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Original Paper

Teacher Questions in EFL Classroom: A Study between More and Less Developed Regions

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Abstract

Teacher questions are important indicators to reflect English teachers' teaching ability. This study took 28 English teachers as corpora to explore the characteristics of teacher questions in EFL classroom between more and less developed regions. Combining the models of interactive choices of EFL (English as a foreign language) teacher questions (Yang, 2021) and the revision of Bloom's taxonomy (Anderson et al., 2001), this study investigated the interactivity degrees and cognitive levels of teacher questions. Firstly, it was found that there was no significant difference in the interactivity degrees of teacher questions in EFL classroom between more and less developed regions. Secondly, teachers in less developed regions asked remembering questions more frequently than those in more developed regions while the latter asked applying questions more frequently than the former. From the perspective of sociocultural theory, it was found that teachers in more developed regions focused more on students' intra-mental interaction, while teachers in less developed regions focused more on students' inter-mental interaction.

Keywords

Teacher Questions; EFL Classroom; More Developed Regions; Less Developed Regions; Interactivity Degrees; Cognitive Levels

1. Introduction

1.1 Research Background

Some research indicates that more developed regions tend to possess higher-quality education systems, with teacher quality being a crucial component. These regions often provide more competitive salaries and greater opportunities for professional improvement, which attracts more skilled teachers (Hanushek & Rivkin, 2006). As a result, parents generally prefer schools in more developed regions to secure better educational opportunities for their children (Coleman, 2018). However, Murnane & Ganimian

(2014) argued that there was no direct relation between economic condition and teacher quality, as non-economic factors, such as incentive structures and resource distribution mechanisms, also played significant roles.

Teacher questions serve as key indicators that reflect English teachers' teaching ability and classroom quality. In English-as-foreign-language (EFL) classroom, where communication in English is a primary objective, teacher-student interaction plays a critical role. Sociocultural theory highlights the importance of interaction in students' knowledge construction, particularly in second language acquisition (Vygotsky, 1978). Sociocultural theory holds that effective teacher-student interaction helps create a welcoming and challenging classroom environment conducive to second language acquisition. Teacher questions are crucial ways to elicit such interaction (Borich, 1988; Gall, 1970). Teacher questions may stimulate students to participate in classroom interaction and to improve their critical thinking through interaction. In this process, the interactivity degrees and cognitive levels of teacher questions significantly influence the quality of teacher-student interaction (Hu & Li, 2017; Yang, 2010), thereby affecting the classroom environment.

Few studies have contrasted teacher questions in EFL classroom between more and less developed regions. Therefore, drawing on sociocultural theory, this study explored the interactivity degrees and cognitive levels of teacher questions in EFL classroom between more and less developed regions.

1.2 Literature Review

1.2.1 Definitions of Teacher Questions

Teacher questions, due to their significance of classroom instruction, have been extensively studied since the 1970s. Scholars have proposed various definitions of teacher questions. Ur (2012) defined them as verbal prompts designed to elicit oral responses from students. Similarly, Borich (1988) described teacher questions as spoken language used to stimulate students' responses. Yang (2010) characterized teacher questions as interactive exchanges in which teachers seek information from students. The functions of teacher questions have also been emphasized. Gall (1970) argued that teacher questions are fundamental methods for stimulating student thinking and learning. Similarly, Blosser (1991) suggested that teachers use questions to assess comprehension, foster critical and creative thinking. In summary, teacher questions are verbal prompts aimed at eliciting information from students, engaging them in classroom interaction, and stimulating their cognitive processes. They are essential tools for creating interactive and cognitive environment in classroom teaching. In this study, teacher questions refer to discourse moves that require students to give information through verbal responses.

