

# A Corpus-Based Discourse Analysis of Follow-Up Questioning by Teachers in Senior High School English Online Classes

Yuan Ding

China West Normal University, China

## Abstract

**High-cognitive-level follow-up questions can improve students' thinking levels. When appropriately timed and executed, these questions enhance the effectiveness of questioning and help develop students' cognitive abilities. Evaluative questions, in particular, can improve the quality of students' discourse output, thereby fostering better thinking skills. Based on these findings, the study offers the teaching recommendation that teachers increase the use of high-level questioning in senior classes, explore the deeper meanings of various teaching materials through questioning, diversify question forms, seize the right moments for questioning, and avoid teachers answering their own questions.**

## Keywords

**Follow-up questioning; senior high school; teacher discourse.**

## 1. Introduction

The report from the 20th National Congress of the Communist Party of China emphasizes the importance of fully implementing the Party's education policy, with a strong focus on quality education. According to the New Curriculum Standards (2017 edition), fostering core literacy in English is a key goal, aiming to enhance students' language proficiency, thinking abilities, learning skills, and cultural awareness. Classroom teaching, as the primary means through which schools implement holistic education, positions classroom questioning as a central element in the teaching process. Among various questioning techniques, follow-up questioning plays a particularly vital role in encouraging students to engage in coherent, deep, and comprehensive thinking. In this context, effective follow-up questioning is aligned with the principles outlined in the New Curriculum Standards, fostering students' English core competencies and supporting their holistic, personalized development.

Follow-up questioning is an essential responsive action in classroom teaching and serves as a powerful tool for encouraging reflection and deepening understanding. It helps guide students through cognitive conflicts, prompting them to form their own views through exploration. It also enhances their understanding of problems through authentic communicative interaction between teachers and students, while simultaneously developing their higher-order thinking skills.

Moreover, timely and well-placed follow-up questioning can disrupt students' cognitive equilibrium, igniting their learning motivation, sustaining the continuity of their thought processes, and fostering deeper reflection, ultimately improving learning efficiency. However, after reviewing a substantial amount of literature and reflecting on my volunteer teaching experience in Guizhou over the past six months, Study have found it challenging to ascertain the overall effectiveness of follow-up questioning in classroom settings. Classroom teaching, by nature, is dynamic and often unpredictable. Unexpected situations can arise that disrupt the teaching plan. For example, teachers may ask numerous questions but receive very few responses, leading to a decline in students' enthusiasm[1]. Occasionally, even after posing a

question, students may respond with only a word, mumble quietly, or remain silent[2]. Furthermore, students' thinking may become stagnant. In addition, problems such as the low frequency of follow-up questions, a lack of student motivation to respond, and an imbalanced use of question types persist. These challenges highlight the need for a comprehensive evaluation of the use of follow-up questions in real classroom settings and the exploration of effective strategies for implementing them.

From the perspective of students' cognitive development, simple classroom questions often lack variety and tend to be mechanical, with many focusing on low-level knowledge and comprehension. These types of questions fail to fully stimulate students' thinking. Follow-up questioning, however, can address the limitations of the initial questions. For instance, when students remain silent, a well-timed follow-up question can break the cognitive stagnation, provide hints, and help students find a new direction in their thinking, enabling them to offer a response. Similarly, when students provide one-sided or incomplete answers, follow-up questioning can expand on their ideas, encouraging them to consider the issue from multiple perspectives.

