A COMPARATIVE ANALYSIS OF CLASSROOM INTERACTIONAL DISCOURSE OF NEW AND EXPERIENCED CHINESE LANGUAGE TEACHERS

XIAOYU YANG

Graduate School Srinakharinwirot University

2024

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XIAOYU YANG

ปริญญานิพนธ์นี้เป็นส่วนหนึ่งของการศึกษาตามหลักสูตร
ปรัชญาดุษฎีบัณฑิต สาขาวิชาภาษาและการสื่อสารสากล
คณะมนุษยศาสตร์ มหาวิทยาลัยศรีนครินทรวิโรฒ
ปีการศึกษา 2567

A COMPARATIVE ANALYSIS OF CLASSROOM INTERACTIONAL DISCOURSE OF NEW AND EXPERIENCED CHINESE LANGUAGE TEACHERS

XIAOYU YANG

A Dissertation Submitted in Partial Fulfillment of the Requirements

for the Degree of DOCTOR OF PHILOSOPHY

(Ph.D. (Language and Global Communication))

Faculty of Humanities, Srinakharinwirot University

2024

THE DISSERTATION TITLED

A COMPARATIVE ANALYSIS OF CLASSROOM INTERACTIONAL DISCOURSE
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BY

XIAOYU YANG

HAS BEEN APPROVED BY THE GRADUATE SCHOOL IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DOCTOR OF PHILOSOPHY
IN PH.D. (LANGUAGE AND GLOBAL COMMUNICATION) AT SRINAKHARINWIROT UNIVERSITY

(Assoc. Prof. Dr. Chatchai Ekpanyaskul, MD.)
Dean of Graduate School

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Title	A COMPARATIVE ANALYSIS OF CLASSROOM INTERACTIONAL DISCOURSE OF NEW AND EXPERIENCED CHINESE LANGUAGE TEACHERS
Author	XIAOYU YANG
Degree	DOCTOR OF PHILOSOPHY
Academic Year	2024
Thesis Advisor	Assistant Professor Dr. Anchalee Jansem

The primary purpose of this study is to provide targeted instructional improvement strategies for educators by comparing and analyzing the classroom interactional discourse of new and experienced teachers. Specifically, the study investigates the similarities and differences between these two groups of teachers in terms of classroom interaction patterns, questioning strategies, feedback, and silence. The study selected six Modern Chinese language teachers from the School of Communication and Media at Z University, including three new teachers with two years of teaching experience and three experienced teachers with over five years of teaching experience. The research subjects also included first-year undergraduate students aged 19–20 years, who had a basic proficiency in Chinese language but lacked systematic knowledge of linguistic theories. The study employed the improved Flanders Interaction Analysis System (iFIAS) and Conversation Analysis (CA) methods to conduct both quantitative and qualitative analyses of teachers' classroom interactional discourse from macroscopic and microscopic perspectives. Each teacher's classroom sessions were recorded for 450–500 minutes, transcribed, and analyzed to reveal the similarities and differences in interaction strategies among teachers at different stages of professional development.The study's results revealed both similarities and differences in the use of classroom interactional discourse between new and experienced teachers. The main conclusions were as follows:Both new and experienced teachers' classroom interactions were predominantly teacher-led, with IRF and [$I^{n}R^{n}$]F being the primary types of classroom interactions. Students were largely passive participants, with limited contributions to classroom discourse and low frequencies of proactive questioning. Closed-ended questions were the main type of questions used by both groups of teachers, and probing and rephrasing were the most frequently employed questioning strategies. Both groups placed significant emphasis on knowledge transmission and the clarity of students' understanding. They were also aware of the importance of positive feedback in enhancing students' motivation and tended to use positive feedback to encourage student participation in classroom interactions. To balance students' thinking time and classroom fluency, both groups frequently employed a 3-5 second pause (T2) as a waiting strategy in classroom silence management.Experienced teachers had significantly higher classroom discourse volume than new teachers. Compared with new teachers, experienced teachers exhibited more diverse classroom interaction patterns, including [$I^{n}R^{n}$]FR and IR[$F^{n}R^{n}$], which positively influenced student initiative. Experienced teachers placed greater emphasis on stimulating student thinking, using open-ended questions at a higher proportion than new teachers. In feedback, experienced teachers were more adept at employing complex strategy combinations (such as repetition with supplementary expansion) and motivating students through indirect means (such as praise and adoption of student viewpoints), while new teachers relied more on direct feedback and had a lower tolerance for student errors. Experienced teachers preferred shorter pause durations (T1), indicating better control over classroom tempo, whereas new teachers favored longer pause durations (T2) to provide students with more thinking space.

Keyword : Classroom interactional discourse, Interaction patterns, Questioning strategies, Feedback, Silence, New Chinese language teacher, Experienced Chinese language teacher

ACKNOWLEDGEMENTS

As I approach the completion of my doctoral dissertation, I am filled with immense gratitude and would like to extend my sincere thanks to all those who have supported and assisted me throughout my academic journey.

First and foremost, I would like to express my heartfelt gratitude to my supervisor, Professor Anchalee Jansem. From the very beginning of my doctoral studies, She has been a guiding light, illuminating my path with her profound knowledge, rigorous academic approach, and selfless guidance. Throughout the research process, she patiently listened to my doubts and provided highly insightful suggestions. During the drafting phase of my thesis, she meticulously reviewed my initial manuscript, pointing out issues and offering constructive feedback. Her stringent requirements have profoundly instilled in me the essence of academic rigor and the pursuit of excellence.

I am also deeply grateful to the reviewers and members of my thesis defense committee. Despite their busy schedules, they dedicated their time to thoroughly review my manuscript and provided valuable comments and suggestions during the defense. Their input has been instrumental in shaping my future academic and professional endeavors, encouraging continuous improvement and refinement.

I would like to extend my appreciation to my fellow students. During my doctoral studies, we engaged in numerous academic discussions, inspiring each other and making collective progress. I am truly thankful for your companionship on this academic journey and for the unwavering support and encouragement you have provided.

Additionally, I am immensely thankful to my family. Throughout my long academic pursuit, you have been the source of my motivation. Your quiet dedication and support have enabled me to pursue my academic dreams without any concerns.

Looking ahead, I will continue to uphold the fine traditions of my alma mater, maintaining a rigorous academic attitude, solid professional knowledge, and a spirit of innovation. I am committed to contributing my efforts to the academic community and society at large.

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CHAPTER 1

INTRODUCTION

1.1 Research background

Classroom interaction plays an irreplaceable role in actual teaching and learning, because “all behaviour in the classroom is achieved through human interaction” (Allwright, 1984:156). It is an effective way for students to acquire knowledge and improve their abilities, and for teachers to improve their teaching skills. According to Sahlström (2011), research on classroom interactions can help teachers understand learning more effectively. Lynch and Macbeth (1998) argued that research on classroom interactions can contribute to the development of students’ practical skills and understanding of subject knowledge. In classroom teaching activities, teachers and students can form a positive teaching situation through sincere and harmonious communication and exchange, characterized by teacher-student interaction and student-student interaction. Teachers should respect the individual differences of students, create a classroom environment that encourages active participation, and guide students to question, investigate, explore, and practice. In this way, students can develop actively and individually, and achieve a dialectical unity between teaching and learning. Therefore, teachers should pay attention to the role of classroom interaction when teaching Modern Chinese.

Teacher talk and classroom interaction are the primary means by which students acquire information in the classroom (Chin, 2006; Lei, 2009). Teacher talk can directly affect the quality of classroom interactions (Jie, 2020). It is ‘one of the most important instructional tools that educators use to facilitate learning’ (Ong, 2019: 119). A

harmonious classroom atmosphere is created by positive and constructive interactional discourse, which guides students to think deeply and positively influences their motivation to learn (Chapin et al., 2003). The study of classroom discourse that involves interaction has been of great interest (e.g., Cazden, 2001; Scott, 1998; Sinclair & Coulthard, 1975). At the beginning of the 21st century, Chinese scholars began to pay attention to classroom interactional discourse, but research in this area started late (Jie, 2020). In China, 'analyses of the characteristics and patterns of teacher-student conversations in classroom teaching are still almost a gap in the research of our discipline' (Li, 2019: 7). Current research has not focused enough on the role of teachers in classroom interaction through discourse (Jie, 2020). Therefore, it is necessary and urgent to achieve a discourse transformation in classroom teaching and learning research (Li, 2019).