1.2.2 Previous Studies on Teacher Questions

Previous studies on teacher questions in English language classrooms have primarily focused on two classifications. Firstly, Barnes (1969) categorized teacher questions into open questions and closed questions. Open questions are designed to encourage a wide variety of possible student responses, whereas closed questions prompt a more limited set of answers. It is generally argued that open

questions stimulate more student output so that such questions should be used more frequently in classroom teaching (van der Wilt et al., 2022). Nevertheless, other researchers emphasized the pedagogical value of closed questions in English teaching. For instance, Wu (1993) studied teacher questions in English-as-second-language classroom in Hong Kong. It was demonstrated that closed questions were more effective than open questions in stimulating student responses. The second frequently used classification was developed by Long & Sato, who divided teacher questions into display questions and referential questions (Pourhaji et al., 2020). Display questions check students' understanding by asking for information already known by teachers, while referential questions seek information unknown by teachers to promote students' deeper understanding. Many researchers advocated for more frequent usage of referential questions which created more meaningful information gaps (Liu & Gillies, 2021; Roostini, 2011). However, other scholars proposed different viewpoints. Qashoa (2013) studied EFL classrooms. It was revealed that some display questions could actually generate longer student responses than referential questions, leading to the conclusion that both question types were important in classroom interaction. In summary, previous studies on teacher questions in English teaching classroom have mainly focused on the dichotomy of teacher question. However, scholars have not yet reached a consensus regarding which types of questions more effectively facilitate teacher-student interaction.

In addition, some other studies examined the cognitive levels of teacher questions in English language classrooms. Bloom's (1956) taxonomy of educational objectives classified cognitive processes into six hierarchical levels from concrete to abstract: knowledge, comprehension, application, analysis, synthesis and evaluation. Later, to make this taxonomy more in line with the current educational background, Anderson et al. (2001) revised it into remembering, understanding, applying, analyzing, evaluating and creating (see Table 1). Bloom's taxonomy and its revision have been applied widely in studies on English teacher questions. Song (2019) investigated 8 Chinese high school English reading classes and found a positive correlation between teacher questioning patterns and students' critical thinking development. Liu and Yoon (2024) examined the frequencies and functions of teacher questions at six cognitive levels in Chinese preschool storytelling classes, finding that each level contributed differently to developing critical thinking skills among young learners. These above studies have validated the applicability of Bloom's taxonomy and its revision in the research on English teacher questions. However, few studies combined the interactivity degrees and cognitive levels of teacher questions, both of which are emphasized by sociocultural theory.

The above reviews reveal that few studies focused on the interactivity degrees of teacher questions. Yang (2021), from the perspective of systemic functional linguistics, constructed a model of interactivity degrees of teacher questions in terms of subject persons and model deixis (see Table 2). The interactivity degrees of teacher questions are realized by their interactive choices of subject persons and modal deixis. To validate this model's applicability, Yang (2021) examined how different interactive choices affected the length of student responses. It was indicated that questions with

"interactant" and "judgment" elicited longer student responses, which demonstrated higher interactivity degrees.

Table 1. The Cognitive Level Dimension (Anderson et al., 2001)

Categories & Cognitive Levels	Examples
1. Remembering: retrieving relevant knowledge from long-term memory	
1.1 Recognizing	Do you know habits?
1.2 Recalling	What do Da Ming's grandparents like?
2. Understanding: constructing meaning from instructional messages, including oral, written, and graphic communication	
2.1 Interpreting	What is a magazine? Chinese.
2.2 Exemplifying	Can you give me an example of exercise?
2.3 Classifying	Now, what clothes are for boys?
2.4 Summarizing	How many times does Andy make the invitation?
2.5 Inferring	Can you guess the singular form of scarves?
2.6 Comparing	Anything different with, from yours?
2.7 Explaining	Why doesn't she often buy chocolate?
3. Applying: carrying out or using a procedure in a given situation	
3.1 Executing	Now, suppose you were Da Ming, could you introduce your grandparents likes and habits to us?
3.2 Implementing	Can you write a plan clearly?
4. Applying: breaking material into its constituent parts and determining how the parts relates to one another and to an overall structure or purpose	
4.1 Differentiating	Okay, class, which one do you choose?
4.2 Organizing	What do you think David should write in this invitation?
4.3 Attributing	What's the keyword?
5. Evaluating: making judgment based on criteria and standards	
5.1 Checking	Is that a good way?
5.2 Critiquing	Do you agree with him?
6. Creating: putting elements together to form a coherent or functional whole; reorganizing elements into a new pattern or structure	
6.1 Generating	Besides these people, who else do you think can help?
6.2 Planning	And what will you sell?
6.3 Producing	If you want me to watch a movie, what advice will you give to me?