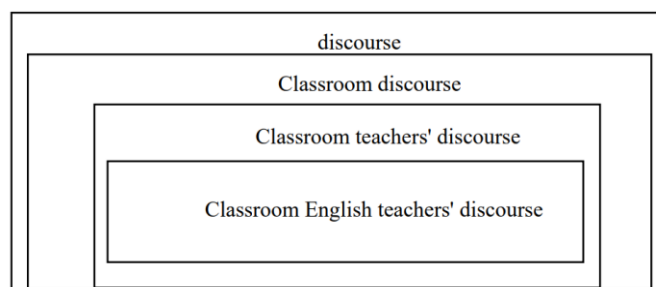
Moreover, this form of questioning enhances students' understanding and retention of the material and can prompt them to contemplate new questions from similar viewpoints in the future. Therefore, studying follow-up questioning is crucial as it enables teachers to ask varied, level-appropriate questions based on students' responses. This approach helps guide students to think both broadly and deeply, fostering divergent and creative thinking. By applying follow-up questioning effectively, teachers can promote critical thinking skills, encouraging students to explore problems from multiple angles and think outside the box.

## 2. Literature Review

First and foremost, discourse serves as a medium for human beings to engage in interpersonal communication. It arises from social interaction and is a product of human social exchange. Discourse is inherently dependent on the social context in which it occurs, with different settings giving rise to different features and forms. For instance, discourse generated within the classroom is referred to as classroom discourse. Classroom discourse primarily encompasses the language used by teachers and learners in the teaching environment.

Given the unique nature of classroom teaching, classroom discourse differs significantly from other forms of social language. It is composed of both teacher talk and learner language[3]. The study of teacher talk in the classroom is termed "classroom teacher talk research," and it primarily examines the types, quantity, function, and characteristics of teacher' language. As researchers increasingly focus on the analysis of teacher discourse, the distinctive nature of English teachers' classroom discourse has become more evident. This is particularly important in the context of China, where English is a foreign language, distinct from other subjects. English not only serves as a medium through which teachers organize and deliver lessons, but it also functions as the goal for students to learn. This characteristic sets English teachers' classroom discourse apart from that of other subjects.

Therefore, an analysis of English teachers' classroom discourse in the Chinese context requires a theoretical framework grounded in second language acquisition theory and pragmatic principles. While teacher talk is an important aspect of classroom discourse, it is not the only element. Classroom discourse encompasses both teacher talk and learner language. Teacher talk itself can be further divided into the use of the mother tongue and English. This paper specifically examines the use of English in teacher talk. The relationship between English teachers' classroom discourse and other forms of discourse is illustrated in Figure 2.1 below:



Most current research on English teachers' classroom discourse is empirical in nature. These studies are generally descriptive[4]. Early research on teacher talk mostly focused on the quantity of teacher talk, the types of questions teachers ask, feedback mechanisms, and the features and functions of discourse. With the evolution of teacher discourse research, many recent studies highlight the teacher-student interactive model, often structured around the IRF (Initiation-Response-Feedback) pattern. Consequently, much of the research now centers on the first and third turns of teacher talk, leading to a notable increase in studies focusing on teachers' questioning discourse and feedback methods. Researchers have analyzed teachers' questioning from various perspectives, such as question strategies and types .

### 3. Methodology

#### 3.1. Research Questions

This study examines 24 senior high school English online classes from Guangdong and Guizhou provinces, focusing on the use of follow-up questioning and its impact on students' cognitive development and language output. The study primarily seeks to answer the following three questions:

- 1.What is the overall frequency of follow-up questioning in senior high school English classes?
- 2.How do follow-up questions at different cognitive levels enhance students' thinking quality by improving their discourse?

#### 3.2. Research Design

After selecting the online English courses for senior high school students from the YI SHI YI YOU national education platform, this research aims to investigate the variations in teachers' use of follow-up questioning across different areas, grade levels, and lesson types. It will also analyze the effectiveness of follow-up questions in various forms, under different conditions, and using different methods. For the comparative analysis between the two provinces, an independent sample T-test will be conducted using SPSS software, while a corpus will be created in Microsoft Word for decoding, counting, and analyzing the data.

#### 3.3. Research Subject

To ensure the high quality of the classes, this study focused on the ministerial-level quality courses offered between 2018 and 2019 on the national educational resource platform "YI SHI YI YOU." Additionally, considering that students' cognitive development levels and the characteristics of the teaching content may influence the implementation of follow-up questioning, this study selected an equal number of classes from three grade levels and five common lesson types.