Teacher growth has its own regularity and generally involves a process from to new to experienced to expert teachers (Lian & Meng, 2001; Sternberg & Horvath, 1995). Most scholars conducting research related to classroom discourse and classroom interactions do not explicitly qualify teachers' level of instruction (Allwright, 1984; Cazden, 2001). However, teachers of different levels have obvious differences in their teaching behavior in the classroom (Zhang, 2013). The main findings are as follows: The duration, frequency, and amount of classroom questioning were higher for new teachers than for experienced and expert teachers, and the questioning strategies of experienced and expert teachers were more varied than those of new teachers (Zheng, 2009). New teachers are more inclined to use positive feedback and have a high tolerance for student errors (Wang, 2016). Experienced and expert teachers have higher error correction rates than new teachers (Wang & Ren, 2015). Experienced and expert teachers are better than new teachers at using student input and discourse for extended interactive learning (Wang & Ren, 2015). Experienced teachers have fewer waits and

shorter wait times than new teachers (Liu et al., 2014). These differences have a significant impact on classroom effectiveness.

Comparative studies have been conducted in China across a variety of disciplines, such as second language teaching (Wu, 2019), science (Li et al., 2022), and mathematics (Guo & Song, 2008). However, there are no comparative studies of new and experienced teachers of Modern Chinese in terms of classroom interactional discourse. It has been found that there are some weaknesses in the classroom teaching of new teachers, experienced teachers, and expert teachers. Comparisons can reveal the general laws of teacher professional development and promote the complementary advantages of teachers at these three stages (Wang & Ren, 2015; Zhang, 2013).

Taking into account the actual situation of the teacher structure of the Modern Chinese course in the target schools and the progress of related research in China, it is necessary and urgent to conduct a comparative analysis of the interactional discourse of new and experienced teachers in Modern Chinese classrooms. This analysis can expand the scope of research on interactional discourse in Chinese classrooms, help to grasp the laws and essence of classroom teaching, and improve the effectiveness of Modern Chinese teachers' classroom teaching.

1.2 Research Objectives

This study has three objectives as below:

1.To compare, contrast, and identify the patterns of classroom interactional discourse in Modern Chinese classes taught by new and experienced teachers

2.To classify classroom interactional strategies adopted by new and experienced Modern Chinese teachers

3.To identify the effect of interactional strategies of new and experienced teachers in terms of interactional discourse

1.3 Research Questions

The research questions of this study are framed as follows:

1. In what ways are the patterns of classroom interactional discourse of Modern Chinese classes taught by new teachers similar to or different from those taught by experienced teachers?

2. What are the classroom interactional strategies used by new and experienced Modern Chinese teachers?

3. What are the pedagogical effects of classroom interactional strategies adopted by new and experienced teachers on teacher-student interactions?

1.4 Scope of the Study

This study will focus on two specific groups of teachers: new teachers and experienced teachers. New teachers are defined as those who have not yet completed three years of teaching after obtaining a teaching certificate (Steven & Denise, 2008). Experienced teachers are generally those who have been teaching for more than three years (Steven & Denise, 2008), possess a high level of subject knowledge, have extensive teaching experience, and can organize their teaching effectively and solve classroom problems quickly (Zhong, 2011).

The actual data for the study will primarily consist of audio recordings of the classroom. When analyzing the data, it is noted that the observed classrooms represented traditional Modern Chinese language instruction, where the teacher still served as the principal organizer of teaching activities. Classroom interaction predominantly occurred between the teacher and students, with limited instances of student-student interaction. Teacher talk, in particular, often determined the instructional content, questioning strategies, and feedback mechanisms. Investigating teacher talk thus offers a more direct insight into the quality of classroom instruction, the scope of content coverage, and teaching strategies. Consequently, this study will primarily focus

on the discourse of teacher-student interaction.

Finally, the pedagogical effectiveness of the interactional strategies adopted by teachers will be analyzed. This step is necessary to clarify the effectiveness of these interactional strategies and to suggest more focused guidelines for interactive instruction by Modern Chinese teachers.

1.5 Definitions of Specific Terms

Language

Language is a unique social phenomenon specific to human beings and serves as a tool for expressing meaning and communicating ideas. It is a dynamic system comprising phonetics, vocabulary, and grammar.

Discourse

Discourse can be applied to various disciplines, such as sociology, anthropology, and culture. The concept of discourse described in this paper is limited to its study and interpretation within linguistics. Discourse is the real state of being of language (Li, 2019). It is a unit of language larger than a sentence and smaller than a paragraph (Schiffrin, 1994). In the process of communication, discourse is a linguistic whole composed of consecutive sentences that are structurally, semantically, and logically coherent, arranged to express a certain topic within a specific context. Discourse is dynamic and is more concerned with the process of speaking.

Classroom Discourse

Classroom discourse is a dynamic language activity presented through the language and relevant materials used by all participants in the classroom to achieve specific educational goals (Cazden, 2001). It includes both the actual discourse produced in the classroom—i.e., what the teacher and students say—as well as the teacher's writing and gestures, silences, students' classroom work, audio-visual materials played during teaching, and textual materials in the textbook (Cameron, 2003).

Classroom interaction

Classroom interaction refers to the interactions and mutual influences that occur in the classroom when information is exchanged between teachers and students, as well as between students themselves. Teacher-student interaction is the process of mutual dialogue, communication, understanding, and common development between teachers and students—that is, the process of teaching and learning. Student-student interaction is the process of exchanging information and emotions among students, leading to collective progress.

Classroom interactional discourse

Classroom interactional discourse refers to the discourse generated when classroom participants (mainly teachers and students) engage in various interactive activities around specific teaching purposes and contents within the classroom context. In this study, Classroom interactional discourse is limit mainly to teachers verbal speech plus classroom silence. There is a relationship of interaction and mutual influence among these discourses. In interaction, discourse assumes the functions of information transfer, comprehension, expression, and feedback (Seedhouse, 1996). The study of classroom interactional discourse can describe the current situation of real classroom interaction and analyze the effectiveness of classroom interaction.

Classroom interaction strategies

Classroom interaction strategies refer to the various teaching methods and organizational forms adopted by teachers during classroom instruction to promote active communication and cooperation between teachers and students, as well as among students themselves, in order to optimize the learning process and improve learning outcomes. This study mainly focuses on exploring strategies such as classroom questioning, classroom feedback, and classroom silence.

Classroom Questioning

Classroom questioning is an interactional strategy employed by teachers during the instructional process, by purposefully posing questions to students to stimulate

thinking, check comprehension, promote interaction, or guide learning. It is an important component of classroom instruction and also one of the tools for teachers to demonstrate their pedagogical skills (Murphy et al., 2009).

Probing

Probing refers to the teacher asking several related questions following an initial question, typically forming a chain of questions that guides students to delve deeply into the topic.

Chaining

Chaining refers to the teacher skillfully linking several students' answers in the form of questions during the question process, creating coherence in classroom interaction while capturing students' attention.

Repetition

Repetition involves the teacher re-asking the same question to ensure there is no misunderstanding.

Simplification

Simplification is when the teacher re-asks a complex question in a simplified form, enabling students to more easily grasp the essence of the question.

Rephrasing

Rephrasing is when the teacher restates the question using different words to help students understand the question from various perspectives.

Decomposition

Decomposition is when the teacher breaks down a question into multiple sub-questions and asks them one by one to ensure students can fully understand all aspects of the question.

Classroom feedback

Classroom feedback refers to the evaluative information conveyed by teachers to students regarding their learning performance, behaviors, or outcomes during the

instructional process, delivered through verbal, behavioral, or written means. Its primary purpose is to help students understand their current status, adjust learning strategies, and facilitate progress. Generally, classroom feedback consists of two types: positive feedback and negative feedback. Positive feedback occurs when teachers acknowledge, praise, or encourage students for correct behaviors, commendable performance, academic progress, or demonstrated strengths during the learning process. It emphasizes reinforcing desirable aspects of student performance. Negative feedback involves teachers identifying errors, deficiencies, areas requiring improvement, or deviations from expected learning outcomes in students' performance. Rather than mere criticism or blame, its intent is to help students recognize existing problems while providing constructive guidance for improvement.

Classroom Silence

Classroom silence refers to the phenomenon where students (and occasionally instructors) exhibit a sustained absence of verbal communication during instructional activities, particularly within contexts necessitating teacher-student or student-student interaction. This phenomenon can be broadly categorized into silence that help for teaching and silence that not help for teaching. This study has predominantly focused on the silence that help for teaching, often termed "wait time," which specifically denotes the cognitive processing time allocated by an instructor to students following a query or prompt.

Modern Chinese

Modern Chinese has two meanings. On the one hand, it refers to the language used by the Han Chinese nation after the May Fourth Movement (1919) (Huang & Liao, 2017). On the other hand, it is also a course, which is a required professional basic course for students majoring in Chinese Language and Literature in Chinese colleges and universities. This course provides a systematic account of the modern Chinese language from the aspects of phonetics, vocabulary, grammar, word, and rhetoric. The

course is highly theoretical, and even native Chinese speakers may feel intimidated when learning it. At the same time, the course is highly practical, with its knowledge points being highly instructive in explaining linguistic phenomena in Chinese. The course sets teaching objectives in three dimensions (as shown in Table 1), which place high demands on the teaching skills of modern Chinese language teachers.

