also to control behavior. In short, teacher plays crucial role to raise effective questions that promote students' critical thinking.

Based on the preliminary observation, I found that the English teacher in SMA Negeri 1 Tolitoli did not realize about the importance of using appropriate questioning levels and techniques to help the students gain better understanding related to the material they had learnt and promote their critical thinking ability. The teachers did not realize that their questions would give consequence on students' critical thinking.

Poor questioning makes classroom interaction tend to be boring and students are unmotivated to speak or perform their language production skill. Asking questions in EFL classrooms is not simple task. It needs knowledge of the levels of questions, questioning techniques and the art of questioning skills. Thus, it is interesting to investigate the teacher's questions to promote the students critical thinking in EFL classroom interaction.

The result of this study was expected to be useful information about the questioning in EFL classroom interaction. Investigating the levels of questions, the teacher's questioning techniques and the roles of teacher's questioning on students' critical thinking were expected to provide new insight into the use of those levels of questions and its function, to encourage the students in order to participate in teaching-learning process, and to promote students critical thinking.

Literature Review

Critical Thinking

It is hard to define the concept of critical thinking because it has philosophical and psychological roots (Lewis and Smith, 1993). According to the study of Paul and Elder (2001), critical thinking can be defined as "a mode of thinking about any subject, content, or problem." On the other hand, Browne and Keeley (2007) stated that critical thinking is ability in asking and answering critical question and actively use it at appropriate time consciously. Similarly, King et al (2009) defined that "the complex process of thinking is divided into higher order thinking and lower order thinking". They explained further that "higher order thinking is used when someone relates stored and new information to solve extraordinary and difficult problem, or to obtain new ideas. Then, lower order thinking is "used to develop daily routines and mechanical process."

I noted that the effective teaching strategies are crucial thing to help the students learn to think critically. One of them is teacher's questions. In studying the development of critical thinking skills, there are good reasons to focus on the levels of question and questioning techniques that are promote students' critical thinking. If the teacher asks a lot of higher order thinking questions, the students can demonstrate their critical thinking in teaching and learning process.

Definition and Classification of Question

The Merriam-Webster Dictionary provides the definition of question as a sentence, phrase or word that asks for information or is used to test someone's knowledge. One aspect of this definition, for instance the potential use of questions as a means of measuring knowledge, is pivotal to any discussion of patterns of question-asking in the classroom, because one of the remarkable differences of educational and non-educational settings is that in the latter case, people seldom ask questions to which they already know the answers.

According to Seime (2002:10), a question in the classroom is "any statement intended to evoke a verbal response". Other researcher, Berlitz (2000) defines "a question maybe either a linguistic expression used to make a request for information, or else the request itself made by such an expression". Whereas, Cotton (2003) stated that "a question is any sentence has an interrogative form or function." From these definitions, I can generalize that question refers to any idea that requires a response from the listener or audience to ask information or to test his/her knowledge. Above all, in classroom settings, teacher's questions are defined as a tool of teaching strategy that requires responses/feedback from the students to ask information or to test their knowledge.

Mayberry and Hartle, (2003:94) argued that an effective question encourage student engagement in learning process by providing the clear words and enough response time for students to compose an answer. Furthermore, teacher's reasons for asking questions of their students in the classroom are often rather different from those in daily conversation. As Richard and Lockhart (1996:185) have stated that the importance of questioning in the classroom can be used to "stimulate and maintain the students' interest, encourage the students to think and focus on the content of the lesson, enable teacher to clarify what a student has said, to elicit particular structures and vocabulary items, enable teacher check students' understanding, and encourage the students participation in a lesson." Additionally, Kauchak and Eggen (2007) categorized the functions of teacher questioning into three main areas: diagnostic, instructional and motivational. Above all, teacher can use questions to help students build understanding and think critically. Good thinking is prompted by good questions rather than correct answer. The role of questions is to define problem, convey solution, and draw issues. As Khan and Inamullah (2011) argued that "the art of asking questions in the class is one of the fundamental skills of good teaching". Therefore, an effective teacher should understand the levels and techniques of questions to help the students learn to think critically.