#### 3.4. Research Procedures

Counting: To determine the frequency of each type of follow-up question, the "Find" function in Microsoft Word was employed for counting. A portion of the counting interface is displayed below:



Data Analysis: Once the total number of each category was counted, the data was organized into charts, and these charts were converted into intuitive graphs for clearer analysis. This approach allows for the identification of differences and similarities, as well as the exploration of underlying causes. First, the overall frequency of follow-up questioning was examined.

## 4. Results and Analysis

### 4.1. Overall Frequency of Follow-up Questioning in Senior High School English Classes

This study carefully selected 24 online English classes from senior high schools in both Western and Eastern China, ensuring an equal distribution between the regions. The learners' grades and the types of lessons were also balanced, providing a comprehensive overview of the overall use of follow-up questioning in senior high school English classes. As a result, Table 4.1 initially presents the frequency of follow-up questioning across the entire dataset.

Based on the data presented in Table 4.1, it is evident that English teachers in this study commonly use follow-up questions, with these questions making up a significant portion of the total questions posed. On average, follow-up questions account for approximately 80.14% of the total number of questions, suggesting that follow-up questioning is a prominent pedagogical strategy employed by these teachers.

Table 4.1 reveals that the cumulative total of questions posed by the 24 teachers is 1,974, averaging around 82 questions per class. The total number of follow-up questions in these classes is 1,582, averaging approximately 66 follow-up questions per class. This indicates a high frequency of follow-up questioning across the board in the English classes observed.

A closer analysis of the data, however, highlights significant variability in the number of questions posed by the teachers. The highest number of questions asked in a single class was 142, while the lowest was 39. Similarly, the maximum number of follow-up questions reached 113, while the minimum was only 27. The disparity is particularly striking when considering a single 40-minute class, where the gap in questioning frequency can be as much as 103 questions

(for initial questioning) and 86 questions (for follow-up questioning). This reveals a notably uneven distribution in the frequency of questioning across different teachers.

In particular, the class taught by Teacher T4 exhibited the lowest frequency of follow-up questions, with only 39 initial questions and 27 follow-up questions, resulting in a follow-up question frequency of 69.23%. This relatively low frequency suggests that T4 may be more conservative with follow-up questioning compared to other teachers in the study.

Table 4.1 The overall frequency of questioning and follow-up questioning

Teachers' code	Teachers' questioning	Follow-up questioning	Frequency
T1	142	109	71.53%
T2	73	58	79.45%
T3	113	80	70.80%
T4	81	62	76.54%
T5	39	27	69.23%
T6	57	45	78.95%
T7	83	69	83.13%
T8	74	57	77.03%
T9	134	113	84.33%
T10	81	61	75.31%
T11	117	100	85.47%
T12	78	63	80.77%
T13	101	85	84.16%
T14	70	58	82.86%
T15	62	52	83.87%
T16	66	48	72.73%
T17	78	61	78.21%
T18	64	49	76.56%
T19	48	41	85.42%
T20	74	62	83.78%
T21	83	65	78.31%
T22	40	34	85.00%
T23	106	90	84.91%
T24	110	93	84.55%
Mean	82.25	65.92	
Total	1974	1582	80.14%

To explore the reasons behind this, the study conducted a detailed observation of Teacher T4's classroom questioning practices, excluding certain objective factors such as region, grade level, lesson type, and content of the text, to ensure a more focused evaluation. The observed lesson was a reading class with second-year high school students in Guangzhou. Given the context, one would expect the teacher to employ a higher frequency of questioning, with follow-up questions prepared in advance and posed in response to student answers. However, the observed lesson followed a more passive teaching model, with students mainly providing answers to questions listed on a worksheet, while the teacher's role was primarily limited to confirming the correctness of those answers.