Table 1 Curriculum Teaching Objectives of Modern Chinese

Target Dimension	Element
Emotional goal	Cultivate students' interest in learning Modern Chinese and build up their confidence in using the Chinese language
Knowledge goal	Through teaching systematic knowledge of the phonetics, word, vocabulary, grammar and rhetoric of the common language of the modern Han Chinese people, students will have a comprehensive grasp of the basic theoretical knowledge of modern Chinese
Competency goal	Cultivate students' ability to apply the theoretical knowledge they have learned to correctly understand, apply and analyse Chinese language phenomena and problems; and their ability to use Chinese for literary or academic creation and oral communication

1.6 Significance of the Study

1. This study helps to expand the research on the "real" level of the Chinese language classroom in colleges and universities. Most existing research focuses on the "should" level, such as what the classroom should look like, the value and meaning of the classroom, etc. However, classrooms are dynamic ecosystems where predesigned teaching plans must be tested and adjusted through actual interaction. Understanding real-time classroom interaction is essential for grasping the true nature of teaching and

is key for teachers to achieve effective teaching and promote comprehensive student development. Thus, the study focuses on actual classroom situations that depict real classroom interactional discourse.

2. Deepen Chinese teachers' understanding of classroom interactional discourse, and discover the patterns of Modern Chinese classroom interactional discourse. It seeks to enhance the quality of classroom interactional discourse, maximize student participation in classroom interactions, and transform the teacher's role from a knowledge transmitter to a learning facilitator.

3. Analyze the teaching effects of different interactional strategies in Modern Chinese courses, promote teachers to select and design interaction activities more scientifically, and enhance the attractiveness of the classroom.

CHAPTER 2

LITERATURE REVIEW

The Modern Chinese course is a crucial professional basic course required for students majoring in Chinese language and literature in Chinese universities (Wang, 2002). This course focuses on the development of students' Chinese language quality and competence (F. Gao, 2005), and lays a solid linguistic foundation for students' subsequent language courses (e.g., Ancient Chinese, Introduction to Linguistics) and their future careers (Meng, 2019). Therefore, the significance of the Modern Chinese course cannot be overlooked.

However, the teaching status of the course is not optimistic (Sun, 2016), and there is a significant gap between the actual teaching effect and the desired goals (Wang, 2002). Specifically, the teaching material is outdated and fails to reflect the research frontiers of the discipline (F. Gao, 2005). The teaching methods are limited, basically relying on the traditional lecture method, lacking classroom interaction (Meng, 2019; Yang, 2017). The course is not highly regarded by students, who tend to have a fear of difficulty and low interest in learning (Meng, 2019; Sun, 2016; Zheng, 2002), and their ability to apply the Chinese language and conduct research is insufficient (Wang, 2002). Therefore, the effectiveness of teaching in this course needs to be improved urgently.

Scholars have mainly explored strategies to enhance the efficiency of Modern Chinese classroom teaching from the dimensions of teaching mode (Sheng, 2023), teaching methods (Chen, 2014), and the use of educational information technology (Chang, 2016). However, relevant studies conducted from the perspective of classroom interaction are relatively few (Ji, 2007).

2. 1 Theoretical Framework

2.1.1 The Theory of Constructivism

Constructivism is an extension of Piaget's theory of cognitive development, which focuses more on the development of individual cognition (Piaget, 1970). This theory argues that there is no one-to-one correspondence between knowledge and what it refers to. Although language can impart the same external form to knowledge, each individual recipient's understanding of knowledge differs due to their different experiences and backgrounds. Therefore, knowledge is the result of learners' active construction, rather than a simple response of the human brain to the objective world (Begg, 2015).

Social constructivism, based on the developmental theory of the Soviet psychologist Vygotsky, has had a significant impact on teaching. Social constructivism holds that knowledge is not imparted by teachers, but rather constructed by learners through meaning-making in a specific social and cultural context, with the help of others (including teachers and learning partners) and using necessary learning resources (Perkins, 1999). Learning is a process of meaning construction achieved through interpersonal collaboration within a particular sociocultural context (Gergen, 1985).

Constructivist learning theory posits that context, negotiation, conversation, and meaning construction are the four key elements in a learning environment (He, 2021). Learning occurs within a specific context, and context is an important condition for learners to acquire knowledge (Lave & Wenger, 1991). Within this context, learners use appropriate learning materials and acquire knowledge through collaboration and assistance from others. Learning is an active process of knowledge construction. Teachers cannot directly 'intake' knowledge into students; instead, they should inspire students and create appropriate situations for them to actively process knowledge (Green & Gredler, 2002).

According to Vygotsky's zone of proximal development theory, learning can only

be effectively carried out based on the learner's or iginal knowledge structure (Vygotsky, 1978). If the learner's zone of proximal development is exceeded, even if learning activities are carried out, they cannot be internalized by the learner, and therefore are ineffective and meaningless. Learning is the construction of meaning through negotiation between individuals and society. Individuals cannot construct knowledge at will, and need to adjust and revise their original knowledge structures and experiences through negotiation with others (Harland, 2003). Due to differences in individuals' prior knowledge and experience, the construction of the same knowledge can produce different results (Begg, 2015)

Under the influence of constructivism, the roles of teachers and students in the classroom have changed significantly. The student-centered teaching concept has been accepted, recognized, and practiced by teachers (Chen, 2005). When the focus of classroom teaching shifts to how to help students acquire knowledge and how to promote their development, teachers change from being knowledge transmitters and indoctrinators to helpers, organizers, and designers of knowledge acquisition. They become students' learning guides, motivators, facilitators, and classroom teaching managers (He, 2021). Teachers need to use context, collaboration, conversation, and other elements of the learning environment to fully leverage students' initiative and creativity, ultimately enabling students to effectively construct the meaning of the current knowledge.

Constructivist teaching theory suggests that teaching should incorporate elements of complex learning environments and authentic tasks, social negotiation, inter-subjective attitudes, and multiple representations of content (Chen, 2005). The main purpose of classroom teaching is to help learners develop the ability to solve problems that arise outside the classroom. Therefore, classroom teaching should simulate real-life problems and learning situations. In the classroom, students need to rely on cooperation with others to construct knowledge. This process is both a

knowledge-learning process and a socialization process for students. During the teaching process, the attitude of each participant (mainly teachers and students) towards the co-establishment of meaning is crucial. Multiple representations of content emphasize the need to provide different content knowledge for different stages of student learning, thereby ensuring that students' competencies show a process of continuous improvement.

Based on the constructivist teaching theory, there are mature teaching methods such as Scaffolding Instruction, Anchored Instruction, and Random Access Instruction (He, 2021). Scaffolding Instruction refers to the construction of a conceptual framework that helps learners understand knowledge. Teachers should break down complex learning tasks in advance and then gradually lead learners to a deeper level of understanding (Bruner, 1974). Anchored Instruction refers to introducing real events or real problems into teaching, allowing learners to feel and experience the connections between things in a real environment, thereby completing the internalization of knowledge (David et al., 1995). Random Access Instruction means that teachers actively guide learners to approach the same teaching content from different ways and methods, so as to gain various aspects of cognition and understanding of the same thing or problem.

In China, constructivist learning theory and teaching theory are becoming more and more widely accepted (Chen, 2005). The concept of student-centred teaching is constantly emphasized in modern Chinese classrooms. Teachers' beliefs have a significant impact on their teaching practice (Borg, 2003). Teachers' teaching decisions (Tillema, 2000), the use of new technologies and methods (Donaghue, 2003), and attitudes towards classroom interaction (Li & Walsh, 2011) are all affected. Therefore, constructivist theory is an important theoretical underpinning of this study. It can be used as a lens when analyzing hidden or embedded influences that shape teacher talk.

2.1.2 Language Input Theory

Krashen put forward the famous and controversial theory of language input in the 1980s. Krashen (1985) believed that acquisition would occur if the learner received a large amount of comprehensible input. Comprehensible input “does not mean full transparency” (Krashen & Mason, 2020: 1); it is the input for the learner that is slightly above his current level. Krashen seems to emphasize the value of external language input while ignoring the role of the learners themselves. Schmidt (1990) added that only the language input that the learner is aware of is valuable. Other famous scholars (Ellis, 1994; Gass, 1988) put forward the concept of intake, and they believed that only the information and knowledge absorbed by learners can promote acquisition.