Table 2. Coding Scheme System for Teacher Questions Interactive Choice (Yang, 2021)

Choice		Meaning	Examples
Subject person	Interactant	(involving) students	you, your family inclusive we, inclusive our
	Non-interactant	other people, things, acts	he, she, their Anna, Amy one, exclusive we ancient history, the trip who, what these, the
Modal deixis	Judgment	intermediate degrees between positive and negative	can, have to agree with
	Time	present	is, are, do, have
		past	was, were, did, had

1.2.3 Previous Studies on Factors Affecting Teacher Questions

Previous studies mainly examined factors related to teachers and students themselves, such as teaching experience, teaching medium and students' proficiency. Petek (2013) compared lessons given by 1 native EFL teacher and 1 non-native EFL teacher and pointed out that there was no difference between native and non-native EFL teacher question usage. Both teachers asked display questions more frequently. Pourhaji et al. (2020) investigated the relation between teachers' teaching experience and question usage, finding that experienced EFL teachers used more varied questions than novice teachers. Serna-Bermejo & Lasagabaster (2024) explored the impact of teaching medium on teacher question usage. They suggested that there was no significant difference in teacher questions between English-medium and Basque-medium university instruction. Concerning factors related to students, by comparing the questions asked to undergraduate and graduate students, Bova (2015) found more general questions for undergraduates versus more specific questions followed by why-questions for graduates. Kumar et al. (2024) explored the relation between teacher questions and students' genders. It was found that girls and boys were asked at similar rate and that teachers asked more scientific questions to boys than to girls.

In summary, few studies have contrasted teacher questions in EFL classroom between more and less developed regions. Sociocultural theory has requirement for the interactivity degrees and cognitive levels of teacher questions. Therefore, this study attempts to address these research gaps by investigating the following questions:

(1) What are the interactivity degrees of teacher questions in EFL classroom in more and less developed regions?

(2) What are the cognitive levels of teacher questions in EFL classroom in more and less developed regions?

(3) In terms of interactivity degrees and cognitive levels, what are the characteristics of teacher questions in EFL classroom in more and less developed regions from the perspective of mediation and the zone of proximal development in sociocultural theory?

2. Method

2.1 Corpus Description

The data was from 28 videos of *the 15th Junior High School Foreign Language Classroom Teaching Presentation and Observation*, an event hosted by the Foreign Language Teaching Professional Committee of the Chinese Society of Education in China in November 2023. This event was selected as research data for three reasons. Firstly, it involves 28 English teachers from different provinces of China. They delivered on-site lectures with complete structures. Secondly, the content in each class is closely related to the teaching materials without extraneous elements. Thirdly, this event has clear and complete recordings (https://www.bilibili.com/video/BV1QK42117kv). This study utilized GDP per capita (GDPPC) of regions where the 28 teachers worked in 2023 to categorize the 28 teachers into two groups: teachers in more developed regions and teachers in less developed regions. GDPPC is recognized by Barro and Sala-i-Martin (2003) as a crucial indicator of regional economic disparities. The data of GDPPC used in this study was officially ranked by China's National Bureau of Statistics and local statistical bureaus. Table 3 presents the basic information of the 28 teachers. Teachers were identified as "Tn" to protect their privacy. "N" indicates their sequences of giving lectures in the event.

The total duration of recordings was approximately 994 minutes, with 519 minutes of the recordings by teachers in less developed regions and 475 minutes of the recordings by teachers in more developed regions. Moo0 was applied to convert lecture videos into audio files. Feishu (www.feishu.cn) was used to transcribe these audio files into texts which were then proofread and annotated manually. The verified transcripts were categorized into two corpora according to the classification of teachers. The corpus including classroom discourse in classes given by teachers in less developed regions was named LEDR, while the corpus including classroom discourse in classes given by teachers in more developed regions was named MEDR. The size of the two corpora was calculated through AntConc4.0. After excluding Chinese, there were totally 3,163 types and 92,195 tokens in the two corpora, including 2,153 types, 44,585 tokens of LEDR and 2,286 types, 47,610 tokens of MEDR.