When comparing T4's class with others that had a higher frequency of follow-up questions, it appears that the low frequency of follow-up questioning in T4's class may be attributed to the lack of coherence in the pre-prepared questions and the missed opportunities to ask generative questions during the lesson. This was evident in specific instances of the teaching process, where the teacher failed to fully engage with the students' responses in a way that would stimulate further inquiry or exploration.

Case1:

T: Now, next, let's read the interview carefully and try to finish task three. Okay, question one. What helped Christopher pull through the disaster? <TQ>

SS: ...

T: Pull through, what does it mean? <FQ>

S9: The encouragement from his wife saved his life and made him never think of giving up.

T: Yes. What does pull through mean? <FQ>

S9: Go through.

T: Yes, it means survive. The love and or encouragement from his wife saved his life and made him never think of giving up.

T: Second question, why did Christopher get involved with charity work? <TQ>

S10: Because he wanted to improve the quality of life for all disabled people.

T: Yes.

In the case described above, the teacher initially asked students to read the interview quickly and complete task three, which contained two questions on the worksheet. When the teacher posed the first question, "What helped Christopher pull through the disaster?", the students were silent because most had not figured out the answer. The teacher then followed up with the question, "Pull through, what does it mean?" to assist students in understanding the meaning of the question. One student responded, "The encouragement from his wife saved his life and made him never think of giving up." To further assess students' comprehension of the key phrase, the teacher asked the same follow-up question again: "What does 'pull through' mean?" The student clarified, "It means 'go through'," and the teacher repeated the answer, stating, "It means survive," without further explanation. The teacher then proceeded to the second question, "Why did Christopher get involved with charity work?", which lacked coherence with the first question.

This scenario highlights two key issues in the teacher's questioning and follow-up questioning approach. Firstly, there is often a lack of direct correlation between the questions posed during lesson planning. This disconnect can result in the teacher having prepared numerous questions that structure the lesson, but they often fail to prompt deeper discussions or enrich the dynamic between teacher and students. Secondly, the teacher focuses predominantly on the key points and difficult content, particularly the passage's knowledge, but neglects to generate classroom questions that could foster critical thinking and promote meaningful learning. Consequently, the teacher tends to limit their role to checking the correctness of students' answers without probing their responses further or encouraging alternative perspectives.

In this case, after the student's answer regarding the encouragement from his wife, the teacher could have asked students whether they have had a similar experience of overcoming adversity with the help of others or finding strength within themselves. This would not only help students understand the key phrase "pull through" in a real context but also provide an opportunity for them to practice language output. The teacher could then have asked follow-up questions such as, "Besides the help from his wife, what else was important for him to pull through the disaster?" or "What did he do himself to overcome the disaster?" These questions would prompt students to analyze qualities like "optimism and determination" based on the character's actions. Furthermore, the teacher could have continued by asking, "In addition to these qualities, what other traits can you identify in him? And how do his actions demonstrate these traits?" This would naturally lead into the second question about Christopher's involvement with charity work.

Such follow-up questioning represents a higher-level and divergent approach, encouraging students to empathize with the main character and make inferences based on their own experiences. By linking questions between "pulling through the disaster" and "involving in

charity work,” the classroom activities would be more relevant, logical, layered, and coherent. This approach would also foster students’ language proficiency and cognitive development.

#### 4.2. Learners’ Discourse Quality under Follow-up Questioning in Senior High School English Classes

The following study extends beyond simple frequency counts and examines the total number of follow-up questions posed by the 24 teachers for each question type. This approach seeks to uncover which forms of follow-up questions are most frequently employed in classroom settings, providing a deeper understanding of their practical application.

By analyzing the use of follow-up questions in a more nuanced manner, this study aims to identify patterns in how teachers incorporate various question types into their teaching. This comprehensive examination can offer valuable insights into the specific circumstances in which different question forms are used and how these questions contribute to the development of students’ cognitive and language skills. Such insights can help educators refine their questioning strategies to enhance student engagement, critical thinking, and overall learning outcomes.