Krashen & Mason (2020) put forward the Optimal Input Hypothesis, which holds that ideal language input should have four characteristics: comprehensibility, interest and relevance, non-grammatical sequencing, and sufficient input (i+1) (X. Gao, 2005; Krashen & Mason, 2020). Comprehensibility requires that teachers provide comprehensible language input in the classroom to ensure that students can correctly interpret the meaning of the teachers' words. The language input should not only be interesting but also relevant to the learners' existing knowledge base. Interesting language input can motivate learners to actively process information, while content that is relevant to the learners' prior knowledge but unknown to them can stimulate their interest in learning. In classroom teaching, "It is not necessary to make sure that certain grammar and vocabulary are used" (Krashen & Mason, 2020:1). Instead, adequate comprehensible input is even more important. The language input should have an appropriate "information gap," or the "1" in the "i+1" theory. The "i" represents the learner's existing cognitive level, and the "1" represents the level of knowledge slightly above the "i." Therefore, in classroom teaching, teachers need to provide learners with sufficient language input to ensure effective learning outcomes.

Although language input theory is one of the core theories of second language acquisition (X. Gao, 2005), it also serves as an important guide for first language

classrooms. Learners can acquire the necessary linguistic knowledge by receiving sufficient language input. "Language knowledge can be transformed into language competence under certain conditions, and language competence can promote the acquisition of language knowledge" (X. Gao, 2005: 17).

Modern Chinese teachers teach in Chinese, and learners are native Chinese speakers. In the classroom, learners need to study the theoretical knowledge of Chinese phonetics, vocabulary, and grammar. Therefore, Modern Chinese is considered part of the first language curriculum. Unlike second language classrooms, learners typically do not face communication difficulties. However, due to the highly theoretical nature of the course, learners generally find it challenging.

Teachers' comprehensible input has an important influence on students' acquisition of language knowledge. Under the guidance of language input theory, teachers can arrange teaching content reasonably according to students' real needs. They can also adopt various teaching strategies to promote learners' acquisition of language knowledge and accelerate the transformation of language ability.

2.1.3 Interaction Theory

Generally, interaction refers to activities between people in face-to-face communication, also known as social interaction. Interaction can also refer to the activity of thinking within the human brain, i.e., cognitive interaction. Ellis (1999) divided interaction theory into cognitive interaction theory and social interaction theory. Based on social psychology, cognitive interaction theory emphasizes the interaction between the language acquisition environment and the learner's internal learning mechanisms. Based on sociolinguistics, social interaction theory holds that verbal interactions between interlocutors can highlight certain language structures, thereby attracting learners' attention and promoting acquisition.

The most famous interaction theory is the ''Interaction Hypothesis'' proposed by Long (Li, 2019). The Interaction Hypothesis is a core theory in the field of language

acquisition. Early versions of the Interaction Hypothesis (Long, 1981) were closely related to Krashen's Input Hypothesis in that both argued that comprehensible input is necessary for acquisition to occur. In contrast to the Input Hypothesis, the Interaction Hypothesis suggests that language acquisition requires or benefits from interaction, particularly the negotiation of meaning. Negotiation of meaning occurs when interlocutors attempt to overcome the problems they encounter in transmitting meaning, which in turn allows learners to receive additional input and feedback that is useful for their language output. In order to successfully complete the communication, the party with stronger language ability often uses similar discourse strategies to communicate with the party with weaker language ability. These discourse strategies may include slowing down, simplifying vocabulary, or altering the structure and function of the discourse, but the ultimate goal is to provide comprehensible input to the language learner to complete the communicative task. Early versions of the Interaction Hypothesis fully recognized the role of interaction in second language acquisition, but they have been challenged by input (Sato, 1986), output (Swain, 1995), attention (Schmidt & Frota, 1986), and countervailing evidence (White, 1991). Long himself, as well as a number of other proponents of interaction theory, further updated and developed this hypothesis. The updated interaction theory integrates both social and cognitive activities, arguing that social interaction helps learners notice language features in the input, while cognitive interaction enables learners to process the input and acquire language knowledge from the negotiated input.

Long attached great importance to negotiation of meaning, and Lee (2001) also believes that meaning negotiation is conducive to learners' language development. "During the interaction, interlocutors employ a variety of communication devices to negotiate both meaning and form" (Lee, 2001: 234). Pica & Doughty (1985) summarized the interactive strategies used in meaning negotiation in everyday communication. These strategies include comprehension checks, clarification requests, confirmation

checks, self-corrections, and repetition. However, due to the influence of classroom interaction modes, learner psychological pressure, classroom atmosphere, and other factors, the frequency of meaning negotiation is not high in real classrooms (Pica & Doughty, 1985). Foster (1998) also found in his research that learners would deliberately avoid meaning negotiation for various reasons. Therefore, in real classrooms, there are still interactive strategies that do not aim at meaning negotiation (Li & Jia, 2007), such as activities to stimulate learners' self-development.

According to the Interaction Hypothesis, comprehensible input does not automatically translate into language intake but must be combined with interaction to lead to acquisition (Allright, 1984; Ellis, 1994; Long, 1983). From a pedagogical perspective, interaction is at the heart of teaching and learning, and teachers must pay attention to enhancing their interaction competence (Li & Walsh, 2011). They should also try to learn and use effective interaction strategies in order to improve both their teaching effectiveness and students' learning opportunities. Therefore, interaction theory is an important theoretical support for conducting classroom interaction research in this study.

2.1.4 Gricean Theory of Conversational Implicature

Grice (1975) believed that in order to make communication go smoothly, participants in communication should jointly abide by the Cooperative Principle. He proposed four maxims of cooperation: 1) The Maxim of Quantity, which states that what is said should contain as much information as is needed to achieve the communicative purpose, but not more than necessary; 2) The Maxim of Quality, which means that what is said should be truthful; 3) The Maxim of Relevance, which requires that what is said should be relevant to the purpose of communication; 4) The Maxim of Manner, which stipulates that one should speak clearly.

However, in real communication, there are often situations where the Cooperative Principle is violated but communication can still be carried out. In response to this, Grice

put forward the theory of conversational implicature, which holds that when the speaker violates the Cooperative Principle, the hearer is forced to go beyond the superficial meaning of the utterance to explore the true meaning implied by the utterance. The implicit meaning of a speaker's utterance is referred to as conversational implicature.Grice's Theory of Conversational Implicature is not perfect. Scholars have most debated the principle of cooperation, arguing that the principle of cooperation "has limitations in terms of universality, applicability and adequacy of interpretation" (Suo, 2014:70). Levinson(1987) revised and improved the cooperative principle and proposed Levinson's Three Principles of Conversational Implicature, also known as Neo-Gricean Theory of Conversational Implicature. Levinson's Three Principles of conversational Implicature include: 1) Q-principle, that is, the speaker should not say insufficient information, the listener believes that the speaker has provided the strongest information; 2) I-principle, that is, the speaker should say as little as possible and the amount of information provided can achieve the communicative purpose. The listener should expand the information provided by the speaker until the speaker's real intention is deduced. 3) M-principle: The speaker should not use long, obscure or marked utterances without special needs, and the listener should deduce conversational meaning through abnormal utterances. Levinson's Three Principles of Conversational Implicature enhance the explanatory power of the cooperative Principle (Sou, 2014).

Classroom teaching is an interactive process, and whether teachers and students can properly express and accurately understand discourse in the classroom context is the key to the success of communication (Lan & Zhou, 2013). Teacher talk is the main source of comprehensible input for learners (Nunan, 1991), and its quality and quantity will directly affect classroom communication and language learning results. Gricean Theory of Conversational Implicature can analyze and verify the effectiveness of Modern Chinese classroom discourse, and make teacher talk more correct, effective, concise and vivid.

2.1.5 Conversation Analysis Theory

Conversation Analysis (CA) is considered as a branch of discourse analysis (McCarthy, 1991), which was founded by Sacks, Schegloff and Jefferson in the 1960s. The main purpose is to identify, describe and explain the orderly and recurring ways or conversational conventions used by communicators to complete social behaviors (Drew, 2017). CA emphasizes the use of audio or video recordings of naturally occurring verbal communication as research objects to analyze the real discourse in the classroom. It pays attention to the study of the classroom reality level, and ensures the objectivity and authenticity of the research findings as much as possible.