There are many different ways to classify questions. For the purposive of examining the role of questions in the classroom, Richard and Lockhart (1996:186) distinguished three kinds of questions; they are procedural, convergent, and divergent. Whereas, Wragg and Brown (2001:16) classified the types of questions into conceptual, empirical and value questions. Seen from the instructional purposes, the questions grouped into two kinds: display or factual questions and referential or open ended. However, Bloom's taxonomy is viewed as the best-known and most widely used paradigm in education to categorize and analyze the types of questions (Shen and Yodkhumlue, 2011:16). I claimed the Bloom's Taxonomy was the appropriate levels of question to analyze the students' critical thinking ability in EFL classroom interaction.

Bloom's Taxonomy

Bloom et al in 1956 created Taxonomy of educational objectives in order to promote higher order thinking skills in education. It is known as Bloom's Taxonomy, According to Bloom's Taxonomy, the levels of questions divided into six categories: knowledge, comprehension, application, analysis, synthesis and evaluation. The first level of the Taxonomy, knowledge, requires the student to recognize or recall information. Comprehension requires the student to demonstrate sufficient understanding to organize and arrange material mentally or the student should go beyond recall information. Application requires the students to apply a rule or process to a problem and thereby to determine the single right answer to that problem. Analysis asks the student to identify reasons, uncover evidence and reach conclusion. Synthesis asks the student to perform original and creative thinking. It requires the student to produce original communication, to make predictions or to solve problems. The last level of taxonomy, evaluation, requires the student to judge the merit of an idea, a solution to a problem, or an aesthetic work.

Bloom's Taxonomy is hierarchical with knowledge, comprehension and application at the lower-order levels questions while analysis, synthesis and evaluation at the higher-order levels questions. Then, Bloom's Taxonomy has been one of the most cited sources to explore the growth of students' critical thinking. Kennedy et al (1991) claimed that three of higher-order levels questions (analysis, synthesis, and evaluation) represent critical thinking. If the teacher focus to help the students grow in critical thinking ability, he/she should mostly asked the higher-order levels questions. It does not mean that the lower-order levels questions unimportant in teaching and learning process. The teacher cannot ask the student at higher levels if the students lack information in answering lower levels questions.

Research Questions

This study aims to examine the levels of questions based on Bloom's Taxonomy used in EFL classroom interaction, to investigate the teacher's questioning techniques and to analyze the roles of teacher's questioning on students critical thinking.

This study based on the following questions:

- 1. What are the levels of questions used by the teacher in EFL classroom interaction?
- 2. How does the teacher initiate the questions in EFL classroom interaction?
- 3. Can teacher's questions facilitate students' critical thinking under the investigation? Why or why not?

Research Method

The participant of this study was a male teacher of SMA Negeri 1 Tolitoli. He has more than fifteen years experience in teaching English. This study applied qualitative descriptive method which is the data presented in qualitative and it was supported by quantitative. With qualitative description, it is the nature of the collected narrative that is described. Then, with quantitative description, the numerical nature of the collected data is described. It often uses visual tools such as graphs and charts to help the reader in interpreting the data distribution (Gay et al, 2006).

Classroom observation, field notes and interview were employed. To collect the data in this study, audio-recording was used in three meetings. Each meeting ran 90 minutes. The whole teacher-students interactions were transcribed. While recording, I wrote field notes to catch up on the phenomenon which were not recorded along classroom activities. The last, the teacher was interviewed and the results were interpreted.

Findings

1. The levels of questions used by the teacher in EFL classroom interaction. The findings showed that the teacher asked four out of six levels of questions based on Bloom's Taxonomy. The teacher asked some knowledge questions related to the previous material such as *do you know the aim of narrative text?* or what is the purpose of narrative text? It also found in the field notes that the teacher asks the knowledge questions to check the students' understanding about the previous lesson. It was shown by following field notes:

After greeting, he asks the students some question related to the previous material such as who knows the text organization of descriptive text? He also asks the students to describe appearance or characteristic of some animals such as cat and bird that they had learnt in the previous meeting.

The teacher also asked comprehension question in several ways. For instance, the teacher required the students to demonstrate sufficient understanding related to the material by giving any description about things, animal or person as in the following extract 1:

- T: Finish? Anyone finish write about Devon appearance?.. Julian, please describe Devon appearance and characteristic. Come on.
 - 'Finish? Does anyone finish to write about Devon's appearance?...Julian, please describe Devon's appearance and characteristic. Come on.
- S: He is Devon. He has short and skinny body. He is fourteen years old. He has short black hair and he has oval face and slanted black eyes because he is the Chinese. So he has white skin because of that. He is careful. He come from rich family but he is still humble and sometimes he can be annoying because he always do things something that he think more important.