A pilot study was conducted to verify whether lesson type significantly influenced teacher questions. Two listening & speaking lessons, two writing lessons, and two reading lessons were extracted from LEDR, while two listening & speaking lessons and two reading lessons were extracted from MEDR. SPSS27 was used to conduct ANOVA to compare the proportions of the interactivity degrees and cognitive levels of teacher questions in different types of lessons in each corpus. The results revealed that there was no significant difference in the frequencies of interactive choices and cognitive levels of

teacher questions across the various lesson types within each group ($p>0.05$).

Table 3. Basic Information of Teachers and Lectures

Group	Teacher	Region	Ranking of GDPPC in 2023	Lesson Type
Teachers in More Developed Regions	T23	Beijing	1	Listening & Speaking
	T25	Jiangsu	3	Listening & Speaking
	T29	Fujian	4	Reading
	T15	Zhejiang	5	Listening & Speaking
	T5	Tianjin	6	Reading
	T9	Guangdong	7	Reading
	T12	Inner Mongolia	8	Reading
	T14	Hubei	9	Reading
	T26	Chongqing	10	Reading
	T17	Shandong	11	Listening & Speaking
	T28	Anhui	13	Reading
	T22	Hunan	14	Reading
	T6	Xinjiang	15	Reading
	T21	Shanxi	16	Reading
Teachers in Less Developed Regions	T10	Hainan	17	Listening & Speaking
	T24	Ningxia	18	Reading
	T1	Liaoning	19	Reading
	T16	Sichuan	20	Listening & Speaking
	T3	Jiangxi	21	Reading
	T4	Xizang	22	Reading
	T13	Yunnan	23	Reading
	T8	Henan	25	Reading
	T20	Hebei	26	Reading
	T11	Jilin	27	Reading
	T18	Guizhou	28	Writing
	T2	Guangxi	29	Writing
	T27	Heilongjiang	30	Reading
	T7	Gansu	31	Reading

2.2 Research Procedures

The first step was coding. Teacher questions were extracted into Excel files and coded in terms of their interactive choices and cognitive levels. There were totally 1,841 teacher questions in the two corpora, with 932 by teachers in less developed regions and 909 by teachers in more developed regions. The interactive choices of teacher questions were coded based on the framework in Table 1, while the cognitive levels based on the framework in Table 2. Two coders familiar with the two coding schemes coded the interactive choices and cognitive levels of teacher questions independently. Cohen's Kappa statistics—κ=0.985 for subject persons, κ=0.983 for modal deixis and κ=0.917 for cognitive levels—indicated excellent inter-coder agreement. The disagreements were resolved through discussion.

The second step was analyzing. The frequencies of teacher questions with different interactive choices as well as of different cognitive levels were calculated in Excel files. The frequencies were normalized by 10,000 words to control for possible effects of corpus size. This study used the UCREL significance test system (http://corpora.lancs.ac.uk/sigtest/) to conduct log-likelihood (LL) tests in order to examine whether there were significant differences in the interactivity degrees and cognitive levels of teacher questions between the two corpora. If LL≥3.84, it indicates that there is significant difference. Meanwhile, this study took Phi coefficient (φ) as the effect size measure (Wei et al., 2019). φ around 0.1 indicates a small correlation. φ around 0.3 indicates a medium correlation. φ around 0.5 indicates a large correlation (http://corpora.lancs.ac.uk/sigtest/). Then AntConc4.0 was applied to identify the high-frequently used patterns of teacher questions with different interactivity degrees and cognitive levels. Finally, from the perspective of mediation and the zone of proximal development in sociocultural theory, this study analyzed what were the characteristics of teacher questions in EFL classroom in more and less developed regions in terms of interactivity degrees and cognitive levels.