CA is a derivation of speech act theory in conversation studies (Yang & Ma, 2010). The basic contents of conversation analysis theory include turn, turn talking, adjacency pair, preference, sequence organization and repair, etc. Turn is a paragraph of speech made by a speaker in succession from beginning to end. Turn talking refers to the changing roles of the speaker and listener when conversation occurs. In daily conversation, the roles of the speaker and the listener change over time. The person who speaks first ends the conversation and becomes a listener when the other person begins to speak. Different social groups and linguistic events have different rules. For example, in classroom conversation, teachers are the actual controllers of speech conversion, and often the next speaker is designated by teachers. Adjacency pair refers to two related sentences uttered by two speakers, the second sentence vertical as a reaction to the first. Repair refers to the supplement, explanation of problems arising from speech, including self-correction and others' correction. In Chapters 4 and 5, they will be used as units of analysis to generate answers to research questions.

CA is also a research method in sociology (Yang & Ma, 2010). As a research method, it has its own standard working procedure (Ten Have, 1990). This working model can be summarized in six steps: 1) using audio or video equipment to record people's daily conversations; 2) transcribing from the audio or video recording; 3)

selecting the session pieces to be analyzed; 4) the researcher uses his or her own common sense to understand the session pieces to be analyzed; 5) the researcher makes the understanding gained in step 4 explicit; 6) the researcher can use other means (e.g. comparisons, etc.) to support the above analysis.

While providing theoretical support for the study of classroom interactional discourse, CA also provides good methodological support. Using the method of CA can objectively and realistically depict the real situation of teacher-student interaction in the classroom, providing an opportunity to identify and solve the problems in the classroom.

2.2 Research Status of Classroom Interactional Discourse

2.2.1 Research on Classroom Interaction

1. The Importance of Classroom Interaction

Classroom interaction is the basic reality of classroom teaching. Everything in the classroom happens through the process of interaction between classroom participants. Classroom interaction is important and it is the process of completing the lesson (Mehan, 1974). If there is no interaction, it is a bad experience for both the teacher and the students. As Allwright (1984:169) puts:

"*The central fact is that interaction is the process whereby everything that happens in the classroom gets to happen the way it does. Let us make the most of it.*"

Understanding classroom interaction is central to understanding teaching and learning (Li & Walsh, 2011; Walsh, 2021). Classroom interaction promotes student learning (Lynch & Macbeth, 1998). In interaction, students are involved in managing their own learning and thus receive finely tuned than they would otherwise (Allwright, 1984). Classroom interaction can optimize teachers' teaching. Teachers with strong Interactive Competence (IC) (Hall, 1995; Young, 2003) are more likely to create a harmonious classroom interactive environment, give students more opportunities to participate in the classroom, and improve the efficiency of classroom teaching.

2. Development of Classroom Interaction Research Tool - Classroom Interaction Scale

Given the important role of classroom interaction in teaching, it has been one of the important topics of research conducted by scholars. Many scholars have attempted to use scales to describe the characteristics of classroom interaction and have continued to develop and improve them. Flanders (1963) designed the Flanders Interaction Analysis System (FIAS) is widely used in analyzing classroom teaching around the world. It is the most representative of classroom teaching interaction scales studied in the 1970s.

It divides language interaction in classroom teaching into three categories: teacher talk, student talk and silence or confusion. Teacher talk refers to the utterances made by teachers during interactions, while student talk refers to those made by students. Silence denotes specific periods in teaching when no verbal exchanges or evident activities occur between teachers and students, as shown in Example 1.

Example 1

1	T	Is there any alternative?	有没有替代的?
2		(2)	(2)
3	L	No	没有。

In Example 1, the question “Is there any alternative?” is an instance of teacher talk. The third line’s “No” is student talk. And the 2-second silence in the second line, with no utterance, represents classroom silence.

Researchers use three categories and ten items to observe the interaction between teachers and students in classroom teaching (as shown in Table 2). With this coding system, the observer can obtain the data by recording the corresponding codes according to the classroom situation every three seconds. Researchers quantified the sequential relationship between the two items of data obtained according to the coding system, and then analyzed them in a 10×10 matrix, so as to understand the speech of teachers and students in classroom teaching. However, the interaction examined by this

system lacks the exploration of meaning, which makes the silence and chaos of the classroom give invalid meaning.

Table 2 FIAS Categories for Interaction Analysis

Teacher Talk	Indirect influence	1	Accepts Feeling
		2	Praises or Encourages
		3	Accepts or Uses Ideas of Student
		4	Asks Questions
	Direct Influence	5	Lecturing
		6	Giving Directions
		7	Criticizing or Justifying Authority
Student Talk		8	Response
		9	Initiation
10			Silence and Confusion

Moskowitz (1968) adapted FIAS to form the Foreign Language Interaction Analysis (Flint). Flint adds non-verbal behavior items to FIAS, such as classroom with or without relationship to task confusion, integration of multimedia technology and equipment application, etc., a total of 22 subsets of interaction analysis items. Flint is optimized for foreign language classroom teaching, and is therefore widely used in second language classroom interaction research.

Fanselow (1977) developed the Foci for Observation Communications Used in Setting (FOCUS) which is primarily used for teacher training. FOCUS focuses on five aspects: communicator, purpose of communication, medium used in communication, language form and content of communication. And it provides a way to describe the characteristics of teaching and learning activities in classroom teaching.

Allen et al. (1984) designed the Communicative Orientation of Language Teaching Scale (COLT) based on the theory of communicative competence and the

viewpoint of L1 and L2 acquisition. It was described by Nunan (1992) as the "most developed" classroom observation scale to date.

The COLT scale is divided into two parts, Part A and Part B. Part A is mainly used to observe and depict the temporal characteristics of classroom interactions, while Part B examines the specific discourse characteristics of the participants in classroom discourse interactions. It is an effective research tool for observing meaningful teacher-student discourse interaction in L2 classroom communication.

Chinese scholars have also studied and improved various observation scales accordingly. Ning & Wu (2003) improved FIAS. They improved the coding process of FIAS and described the classroom teaching process by drawing dynamic curves, which made the analysis of classroom interaction more intuitive.

Gu & Wang (2004) proposed the Information Technology-based Interaction Analysis System (ITIAS). ITIAS refined the coding of teachers' and students' language activities and added technology categories to support the analysis of classroom interactions integrating educational information technology. Jin & Gu (2010) conducted an applied research on classroom teaching behavior by using ITIAS scale on two primary school mathematics videos and one primary school information technology classroom teaching video.

Fang et al. (2012) redesigned the coding system to support digital classroom analysis based on FIAS and ITIAS, resulting in the improved Flanders Interaction Analysis System (iFIAS) (shown in Table 3), and the development of the corresponding support tool set.

The iFIAS scale divides teachers' questions into two sub-categories: open question and closed question, Students' active response, students' ask question and students discuss with their partners are added to student talk, and the examination of effective silence is added to the silent or confusion part of the classroom. In the technology project, two sub-categories of teacher's manipulation technique and

student's manipulation technique are set up. This system has a good supporting role for teaching interaction analysis in digital environment.

They also developed iFIAS aided analysis tool (download address: http://www.chinaetlab.net/iFIAS.rar). The iFIAS assistant analysis tools mainly include iFIAS analysis program and iFIAS coding assistant program. The iFIAS analysis program

Table 3 iFIAS Categories for Interaction Analysis

Teacher Talk	Indirect influence	1	Accepts Feeling	
		2	Praises or Encourages	
		3	Accepts or Uses Ideas of Student	
		4	Asks Questions	4.1 Ask open questions
				4.2 Ask closed questions
	Direct Influence	5	Lecturing	
		6	Giving Directions	
		7	Criticizing or Justifying Authority	
Student Talk		8	Response	
		9	Initiation	9.1 Students' active response
				9.2 Students ask questions
		10	Students discuss with their partners	
Silence and Confusion		11	Confusion that does not help for teaching	
		12	Silence that help for teaching	
Technology		13	Teacher manipulation technology	
		14	Student manipulation technology	

can generate analysis matrix and statistical analysis data according to the coding table of classroom interaction behavior recorded by classroom observation, and it can also

draw a dynamic line chart of the ratio of teaching interaction behavior. And the iFIAS coding assistant program can make the coding process of classroom observation more convenient and simplified, and the output coding record table can be directly imported and analyzed by the iFIAS analysis program. In addition, they have developed the mobile version of the iFIAS sampler coding and Analysis program (i-FIAS Mobile), which can be installed on Android mobile devices to make iFIAS easier and more efficient. Using iFIAS, Fang et al. (2022) observed and comparatively analyzed two lessons at the beginning and middle of the semester of a new primary six mathematics teacher and found that the teacher's classroom interaction strategies improved significantly compared to the classroom at the beginning of the semester.

Gao & Sun (2007) designed a classroom observation scale for Chinese as a foreign language based on COLT, combined with the Interactive Communicative Analysis model of discourse and Tunit Mean Sentence Length Analysis. Using the Chinese as a Foreign Language Classroom Observation Scale, Sha (2009) observed the Chinese speaking classes of four expert teachers and four new teachers, and found that expert teachers were more competent than new teachers in classroom organization and arrangement.