The teacher wanted the students go beyond recall information, not only memorizing the material by asking please describe Devon appearance and characteristic. Furthermore, the teacher also required the students to demonstrate a personal grasp of the material by being able to use it in making comparison by asking, how do you differentiate between wild animal and domestic animal.

In application level, the teacher required the students to apply previously learned information to produce some result by asking, make a sentence by using the word teenager. The students also can use facts and rules to produce some results by answering the question, please, illustrate the dog based on what you think.

Analysis question is a higher-order level question that requires the students think critically and in depth. As in the following extract, the teacher wanted the students to identify the causes or reason for certain events through analysis by asking, why is Taj Mahal regarded as one of the eight wonders of the world?. The students responded well by saying, because Taj Mahal is one beautiful building in the world and build in the emperor of Shah Jahan. Similarly, the teacher required the students to analyze information to support a particular conclusion, by asking, what do you think about our lesson today? or simpulkan penjelasan bapak tadi summarize what I have explained.

However, the findings revealed that the teacher never asked two levels of higher-order question, synthesis and evaluation questions over three meetings. The teacher mostly asked lower-order levels questions than higher ones in the classroom interaction.

2. Teacher's questioning techniques

The findings revealed that the teacher did all questioning techniques proposed by Turney (1983). They are structuring, focusing, redirecting, distributing, wait-time or pausing, teacher reacting, prompting and changing the level of cognitive demand. The teacher's structuring would help the student to get information on the topics were being discussed as the following extract, *Taj Mahal.is a kind of?Place, things, building. Building yah. Bangunan. Jadi tujuan teks deskriptif itu apa?* 'Taj Mahal. Is a kind of [what]? Place, things, building. [it is] building. Building. So, what is the purpose of descriptive text?' By giving specific information, the students could draw the ideas by saying, *to describe something like building*. The teacher also phrased the questions and redirected the questions to other students. Then, the teacher also gave adequate time to think by saying, *what else?* I found in the interview result that the teacher considered wait-time or pausing is the vital aspect in posing question to students as the following transcript of interview:

"I think giving more wait-time to students is important. Perhaps, I give the students a few minutes or seconds to think. I do it because I want to give spaces for the students to communicate with their friends or do small discussion. As the result, the students have chance to think in depth about the question so they can answer it perfectly"

The findings showed that the teacher applied new questioning technique, namely joking. Joking refers to the way of the teacher posing the questions to students by playing a joke but it is still relevant to the material. For instance, the teacher asked the students, what is the word 'panjang' in English? The students responded by saying, long. The teacher continued to explain that the word 'long' in the local language is called longga. Then, he played a joke by saying, ey, Mr. longga, where are you going Mr. longga? You, Mr pendek, where are you going too? 'ey, Mr.longga (refers to tall man). Where are you going Mr.longga? You, Mr. pendek (refers to short man) where are you going too?

3. The roles of teacher's questioning on students' critical thinking Based on the transcription of classroom observation, it can be seen the levels of questions formulated by the teacher as follows:

Table 1: Distribution of Level of Teacher's Questions Based on Bloom's Taxonomy

No	Levels of Questions	Meeting 1	Meeting 2	Meeting 3	Total
1	Knowledge	122	85	155	362
2	Comprehension	13	17	10	40
3	Application	3	8	2	13
4	Analysis	0	2	8	10
5	Synthesis	0	0	0	0
6	Evaluation	0	0	0	0
Total of teacher's questions		138	112	175	425

The table 1 pointed out the total number of questions asked by the teacher in three meetings was 425. The teacher mostly asked knowledge questions with the total number was 362 from 425 questions. The following figure showed the percentage of it:

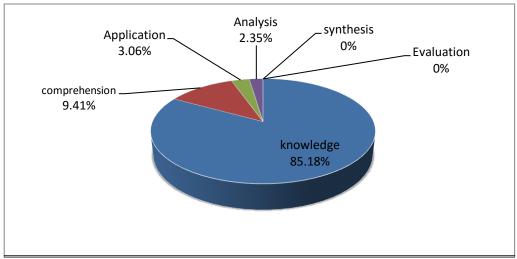


Figure 1. The Percentage of Questions Levels

The figure above showed that over 425 questions in three meetings, the teacher asked 362 (85.18%) knowledge questions, 40 (9.41%) comprehension questions, 13 (3.06%) application questions, 10 (2.35%) analysis questions, but never asked synthesis and evaluation questions. Based on the data, it can be seen that only 2.35% questions asked by the teacher which was in the higher level of cognition (analysis, synthesis, evaluation). The rest 97.65% was in the lower level cognition (knowledge, comprehension, application).