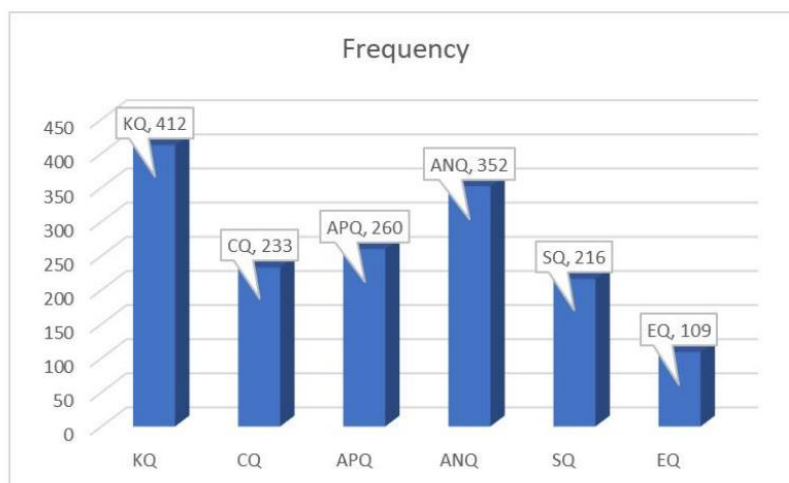


Figure 4.1 Frequency of different forms of follow-up questions

Based on the analysis, a total of 1582 follow-up questions were posed during the classroom teaching sessions of 24 English teachers. These questions were categorized into different types based on their focus and purpose. Among these, knowledge-based questions were asked 412 times, comprehension questions were posed 233 times, application questions occurred 260 times, analytical questions were raised 352 times, synthesis questions were asked 216 times, and evaluative questions were posed 109 times.

This distribution highlights the diverse forms of follow-up questioning employed by the teachers, each designed to serve a distinct purpose in promoting student learning and cognitive development. Knowledge-based questions primarily test students’ ability to recall factual information, while comprehension questions assess their understanding of concepts. Application questions challenge students to transfer their knowledge to new contexts, analytical questions prompt them to deconstruct and examine information critically, synthesis questions encourage students to combine ideas from different sources, and evaluative questions foster critical thinking and decision-making skills.

The frequency of each type of question offers valuable insights into the teaching strategies of the instructors, revealing the areas they prioritize in language instruction. The emphasis on different question types reflects the teachers’ approaches to fostering a well-rounded development of students’ language skills, from basic recall to higher-order thinking.

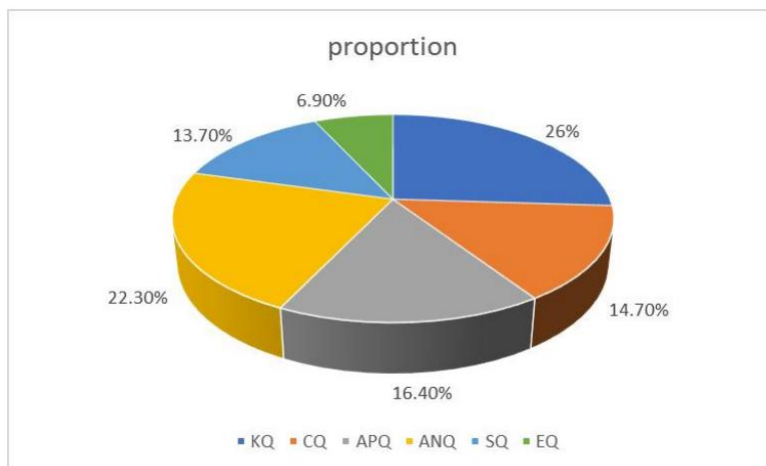


Figure 4.2 Proportion of different forms of follow-up questions

As illustrated in Figure 4.2, among the six types of follow-up questions, knowledge-based questions constitute the highest proportion at 26%, followed closely by analytical questions at 22.3%. Conversely, synthesis and evaluative questions make up the smallest proportion of follow-up questions. This distribution indicates that, according to the collected sample data, classroom follow-up questions primarily serve two major functions.