3. Results & Discussion

3.1 Interactivity Degrees of Teacher Questions in EFL Classroom in More and Less Developed Regions

The results of log-likelihood tests on interactive choices of teacher questions in the two corpora are shown in Table 4. Firstly, there is no significant difference between the choices of subject persons by the two groups of teachers. High-frequency subject persons of teacher questions in the two corpora are shown in Table 5. Both the two groups of teachers frequently used "you" and inclusive "we" as "interactant". "There" was the most frequently used "non-interactant" in these two corpora. Teachers usually used questions with the patterns of "(is there) anything/anyone else?" or "(is there) any different ideas/answers?" to ask for different answers to their previous questions. It is a way to encourage students to engage in divergent thinking and involve more students in the classroom interaction. Meanwhile, it is shown that the pattern of "which one" was high-frequently used by teachers in more developed regions as "non-interactant". It makes teacher questions simpler by providing students with alternative answers.

Table 4. Results of Log-likelihood Tests on Interactive Choices of Teacher Questions in the Two Corpora

Interactive Choices		LEDR		MEDR		Log-likelihood	Phi Coefficient
		Normalized Frequency (per 10,000 words)	%	Normalized Frequency (per 10,000 words)	%		
Subject Person	Interactant	88.59	42.38	76.87	40.26	0.35	0.0117
	Non-interactant	120.44	57.62	114.05	59.74	0.22	0.0087
Modal Deixis	Judgment	74.91	35.84	65.32	34.21	0.26	0.0102
	Present	127.85	61.16	110.27	57.76	0.56	0.0138
	Past	6.28	3.00	15.33	8.03	20.81 ***	0.1017

* $p < 0.05$, critical value = 3.84; ** $p < 0.01$, critical value = 6.63; *** $p < 0.001$, critical value = 10.83.

Table 5. High-frequency Subject Persons in the Two Corpora

Rank	LEDR			MEDR		
	Normalized Frequency (per 10,000 words)	%	Subject Person	Normalized Frequency (per 10,000 words)	%	Subject Person
1	76.71	36.70	you	61.75	32.34	you
2	21.76	10.41	there	19.11	10.01	there
3	9.42	4.51	inclusive “we”	11.55	6.05	inclusive “we”
4	8.30	3.97	it	8.82	4.62	he
5	7.63	3.65	they	8.82	4.62	it
6	6.28	3.00	she	6.30	3.30	who
7	6.28	3.00	who	5.46	2.86	they
8	4.71	2.25	he	3.78	1.98	she
9	4.04	1.93	what	3.57	1.87	what
10	2.24	1.07	that	2.10	1.10	which one

Secondly, it is shown in Table 4 that there is significant difference in the usage of “past” by teachers between more and less developed regions, LL = 20.81, φ = 0.1017 (M = 0.45 vs. 1.09, SD = 0.42 vs. 1.34). After the analysis of specific data in MEDR, this difference is found to be due to the teaching habit of T14 who usually used the pattern of “have you found” to ask students questions. High-frequency modal deixis of teacher questions in the two corpora is shown in Table 6. It is shown

that “can” was the most frequently used “judgement” by both groups of teachers who usually used the pattern of “can you/we ...?” to ask questions. What’s more, these two groups of teachers also used the patterns of “would you like ...?” to invite students to answer questions, “do you agree (with ...)?” to ask students to evaluate the ideas of others, and “what do you think of ...?” to require students to judge something.

Table 6. High-frequency Modal Deixis in the Two Corpora

Rank	LEDR			MEDR		
	Normalized Frequency (per 10,000 words)	%	Modal Deixis	Normalized Frequency (per 10,000 words)	%	Modal Deixis
1	65.27	31.22	is	56.50	29.59	is
2	26.69	12.77	can	23.10	12.10	can
3	25.34	12.12	do	17.64	9.24	do
4	18.17	8.69	are	12.39	6.49	does
5	13.91	6.65	think	10.92	5.72	are
6	8.97	4.29	agree	10.08	5.28	think
7	8.97	4.29	want to	8.19	4.29	did
8	8.52	4.08	does	7.56	3.96	want to
9	3.59	1.72	did	5.25	2.75	agree
10	3.14	1.50	would like	4.20	2.20	would like