In general, various types of scales are designed to provide empirical research tools for classroom interaction research. Among them, FIAS and COLT are more widely used, and most of the various types of scales designed by scholars at a later stage are formed on the basis of these two types of scales and improved. While FIAS is suitable for observing classrooms of all subjects, COLT is more suitable for observing L2 classrooms. This study focuses on Modern Chinese classroom. Teachers use Chinese to teach this course and learners' mother tongue is also Chinese, so it is a L1 classroom. On the other hand, with the development of internet technology, the use of educational information technology in Modern Chinese classroom has been increasing, and the classroom interaction has changed accordingly compared with the traditional classroom.

Considering the course attributes and the current status, the study decided to use iFIAS to conduct an examination of classroom interaction in this class.

However, there is one caveat. Quantitative examination of classroom interactions using various observation scales suffers from inconsistencies between observers in the attribution of interaction events, the observation of only set events and lack of observation of unsettled events, and results that are mostly based on the observer's (i.e., the outsider's) interpretation of the event and lack of the insider's perspective (Walsh, 2021).

3. Using CA to Conduct Classroom Interaction Research

CA was originally used to study daily spoken interactions, but it also has close relevance to classroom discourse (Walsh, 2021). It provides a way to study teaching and learning issues in the classroom, such as it may reveal how teachers in the classroom create or limit learning opportunities (Walsh, 2013).

Research on classroom interaction using CA has focused on two broader areas. One is how classroom interaction takes place and how it differs from daily conversation; the other is service learning (Gardner, 2019). Seedhouse (1996) pointed out that interaction in the classroom was inconsistent with many of the principles of Communicative Language Teaching (CLT), and that there is no need to require the replication of natural dialogue in the classroom. He also provided a seminal description of the architecture of interaction in the language classroom, arguing that turn taking and Initiate-Response-Evaluation structure (IREs) do exist in classroom interaction, but are more complex than those described by McHoul (1978) and Mehan (1979). Firth & Wagner (1997) focused their research on learning, arguing that not all language learning occurs in the classroom and that there is a need to redefine language proficiency by focusing on socio-contextual factors. They set the direction for subsequent research on classroom interactions, with much of the later research adding details to these two studies (Gardner, 2019).

McHoul (1978) suggested that in the classroom turn taking is generally controlled by the teacher and students have no autonomy. However, recent research has suggested that learners can gain power over their turn of words through group questions (Petitjean, 2014), calling out the teacher's name (Garton, 2012) and raising their hands (Sahlström, 2002). Some non-verbal behaviors of students in class have a great influence on teachers' choice of the next speaker. If more than one student raises his/her hand after a teacher's question, the teacher generally chooses the student with whom he/she has eye contact (Kääntä, 2012) rather than the one who has his/her head bowed and his/her eyes looking away (Lauzon & Berger, 2015). Students can also indicate their willingness to participate in classroom interactions by nodding their heads, facial expressions, and gestures (Lee, 2017). This shows that students have some autonomy in teacher-student interactions.

IREs do exist in classroom interactions (Gardner & Mushin, 2017; Wells, 1993), but scholars are not unanimous about it. Some scholars believe that IREs reinforce teachers' power and can help teachers control classroom interactions, but limit learners' autonomous interactions (Cazden, 2001). Other scholars view IREs as spaces between teachers and students to demonstrate what they know, what they do not know, or what they are seeking (Lee, 2006). Interactions between teachers and students are not strictly bound by IREs (Seedhouse, 2004). A related proof is given by Waring (2009) (shown in Figure 4). After the Line1-Line 8 series of IREs, at Line 9 student Miyuki made a brief sound in preparation for asking a question when the teacher said, ''Anyone?'' In the overlapping section, Miyuki raised her hand to ask a grammar question. She broke the strict IREs by autonomously starting a discourse at the end of the IREs. Currently, few scholars have focused on how the sequential organization of the student centered classroom differs from the traditional classroom of the past.

Another focus of research into classroom interaction is learning (Gardner, 2019). As Walsh (2011: 188) stated ''If we want to look for evidence of learning, we should

begin by focusing on the words and interactions of learner''. CA researchers have explored how learning occurs in the classroom by examining negotiation of meaning, feedback, questioning, and revision (Gass & Mackey, 2013). Some scholars have examined the effect of time factors on learning (Hellermann, 2006). Cekaite (2007) found that 7-year- old Kurdish girls went from being a silent child to an active participant in the classroom after 1 year in a Swedish immersion classroom. Sert (2013) found that, during student-teacher interactions, when there is a gap between students' responses and the teacher's expectations, the teacher implements ''Cognitive State Checks'' (e.g., ''Don't know?''). He believed that this is the moment when learning takes place. Thus, ''the study of interaction will provide a better understanding of learning'' (Sahlström, 2011: 45).

Table 4 Extract in Waring (2009)

1	Miyuki:	((reads)) Oh really? I didn't know you were (0.5) diving in
2		(.) Madrid now?
3	T:	Mhm?
4		(0.2)
5	Miyuki:	How long have you been (.)-diving in Madrid.
6	T:	Madrid
7		(.)
8		↓Very good.
9	Miyuki:	°(syll syll) °
10	T:	[>°Does anybody °-<]
11	Miyuki:	[I have one ((raises hand))] [ques]tion
12	T:	[Yes.]
13	Miyuki:	Number three is if without " be: " °Is not good? °

Overall, CA prompts the researcher to focus on non-predetermined categories of

interaction, to view the observer as a member of the interaction, and to observe the interaction from an insider's perspective (Walsh, 2021). The combination of the two approaches to studying classroom interactions, CA and iFIAS, provides a more comprehensive perspective. Most CA studies on classroom interaction have focused on second language classrooms, especially English as a Second Language (EAL) classrooms, while relevant studies on first language classrooms are few. There are more studies on verbal behaviors in classroom interaction and fewer studies on non-verbal behaviors. While existing studies are more mature on the sequence organization of IRE in traditional classrooms, there are fewer studies on the sequence organization of new classrooms that are student-centred and incorporate educational information technology. Therefore, this study will also use CA to study Modern Chinese classroom (L1 classroom that teaches theoretical and practical knowledge of the Chinese language), focusing on the sequence organization of Modern Chinese classroom, teacher questioning, teacher feedback, and discourse silence.

2.2.2 Research on Classroom Discourse

With the rapid development of discourse analysis, systematic quantitative and qualitative analyses of naturally occurring discourse have received increasing attention. The Birmingham School, led by Sinclair et al, was the first to begin using the theories and methods of discourse analysis to study and analyse discourse in the classroom setting. However, they did not give a clear definition of classroom discourse. According to Thoms (2012) classroom discourse is the verbal interaction that occurs between teachers and students and between students and students in a classroom situation.

Through the study of classroom discourse, it can be found that teachers' elicitation affect the type and quality of students' output (Shintani, 2013), providing evidence for whether students have access to learning opportunities (Ong, 2019). Thus, classroom discourse is an important tool used by educators to facilitate learning. Research on classroom discourse can provide a focus for teachers' reflection and

promote the development of their Classroom Interactional Competence (CIC) (Walsh, 2021). Teaching reflection and CIC are the core of teacher development (Mann et al., 2019). Therefore, the study of classroom discourse is conducive to promoting teachers' professional growth.

The form and function of classroom discourse are different from the language used in other scenarios and has its own peculiarities. Take the dialogue "What day is it today" as an example (as shown in Table 5), In naturalistic discourse mode, speaker A asks for information about time, and speaker B tells speaker A true information, and speaker A's feedback is appreciated. In classroom discourse, the teacher's feedback is to confirm right or wrong. By asking the students, the teacher is not trying to find out what time it really is, but rather checking the students' mastery of the day of the week. In the event of asking for time, the naturalistic discourse structure is generally: Question-Answer-Appreciation, while the classroom discourse structure is: Question-Answer-Evaluation. This difference is mainly caused by the different purposes of discourse activities. The purpose of naturalistic discourse is to communicate, While the purpose of classroom discourse is to impart knowledge.

Table 5 Comparative Cases of Naturalistic and Classroom Discourse Models

Naturalistic discourse mode	Classroom discourse mode
A:What day is it today?	A:What day is it today?
B:It's Sunday.	B:It's Sunday.
A:Thank you.	A:Very good (or "right").

There are also differences between natural and classroom discourse in terms of turn-talking. Whereas in daily discourse turn-taking is characterized by self-regulated competition and initiative (Sacks et al., 1974), turn-taking in classroom discourse is strictly assigned (Seedhouse, 1996), usually by the teacher, and passively received by the students.