Firstly, follow-up questioning acts as a valuable tool for reinforcing students' existing knowledge and helping them construct new understandings. Through this process, teachers guide students in connecting their prior knowledge and experiences with newly introduced content. This process of assimilation and adaptation helps students better comprehend and internalize new concepts and information.

Secondly, follow-up questions encourage students to articulate their analytical thinking in a more structured manner. By gaining insight into how students approach problem-solving, teachers are able to pinpoint the root causes of any misconceptions and assist in correcting cognitive errors. This interactive approach not only deepens students' understanding but also nurtures their critical thinking and problem-solving abilities.

To highlight the distinct functions of the six types of follow-up questions, this study presents several representative dialogues as case studies. These examples demonstrate how these questions—scientific, targeted, purposeful, open-ended, engaging, challenging, sequential, generative, enlightening, and exploratory—serve a variety of teaching purposes in senior high school English classrooms.

#### Case 2: Knowledgeable follow-up questions

T: And yesterday we learn a brochure about adventure in Himalayas. Do you still remember some facts about this holiday? <TQ>

SS: .....

T: For example, where to go? <FQ><KQ> (D) (SS)

SS: to Himalaya.

T: What to do there? <FQ><KQ> (D) (SS)

SS: go hiking.

T: And where to live? <FQ><KQ> (D) (SS)

SS: hotel and tents.

T: How can we go there? <FQ><KQ> (D) (SS)

SS: by plane, by bus.

T: What about the price a day? <FQ><KQ> (D) (SS)

SS: 200 dollars.

T: And when? <FQ><KQ> (D) (SS)

SS: October 2 May.

In this case, the teacher initially asked, “Do you still remember some facts about this holiday?” However, the students did not respond, prompting the teacher to continue with follow-up questions to assist students in recalling prior knowledge. Eventually, the students provided the correct answer. This type of questioning, which focuses on recalling factual information, requires students to simply repeat what they have previously learned without needing to organize their thoughts independently. While such knowledge-based questions are beneficial for helping students review existing information and better connect it with new material, they limit students’ opportunities for independent thinking. Consequently, relying solely on this type of questioning does not foster critical thinking or the expression of original thoughts, and therefore, classroom questioning should not be confined to this level.

Case 3: Comprehensible follow-up questions

T: So how about the crow? Who is it? <TQ>

SS: He is the boss of the company.

T: We can find “crowd food company”. So maybe crows are the ...? <FQ><CQ> (D) (SS)

SS: boss.

T: And every day when the workers are working, we find the the crow are ...?

<FQ><CQ> (D) (SS)

SS: watching over.

T: are ...? <FQ><CQ> (D) (SS)

SS: supervising them.

T: So we can say maybe the crow is the boss as well as the ...? <FQ><CQ> (D) (SS)

SS: Supervisor.

T: Supervisor means somebody who supervise.

In this case, after watching a silent cartoon, the teacher asked, “How about the crow? Who is it?” Some students responded correctly. To ensure that other students understood the crow’s role in the cartoon, the teacher followed up with four consecutive questions. These prompts encouraged students to describe the actions of the crow in the cartoon using their own words. Finally, the teacher clarified the meaning of the word “supervisor.” This sequence of comprehensible follow-up questions effectively facilitated students’ understanding, helping them internalize the learning material. Furthermore, it provided an opportunity for students to organize their thoughts and express their understanding using precise language.

Through the use of analytical follow-up questions, students were able to examine the captain’s qualities based on his actions, understanding that his leadership was the key factor in the change in the crew’s feelings. Analytical questions belong to a higher cognitive level, as they require students to infer the underlying causes of a phenomenon and explore the connections between the captain’s characteristics and the crew’s emotional shift. These types of questions encourage deeper critical thinking and foster a more comprehensive understanding of the text. Through these cases, it becomes clear that each type of follow-up question serves a unique and purposeful role in the classroom. By capitalizing on opportunities to pose these questions, teachers can effectively steer students towards discovering breakthroughs and generating ideas organically. As students follow the cues provided by the follow-up questions, they are able to engage more profoundly in the learning process and, to some extent, demonstrate growth in their cognitive abilities. This progression highlights the effectiveness of follow-up questions in promoting student development and enhancing their thinking skills.