3.2 Cognitive Levels of Teacher Questions in EFL Classroom in More and Less Developed Regions

It is found that there are significant differences in the frequencies of remembering and applying questions between the two corpora. The results of log-likelihood tests on cognitive levels of teacher questions in the two corpora are shown in Table 7. Teachers in less developed regions asked remembering questions more frequently than teachers in more developed regions, LL = 19.11, φ = 0.0932 (M = 3.38 vs. 1.82, SD = 1.52 vs. 0.87). In addition, teachers in more developed regions asked applying questions more frequently than teachers in less developed regions, LL = 30.89, φ = 0.1226 (M = 0.77 vs. 0.34, SD = 1.09 vs. 0.40).

As for frequently used patterns, both the two groups of teachers usually asked evaluating questions with the pattern of “what do you think of ...?” to require students to judge something and with the pattern of “do you agree (with ...)?” to invite them to evaluate other students’ answers. What’s more, teachers in less developed regions also asked evaluating questions with the pattern of “is there anything else/different?” to invite students to provide different ideas.

Table 7. Results of Log-likelihood Tests on Cognitive Levels of Teacher Questions in the Two Corpora

Cognitive Levels	LEDR		MEDR		Log-likelihood	Phi Coefficient
	Normalized Frequency (per 10,000 words)	%	Normalized Frequency (per 10,000 words)	%		
Remember	47.33	22.64	25.41	13.31	19.11 ***	0.0932
Understand	77.16	36.91	82.76	43.34	3.39	0.0363
Apply	4.04	1.93	14.28	7.48	30.89 ***	0.1226
Analyze	18.84	9.01	20.37	10.67	1.17	0.0241
Evaluate	50.24	24.03	37.81	19.80	3.09	0.0371
Create	11.44	5.47	10.29	5.39	0.01	0.0804

* $p < 0.05$, critical value = 3.84; ** $p < 0.01$, critical value = 6.63; *** $p < 0.001$, critical value = 10.83.

3.3 Characteristics of Teacher Questions in EFL Classroom in More and Less Developed Regions from the Perspective of Mediation and the Zone of Proximal Development in Sociocultural Theory

Sociocultural theory provides a new perspective for studying English-as-second-language teacher questions. Vygotsky (1978) viewed learning as a process in which learners construct knowledge within society and culture. Interaction plays a significant role in this process. It is proposed that there are two types of interaction in the process of knowledge construction: inter-mental interaction and intra-mental interaction (Vygotsky, 1978). These two types of interaction respectively set requirements for the interactivity degrees and cognitive levels of teacher questions.

3.3.1 Characteristics of Teacher Questions in EFL Classroom in More and Less Developed Regions from the Perspective of Mediation in Sociocultural Theory

Inter-mental interaction refers to the interaction between learners and external social factors (Vygotsky, 1978). Sociocultural theory holds that environment and culture influence learners' learning attitudes and beliefs, thereby affecting their language knowledge construction. Both sociocultural theory and systemic functional linguistics emphasize the social feature and interactive functions of language. One critical concept of sociocultural theory, mediation, requires teachers to use language as a medium to create the classroom environment that approximates real society for students' knowledge construction through inter-mental interaction (Vygotsky, 1978). Systemic functional linguistics proposes the interpersonal metafunction of language, which studies how language establishes social relationship and expresses the speaker's attitudes (Halliday, 2004). Among all discourse in classroom, teacher discourse, especially teacher questions that trigger teacher-student interaction, is one of the key elements that help create classroom environments. English teachers should use questions of high interactivity degrees in

classroom to help create a relaxing and welcoming teaching environment. Based on systemic functional linguistics, Yang (2021) proposed a framework for studying the interactivity degrees of English teacher questions in terms of grammatical choices, and pointed out through empirical research that "interactant" and "judgement" are choices more interactive than "non-interactant" and "time".