1. Classroom Discourse Structures - IREs and IRFs

The University of Birmingham school, led by Sinclair and Coulchard, analyzed the structure of classroom teaching and found that the Initiate-Response-Feedback sequence (IRFs) pattern was prevalent in teacher-centred classrooms. This structure has subsequently been supplemented by a number of researchers into more variant forms. For example, Mehan (1979) considered the basic structure of classroom interaction as Initiation-Response-Evaluation (IRE). IRFs and IREs are similar in that they both consist of three components. The first two turns of the two types of structures are essentially the same, with the teacher typically initiating (I) the interaction by asking a question or giving a instruction. And then the student responding (R) to the teacher's question. The third turn is where the two types of structures differ. In IREs, the third turn is generally the teacher giving an evaluation (E) of the student's response, such as "Very good". In IRFs, the teacher does not evaluate but provides a non-assessment feedback such as giving more detailed explanations for students' answers (as shown in Table 6).

Table 6 Comparative Cases of IRE and IRF

IRE		IRF	
I	Please read this word.	I	What is the last one?
R	Command	R	Forest(森(sēn))
E	Very good.	F	Forest. The forest is composed of three pieces of wood.

Mortimer & Scott (2003) proposed the IRFRF chain based on IREs or IRFs. In an IRFRF chain, teacher feedback is followed by further student responses. In the final feedback section, the teacher can either repeat the student's point or encourage the student to elaborate in more detail. Through this discourse model, the teacher can understand what the students really think about the topic.

Several scholars have analyzed the impact of classroom discourse models.

Studies have found that IREs place the teacher at the centre of classroom interaction, limiting student contributions to the interaction (Cazden, 2001). Nassaji & Wells (2000), in their investigation of IRE models in Canadian elementary science and literature classrooms, found that if the forms of feedback found in IRFs were used in the third turn, students would have more opportunities to participate in the interaction. Lee (2007) also argued that the third turn is important for the development and completion of classroom tasks, and its function is not only to provide evaluation or feedback on the second turn, but it can also be used to perform more behaviors related to teaching and learning activities, such as providing clues to students in order to encourage them to give better responses. Huth (2011) analyzed language classroom discourse in terms of task, repair, identity, code switching based on task-based pedagogy. He pointed out that in a classroom setting, tasks are usually initiated by the teacher, discussed, explained and concluded by the students, and the teacher analyses and evaluates the performance of the task, forming a unique pattern of classroom discourse structure. The analysis of the classroom discourse structure shows that the teacher's behaviour has a positive and negative two-way influence on students' participation in classroom interaction.

In the subsequent analysis, the units/boundaries of the IRE/IRF framework will be used as analysis units to summarize the discourse structures existing in modern Chinese classrooms and investigate the effectiveness of these structures.

2. Teacher Questioning

Teacher questioning is a prominent feature of classroom discourse (Wellington & Osborne, 2001) and one of the essential tools for teachers to demonstrate their pedagogical skills (Murphy et al., 2009). Teacher questioning was first studied by Barnes, Long and Sato. Barnes (1969) categorized teacher questioning into factual question, reasoning question, open question and social question. Long & Sato (1983) further categorized demonstrative questions (also known as closed questions) and referential questions (also known as open questions, i.e. questions with no

predetermined answers). Brock (1986) discussed the effects of different types of teacher questions in the classroom on students' output discourse and noted that referential question can increase learners' language output in the classroom. Demonstrative question can help teachers to determine learners' mastery of knowledge in the classroom, and referential questions can extend learners' thinking and help learners to make meaningful constructions of knowledge (Baird & Northfield, 1992). Gibbons (2015) examined classroom question-and-answer patterns and found that question-and-answer patterns characterized by closed-ended teacher questions and simple student responses were common in classrooms. This model can result in a classroom where the teacher is active and the students are very inactive (Smit et al., 2022; Wolf et al, 2005), and this type of interaction has also been described as "high support/low challenge", which is not conducive to the co-construction of meaning.

It can be seen that different questioning styles have different impacts on the output of students' classroom discourse, which may have positive or negative impacts, and in classroom teaching teachers who consciously train their classroom questioning styles may be more effective in stimulating students' thinking, promoting students' understanding and construction of knowledge, and thus improving the efficiency of classroom teaching.

3. Teacher Feedback

Teacher feedback is "information about student performance or understanding" (Shute, 2008) provided by the teacher in the classroom, and its main purpose is to improve learning. Nunan (1991) argued that positive feedback enhances learner motivation and helps to improve learner behaviour. Kluger & DeNisi (1996) combed through 131 pieces of literature on feedback and found that both positive and negative feedback can promote learning, but that they must contain enough information and not be too detailed. Burnett (2002) argued that teachers' praise feedback is sometimes ineffective and even has a detrimental effect on learning, failing to promote effective

student output. For example, when a student finishes answering a question, the teacher's praise for a very good job ends the student's opportunity for more output, as the teacher calls on other students or changes the topic to another one.

Hattie & Timperley (2007) proposed a model of feedback with four levels. The four levels are: 1) task-based feedback, 2) task-processing-based feedback, 3) self-regulation-based feedback and 4) ego-based feedback. They concluded that self-regulation and task-processing based feedback were beneficial for learning and that ego-based feedback was the least effective feedback. They also pointed out that it is not easy to carry out too much negative feedback in the classroom, as students may develop an avoidance mentality that is not conducive to learning. Shute (2008) suggested that effective feedback tends to be specific but not overly detailed. For example, when a student responds to a question and the teacher comments that he studied harder than yesterday or that he demonstrated strong analytical skills, the student will be more willing to go deeper into the issue.

4. Discourse Silence in the Classroom

As one of the non-verbal forms of classroom interaction, silence has received widespread attention from scholars. Flanders (1963) set up classroom silence and disruption items when designing FIAS, but he did not subdivide classroom silence, arguing that classroom silence tends to have a negative effect on classroom interaction. In the classroom, when students choose to be silent in the face of a teacher's question, it is often perceived as a form of defiance against the pressures they face (Hao, 2011) or as a sign that the student is unintelligent or uninterested in what they are learning (Kim & Marcus, 2002).

Discourse Silence is also seen as an instructional strategy consciously used by teachers (Maroni, 2011) and is also referred to as waiting time (Ingram & Elliott, 2014). It gives students space to learn and provides opportunities to listen, understand and form ideas (Walsh & Li, 2013). This silence is often considered to be pedagogically beneficial

(Taylor, 2020). Some scholars have studied the length of waiting. Rowe (1986) believed that if the average waiting time is increased to 3 seconds or more, the quality of discourse will be significantly improved. Ingram & Elliott (2014) also argued that an extended pause (the time after the teacher's statement before the students are assigned to speak) can provide more thinking time for students to construct their responses and increase the accuracy and self-confidence of students' responses. However, it has also been noted that too much waiting time can be counterproductive as students can become anxious during this time. A well-timed change in the pace of interaction by the teacher, reserving time for students to interact freely, may stimulate further interaction (Taylor, 2020). This suggests that partial discourse silence is indeed beneficial.

In conclusion, classroom interaction can be more comprehensively understood by analyzing classroom discourse, and classroom discourse structure, teacher questioning, teacher feedback and discourse silence have been proved to have an important influence on classroom interaction and teachers' teaching and learning. Therefore, this study will analyze the classroom interactional discourse of Modern Chinese from the four aspects mentioned above.

2.2.3 Comparative Study on New and Experienced Teachers

Teachers do not grow overnight and generally need to go through the process of new-experienced-expert teachers (Lian & Meng, 2001). Teachers at different stages of development have their own characteristics, such as experienced and expert teachers will give students more opportunities to speak in the classroom, and new teachers will spend more time on classroom management (Sun, 2020). This also makes a big difference in their classrooms (Zhang, 2013).

This is also confirmed by some comparative studies. Guo & Song (2008) analyzed the classroom questioning of three new, experienced and expert mathematics teachers and found that experienced and expert teachers were better at inspiring students' thinking by setting reasonable questions, while the questions used by the new

teachers were more focused on examining whether the students understood and mastered what they had learned, and did not inspire enough students' thinking. Wang (2016) compared and analyzed the classroom feedback between new and experienced English teachers and found that new teachers tended to use simple positive feedback, such as "very good", which was not sufficiently inspiring for students' learning. Experienced teachers have more provocative positive feedback, which can effectively increase students' motivation to participate in classroom interactions. Zheng (2011) pointed out that new teachers are more likely to accept new teaching concepts and try them out in teaching, while experienced and expert teachers tend to hold a conservative attitude towards new concepts. Liu et al. (2014) examined the classrooms of new and experienced teachers in an elementary Chinese language class and found that experienced teachers waited less than new teachers, and waited for a shorter time , and so on.