This passive learning dynamic is problematic because it stifles students’ ability to develop critical thinking skills and limits their ability to generate meaningful and insightful responses.

When students are not encouraged to actively participate in the thinking process, they miss the opportunity to understand the underlying logic of concepts, which is crucial for fostering deep thinking and cognitive development. For students to truly engage in high-level cognitive tasks, teachers must create environments that foster active participation, encourage students to formulate their own ideas, and allow them to explore and analyze topics more deeply.

After analyzing 24 teaching videos, this study indicates that the majority of senior high school English teachers utilize a question-oriented teaching method and are generally aware of the importance of follow-up questioning. However, the overall effectiveness of follow-up questioning does not meet expectations. Several factors contribute to this gap. First, students' limited oral English proficiency can impede their ability to engage in meaningful, complex discussions, which restricts the depth of their responses. Second, teachers may lack the skills to formulate follow-up questions that go beyond simple comprehension, and instead fail to challenge students to think critically or expand their responses.

To address these shortcomings, it is essential for teachers to improve their questioning techniques. Teachers should focus on asking questions that not only assess knowledge but also encourage students to think analytically, evaluate different perspectives, and synthesize information. Furthermore, it is crucial to foster a classroom environment that promotes active student participation, where students feel confident and motivated to express their thoughts and engage in discussions. By continually refining their questioning skills and creating such an environment, teachers can help students improve their language use and develop their cognitive abilities, leading to more effective follow-up questioning in the classroom.

## 5. Conclusion

### 5.1. Major Findings

After analyzing the research, the following findings have emerged:

For the first research question, an overview of the frequency of questions and follow-up questions across the 24 classes reveals that high school English teachers frequently rely on inquiry-based teaching methods. The total number of questions posed by the 24 teachers amounts to 1974, with an average of about 82 questions per class. Notably, follow-up questioning constitutes the majority of these questions, accounting for 80.14% on average, which results in a total of 1582 follow-up questions, or roughly 66 follow-up questions per class. However, a significant disparity exists in the distribution of questions across the classes. The number of questions raised in a single class can range from a high of 142 to a low of 39. Similarly, the frequency of follow-up questions varies widely, ranging from 113 to 27. This disparity is primarily attributed to the irrelevance of some prepared questions and the failure to seize opportunities to pose generative questions that could further stimulate student thinking. This suggests that while teachers are posing a large number of questions, the variation in their effectiveness is influenced by the quality and relevance of the questions being asked during class interactions.

For the second research question, the findings reveal how the six cognitive levels of follow-up questions impact the quality of students' discourse.

From the frequency distribution of each type of follow-up question, it is evident that most questions tend to be at a lower cognitive level. Knowledgeable questions, which make up the highest proportion at 26%, generally focus on helping students recall basic facts and concepts, thus laying a foundation for understanding. Analytical questions, accounting for 22.3%, challenge students to analyze texts more critically, encouraging higher-order thinking. However, the lower frequency of synthesis and evaluative questions, which demand the highest levels of cognitive engagement, suggests that students may have limited opportunities to

develop their abilities in more advanced cognitive areas. This indicates a need to increase the use of higher-level follow-up questions to promote deeper thinking and engagement.

When examining the discourse quantity and length, it becomes clear that teachers' discourse significantly surpasses that of students across all cognitive levels, indicating that follow-up questions are not fully promoting student language output. However, evaluative questions, though asked infrequently, stand out in their ability to narrow the discourse gap between teachers and students, with a ratio of 1.0. This suggests that evaluative follow-up questions encourage more detailed, thoughtful responses from students, effectively enhancing their language output and fostering greater student participation.

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