Discussion

This study had examined three important issues. The first one was about the levels of questions based on Bloom's Taxonomy that were mostly asked by the teacher. The result revealed that the teacher used four out of six levels of questions. The teacher used all levels of lower-order thinking (knowledge, comprehension and application) whereas he only used analysis question respectively as the one of the higher-order thinking levels in the classroom. This result is concord with the findings of some studies which confirmed the overuse of lower-order thinking level in EFL classroom (Azerefgn, 2008; Shen and Yodkhumlue, 2011; Khan and Inamullah, 2011). As Sadker et al, (2011:119) stated that a teacher cannot ask students to think at higher levels if they lack fundamental information. Further, use of knowledge questions promotes classroom participation and high success experiences for students. It can be proved by students' enthusiasm when the teacher asked questions to check their vocabulary.

The second issue was about the role of teacher's questioning on students critical thinking. This study revealed that the teacher asked much lower-order levels questions (97.65%) than higher ones (2.35%). The findings parallel to some studies such as Barjesteh and Moghadam (2014) revealed that the teacher leaves little opportunity for application, analysis, synthesis and evaluation questions; Shen and Yodkhumlue (2011) indicated that teacher asked more lower-cognitive questions (79.2%) than higher ones (20.8%); Khan and Inamullah (2011) also observed that the ratio of higher-level cognitive questions was very low. I analyzed that the teacher asked a few of higher-order levels questions because of the students' ability that were still in the first grade of senior high school. It triggered him to use most lower-order levels questions than trained the students to think critically and in depth by asking higher-order levels of questions.

King et al. (2009) defined that lower order thinking is used to develop daily routines and mechanical process. Similarly, Bloom et al (1956) pointed out that lower cognitive questions represent the lowest level of understanding which required students to recall previous knowledge directly instead of any process of manipulating knowledge. It means that the lower-order levels questions could not make students to be engaged in any process of critical thinking. As the Browne and Keeley (2007) stated that critical thinking is an ability in asking and answering critical questions and actively use it at appropriate time consciously.

It was concord with the findings of Shen and Yodkhumlue (2011) noted that the excessive use of lower-order levels questions could not facilitate students' critical thinking since they merely required students to recall the knowledge directly rather than processing or manipulating knowledge learnt in the class. In short, the findings of this study showed the roles of teacher's questioning only in the lower-order thinking of the students which could not facilitate the student's critical thinking but it can lead the students to think critically. Sometimes the students answering the lower-order levels question lead the students to think critically.

The last issue was about questioning techniques to help the students gain better understanding and strengthen the communication between teacher and students. Many studies demonstrated that the teachers' use of a variety of questioning techniques also influences students' achievement. Wilen (1987:25) reviewed several syntheses of the process-product research literature to determine the types of questions and questioning techniques that correlated positively with student's achievement gains. Meng et al. (2012) also stated that teacher and students could take advantage from teacher question because the act of questioning skill helped the teacher to maintain the students' participation in the classroom and stimulate to keep thinking. In addition, Turney (1983) also stated that the skill of questioning is fundamental to a teacher's repertoire. In this study, I found that the teacher used all questioning techniques proposed by Turney (1983). They are structuring, focusing, redirecting, distributing, pausing, teacher reacting, prompting, and changing the level of cognitive demand.

King et al. (2009:56) stated that to generate higher order thinking process, questions must elicit answers that have not already presented. Planning the questions in advance of actual learning time helps assure questions go beyond simple recall of information. Similar to the findings of this study, the teacher did structuring by asking students' prior knowledge related to the previous material in early meeting. The teacher also provided signpost whether in statement or series of question lead to the topic and giving specific information to assist students formulate appropriate answer. The teacher also delivered questions in sharp focus and thought-provoking. Furthermore, the teacher changed the levels of cognitive demand by asking from simple to higher-order levels questions As Kauchak and Eggen (2007) stated that one of questioning strategies is start with lower-order questions, remediating as needed, and lead up to higher-order questions.