"Non-interactant" is not related to students so that students are not responsible for the validity of information required (Yang, 2021), as shown in Excerpt 1. Teacher questions with "non-interactant" are more like instructions from teacher to students, which emphasizes the relation between teacher and students as educator and learners.

Excerpt 1. < 063><Female Teacher 8> What is the theme of the project?

"Interactant" is related to students and makes them responsible for the validity of the information required by asking information related to students or designating some students to answer questions (Yang, 2021), as shown in Excerpt 2 & 3. Teacher questions with "interactant" are more like interactive events in which students are not only the addressees but also the participants of the events mentioned in these questions. Teacher questions with "interactant" are similar to real-life communication, which helps to create a relaxing and welcoming classroom environment required by sociocultural theory.

Excerpt 2. <035><Female Teacher 7> And do you think you eat well?

Excerpt 3. <020><Male Teacher 15> Do you have different opinions, Jimmy?

Teacher questions with the modal deixis of "time" does not provide students the space to give their own judgement and expression (Yang, 2021). "Time" places the event mentioned in a teacher question in a specific time frame, so that students are required to provide answers within a fixed frame, as shown in Excerpt 4 & 5.

Excerpt 4. <033><Female Teacher 22> Why did they have conflicts?

Excerpt 5. <007><Female Teacher 5> What do you usually buy?

"Judgement" as modal deixis gives students the opportunities to think and express by themselves (Yang, 2021). It puts the validity of information required into a space between positive and negative, as shown in Excerpt 6. Students give answers without the limitation of certain frame. The consequences of giving wrong answers are mitigated, so that teacher questions with "judgement" help create a welcoming and relaxing teaching environment required by sociocultural theory.

Excerpt 6. <007><Male Teacher 10> Would you like to come to Hainan?

In terms of interactivity degrees, firstly, both the two groups of teachers could balance their usage of "interactant" and "non-interactant". Secondly, both of them used "present" more frequently than "judgement" and "past". From the perspective of mediation in sociocultural theory, it is revealed that the interactivity degrees of their questions are low in terms of their choices of modal deixis.

3.3.2 Characteristics of Teacher Questions in EFL Classroom in More and Less Developed Regions from the Perspective of the Zone of Proximal Development in Sociocultural Theory

Intra-mental interaction refers to the interaction between learners and themselves (Vygotsky, 1978). The zone of proximal development (ZPD) is a key concept in sociocultural theory. Vygotsky (1978)

defined the ZPD as the gap between students' current levels and their potential levels. Potential levels refer to the levels that learner can achieve under others' guidance. Teaching scaffolding refers to the support that teachers provide to students when students are unable to achieve specific goals (Wood et al., 1976). Teachers use teaching scaffolding to help learners understand knowledge and acquire skills that they lack, in order to help them pass through the ZPD. The dynamic interaction between the current levels and potential levels of learners helps to develop their psychological levels from lower to higher. Therefore, as one of the teaching scaffolding strategies, teacher questions should be given attention to their cognitive levels. English-as-second-language teachers should consider using questions of different cognitive levels when asking questions, in order to gradually help students bridge the gaps between their current and potential levels. The revision of Bloom's taxonomy (Anderson et al., 2001) provides an operational tool to study the cognitive levels of teacher questions. From lower to higher, the six cognitive levels are remembering, understanding, applying, analyzing, evaluating and creating.

Remembering questions are at the lowest cognitive level, requiring students to process or deal with information which is directly gotten from teaching materials, as shown in Excerpt 7. Teachers in less developed regions asked such questions more frequently than teachers in more developed regions, revealing that the former more emphasized students' ability to collecting superficial information through their interaction with teaching materials. Such ability is related to students' inter-mental interaction.

Excerpt 7. <013><Female Teacher 4> Can you tell me the name of the store?

Understanding questions are at lower cognitive level. Such questions only require students to process teaching materials in a shallow degree so as to summarize information, to infer, to point out cause-and-effect relation, or to give supporting details for their previous answers, as shown in Excerpt 8 to 11.

Excerpt 8. <021><Female Teacher 13> How about their opinions towards after-school classes?

Excerpt 9. <019><Female Teacher 16> Can you guess what Chen Han is going to do in picture three?

Excerpt 10. <021><Female Teacher 24> Why do they have these ideas?

Excerpt 11. <018><Female Teacher 27> Which sentence shows us that?

Applying questions are at middle cognitive level, requiring students to use knowledge they learn in class in order to improve their mastery of the knowledge, as shown in Excerpt 12. Such questions are instant practice helping students to master knowledge and cultivating students' ability to transfer knowledge. Teachers in more developed regions asked these questions more frequently than teachers in less developed regions, revealing that the former more emphasized students' knowledge transfer which is more related to their intra-mental interaction.

Excerpt 12. <036><Male Teacher 20> What activities do people do in Hangzhou in spring? You can share like this: in spring, some ... others ...

Analyzing questions are at higher cognitive level. Such questions require students to deconstruct and analyze a particular whole so as to make choices, to get the structures of teaching materials, or to

process the main ideas of texts, as shown in Excerpt 13 to15.

Excerpt 13. <053><Female Teacher 28> Which one do you choose?

Excerpt 14. <051><Female Teacher 15> Can you match those sentences with their functions?

Excerpt 15. <019><Female Teacher 12> What are the main ideas of each paragraph or each part?

Evaluating questions are at the second high cognitive level. Such questions require students to judge something or to evaluate others' ideas, as shown in Excerpt 16 & 17.

Excerpt 16. <030><Female Teacher 14> Is it proper to be quiet in the library?

Excerpt 17. <020><Female Teacher 23> Do you agree?

Creating questions are at the highest cognitive level. Such questions require students to synthesize their knowledge so as to create their own output, as shown in Excerpt 18. Creating questions are always asked at the end of a class.

Excerpt 18. <044><Female Teacher 16> If you want me to watch a movie, what advice will you give to me?

In terms of cognitive levels, the two groups of teachers differed in their focus when asking questions. From the perspective of the zone of proximal development in sociocultural theory, teachers in less developed regions paid more attention to students' inter-mental interaction, while teachers in more developed regions paid more attention to students' intra-mental interaction.

4. Conclusion

4.1 Findings

This study took 28 English-as-second-language classes at *the 15th Junior High School Foreign Language Classroom Teaching Presentation and Observation* as data and divided these classes into two groups. It aimed to contrast teacher questions in EFL classroom between more and less developed regions. Teacher questions were studied in terms of their interactivity degrees and cognitive levels from the perspective of mediation and the zone of proximal development in sociocultural theory.

Firstly, there is no significant difference in the interactivity degrees of teacher questions in EFL classroom between more and less developed regions. Both groups of teachers used "non-interactant" and "interactant" in a balanced way. Teachers in this study frequently used "you" and inclusive "we" as "interactant" and "there" as "non-interactant". Both groups of teachers put the events involved in their questions in the time of "present" most frequently. Teachers in this study frequently used "can", "think", "agree" and "would like" to realize "judgement" as modal deixis of their questions. The results show that the interactivity degrees of teacher questions in EFL classroom in more and less developed regions were low in terms of their choices of modal deixis.

Secondly, there are significant differences in the cognitive levels of teacher questions in EFL classroom between more and less developed regions. Teachers in less developed regions asked remembering questions more frequently than those in more developed regions while the latter asked applying questions more frequently than the former. It shows that teachers in less developed regions paid more

attention to students' interaction with external factors like teaching materials, which belongs to inter-mental interaction; while teachers in more developed regions paid more attention to students' interaction with themselves like knowledge transfer, which belongs to intra-mental interaction.

4.2 Implications

For English teachers, they could realize and learn from their differences in asking questions with teachers from other regions. In terms of interactivity degrees, it is suggested that English teachers use patterns like "could you/we ...?", "should we ...?" and "do you think ...?" to increase the interactivity degrees of their questions, so as to create a welcoming and relaxing classroom environment. In terms of cognitive levels, it is suggested that teachers reflect on their tendencies in asking questions at different cognitive levels. When designing teaching questions, they did better consider teaching questions at all levels, especially those at higher levels, in order to create a challenging classroom environment.

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