Phrasing was one of questioning techniques done by the teacher in the class. Wragg and Brown (2001:19) claimed that is necessary to ask questions restricted to the use of words and phrases that are appropriate to the group. Gall (1987) also argued that "if the teacher's question is unclear, it is difficult for students to give appropriate responses." Then, phrased the question could help the students' difficulty in responding teacher's questions.

Wait-time or pausing is one of the most vital techniques used in questioning because wait-time demonstrated impact on the interaction between a teacher and students. The findings showed that the teacher allowed 3 to 7 seconds of wait-time after asking a question before requesting a student' responses, particularly when high-order level questions are asked. Increasing wait-time by a few seconds had several positive effects on the attitudes and behaviors of both students and teachers. Longer wait-time consistently resulted in longer student responses, an increase in the number of students volunteering to respond, and an increase in the number of follow-up questions posed by students. The study by Stahl (1994) indicated that information processing involves multiple cognitive tasks that take time. Students need more uninterrupted periods of time to process information, reflecting on what has been said, observed or done. Cotton (2003) also argued that for lower cognitive questions, a wait-time of three seconds is most positively related to achievement, with less success resulting from shorter or longer wait-times. Similarly, Azerefegn (2008) noted that the students were not given more seconds to think and answer the question of their teachers due to the lowerorder levels questions asked by the teachers. He stated that more time may be given to low proficient students to think and answer questions. I agreed if the teacher should give more time to low proficient students and the findings revealed that the teacher give more time even the question in low-order thinking and expected more to higher-order levels questions.

The newest questioning technique in this study was joking. The way of the teacher posed question to students by playing a joke but it was still relevant to the material. I analyzed that the students would give any responses when the teacher asked them. The students less initiated to ask the teacher related to the material. Posed questions by playing a joke was one way to encourage the students actively involved in the lesson. The teacher realized that it was not easy to maintain the students' interest. If there was any chance, he would use the students' responses to make any joke in order to keep the students actively involved in lesson.

As Richard and Lockhart (1996:185) stated that the importance question in teaching, one of them questions can stimulate and maintain students' interest. Moreover, Shoomosi (2004) also stated that the students are encouraged to participate more when teacher incorporate a piece of humor into the atmosphere in the classroom. In short, in order to properly use questioning techniques, teachers must first understand their students and know why those techniques are applicable.

Conclusion

The current study examined the levels of questions, questioning techniques and the roles of teacher's questioning on students' critical thinking. Dealing with the levels of questions based on Bloom's Taxonomy, it was found out the teacher used four out of six levels of questions. The teacher used all levels of lower-order thinking (knowledge, comprehension and application) whereas he only used fewer analysis questions (never asked synthesis and evaluation question) as higher-order thinking levels in the classroom.

Dealing with the questioning techniques proposed by Turney (1983), the teacher applied all questioning techniques. They are structuring, focusing, redirecting, distributing, pausing, teacher reacting, prompting, and changing the level of cognitive demand. The researcher also found the new technique used by the teacher, namely, joking. The teacher posing the question to students by playing a joke but it was still relevant to the material. The teacher realized that it was not easy to maintain the students' interest. If there was any chance, he would use the students' responses to make any joke in order to keep the students actively involved in lesson.

After analyzing the transcript of classroom observation, the researcher found that the teacher overuse the lower-order thinking levels questions (97.65%) than the higher ones (2.35%). It indicated that the roles of teacher's questioning only in the lower-order thinking of the students which could not facilitate the student's critical thinking but it can lead the students to think critically. Critical thinking was expected of students, but it did not automatically and quickly develop of itself. This skill must be developed, however, and it requires a great deal of effort on the part of teachers to help students learn to think critically.

Suggestion

This study was a limited-scale research. Therefore, a further research with wider scope of the research is expected to give a valid generalization. The study suggests some implication for EFL teacher as follow:

- a. Teacher should be aware of the significance of posing questions in the classroom interaction. It is recommended for teacher to maximize the use of higher-order thinking levels question to train the students think critically and in depth.
- b. Well formulated questions should be prepared by teacher before he begins the teaching and learning process. The questions are also need to be synchronized with the objective of the lesson. Furthermore, questions that require only remembering of facts from students should be minimized because such questions limit students to explain their ideas using English in the classroom.
- c. Teacher should avoid asking too many questions at once or asking a question and answering it himself.
- d. It is recommended for teacher to study more asking questions in order to develop teaching skill.

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