However, most scholars at home and abroad conduct research related to classroom discourse and classroom interactions without explicitly qualifying the teaching level of teachers (Allwright, 1984; Cazden, 2001 Sahlström, 2002), and tend to focus on the whole group of teachers, ignoring the impact of teachers' differences on the classroom teaching.

In summary, comparative studies have been conducted in China in a variety of disciplines such as teaching English and Chinese as a second language (Wu, 2019), science (Li et al., 2022), mathematics (Guo & Song, 2008), and chemistry (Zheng, 2011). There is no comparative study of new and experienced teachers of Modern Chinese in terms of classroom interactional discourse. It has been found that even if they grow into expert teachers, there are still areas for improvement in their classroom teaching (Wang & Ren, 2015; Zhang, 2013). Therefore, comparative analyses of teachers' classroom interactional discourse at different stages of development can reveal the general pattern of teachers' professional development more clearly.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Research Context

3.1.1 Research Site

Z university will be the school chosen for this study. The school is a private university with a history of more than 20 years. With the deepening of the reform of China's higher education system, the government has begun to encourage and support the development of private colleges and universities in recent years (Li & Song, 2017). According to the Statistical Communique of the Ministry of Education of the People's Republic of China on the Development of Education in 2022, there are 764 private colleges and universities in China, accounting for 25.36% of the total number of colleges and universities in the country. According to the 2022 China University Rankings released by Airuishen alumni network(cuaa.net), a well-known third-party university evaluation agency in China, university Z ranked 61st in the private university-II ranking, up nine places from last year. The school ranks 8th among similar institutions in Guangdong Province, China. As can be seen from the above data, Z university has shown a rapid development trend in recent years. It offered Modern Chinese course in 2015, and it has over 1,300 permanent students in its School of Culture and Media. From the development trend of the school, the course opening time and the number of students, Z university has a certain representative among private colleges and universities.

The teachers who will be selected for this study are all teachers who are teaching Modern Chinese courses at university of Z. In addition, the author has been teaching Modern Chinese course for nearly eight years, and is very familiar with the teaching of Modern Chinese in the classroom. The author has undertaken projects such as the rethinking and construction of Modern Chinese teaching model based on TPACK, the

construction of Modern Chinese course on thinking and government, the construction of digital resources for interactional discourse in university classrooms, and the harmonious coexistence of human and machine: an analysis of interactional discourse in Chinese classrooms from a cross-disciplinary perspective, so the author has a research perspective that focuses on classroom interactional discourse from many sides.

3.1.2 Participants

Teachers' professional growth generally goes through the process of new-experienced-expert (Sternberg & Horvath, 1995). Experienced teachers are in the middle stage between new teachers and expert teachers, and play an important role in the professional development of teachers (Wang, et al., 2018). Generally, new teachers will develop into experienced teachers after 3-5 years of accumulation of teaching experience, but experienced teachers may not develop into expert teachers (Wang & Ren, 2015).

University Z is a private university, due to the influence of government financial support and teacher salary, the faculty structure of Modern Chinese course in this school is mainly composed of new teachers and experienced teachers. Therefore, the study decided to select two groups of new teachers and experienced teachers to compare.

To more objectively and accurately depict the whole picture of Modern Chinese classroom teaching at the University of Z, and to better compare the similarities and differences in the classroom interactional discourses of new and experienced teachers, the author will select 6 teachers who are responsible for teaching Modern Chinese course at the School of Culture and Communication. Zhong & Zhang (2000) have pointed out that the fifth year of teachers' teaching is an important period of change, during which teachers' subject knowledge level, teaching experience and classroom management skills will make a qualitative leap. Therefore, among the 6 teachers selected by the research, 3 are new teachers with 2 years of teaching experience, and

the other 3 are experienced teachers with more than 8 years of teaching experience. They will be divided into two groups for the study. They are all colleagues of the author and have a good trusting relationship with each other and can communicate directly about the problems in the study.

The students are all freshmen, aged between 17-19 years old. The number of students in each class is between 38 and 45. Their mother tongue is Chinese, and they have learned Chinese courses for 12 years in primary and secondary school, so they have a certain Chinese language foundation. They can communicate fluently in Chinese and most of them can write a coherent text in Chinese. Since they have not studied Chinese language theory in a more systematic way, students' ability to explain and analyze Chinese language phenomena using language theory needs to be strengthened. Under the influence of Chinese traditional classroom culture, students tend to recognize teachers' authority in class. Therefore, in classroom interaction, students are often passive participants, and the frequency of active interaction is not high.

The author will enter the above teachers' classes for recording, and the recording time for each teacher will vary from 450-500 minutes. The teachers all taught in Chinese, and the students are all native speakers of Chinese (as shown in Table 7).

Table 7 Participants' Demographics

Teacher	Education and Major	Title	Teaching age	Recording Duration	Teaching Class
Teacher A	PhD/Linguistics and Applied Linguistics	Professor	20	450 minutes	Freshmen
Teacher B	PhD/Chinese Philology	Professor	11	450 minutes	Freshmen

Teacher C	Master/Linguistics and Applied Linguistics	Lecturer	8	450 minutes	Freshmen
Teacher D	Master/Chinese International Education	Assistant	2	450 minutes	Freshmen
Teacher E	Master/Chinese International Education	Assistant	2	450 minutes	Freshmen
Teacher F	Master/Chinese International Education	Assistant	1	450 minutes	Freshmen

The author will chose to record Modern Chinese classes in the first semester of the 2023-2024 academic year, mainly because Modern Chinese is taught in two semesters at the University of Z. In the first semester, the first book of Modern Chinese is mainly studied, which focuses on phonetics, vocabulary and word. And the second semester is mainly studied in the second book of Modern Chinese, which focuses on grammar and rhetoric. Modern Chinese is the first professional course for freshmen to learn, and the quality of Modern Chinese classroom teaching will directly affect students' interest in Chinese language learning.

3.2 Research Instruments

3.2.1 The "Chinese Help Research" Corpus Software

''Chinese Help Research'' is a software developed by Chinese scholar Liu Hua in 2020 for language researchers, especially researchers of Chinese language and Chinese language teaching. It is a software system that comprehensively integrates corpus construction, retrieval and statistical functions to assist Chinese language research, which can help language researchers build corpora more easily and use linguistic big data for language research. Compared with AntConc, ''Chinese Help Research'' is more suitable for the author's research. The author will transcribe the classroom recording into text, and build a corpus of Modern Chinese classroom

interactional discourse by combining the research purpose with the principles and norms of ''Chinese Help Research'', and then analyse the interactional discourse in the Modern Chinese classroom by using the retrieval and analysis functions of the corpus.

3.2.2 "Xunfei Hear(2024 Version)" Video Transcription Tool

''Xunfei Hear(2024 Version)'' is a smart office service platform built on the voice recognition technology of Xunfei. It can provide voice to text, audio to text and video to text services. It can be transcribed in speaker roles, with a transcription accuracy of up to 97.5%, which is convenient and able to meet the video transcription needs of this study.

3.2.3 iFIAS

Fang et al. (2012) developed iFIAS, an IT-based interactive analysis system based on FIAS. They optimized and improved the existing coding system for the digital classroom teaching environment and redesigned the coding system to support digital classroom analysis. Compared with the COLT scale, the iFIAS is able to conduct a macro examination of classroom interactions in various disciplines, and the series of aids in the iFIAS can automatically generate line graphs of classroom interactions, which is able to present the status of classroom interactions in a more intuitive manner. Therefore, the study will use iFIAS to analyse the structure of interaction in Modern Chinese classroom.

3.2.4 Walsh Transcription System

The Walsh transliteration system is a code specifically designed to analyze utterance (shown in Figure1) for scholars studying speech patterns. It was designed by Walsh and is so named. It can annotate the details of the interactive dialogue between classroom participants, comprehensively and meticulously describe the real class, and reflect the whole process of interaction. Therefore, the study will choose to use this system to transcribe Modern Chinese classroom interactional discourse. Based on the characteristics of Chinese, the study adapted the Walsh transliteration system and

sorted out the symbol system suitable for Chinese transliteration, as shown in Table 8:

Table 8 Adapted Walsh Transliteration system

Symbol	Definition and use	Note
T	Teacher	
L	learner (not identified)	
L1: L2: etc.,	identified learner	
LL	several learners at once or the whole class	
[do you understand?] [I see]	overlap between teacher and learner	
=	turn continues, or one turn follows another without any pause	
…	pause of one second or less marked by three periods	
(4)	Silence; length given in seconds	
?	rising intonation – question or other	
Right	emphatic speech	The Walsh transliteration system uses letter uppercase to represent the emphatic discourse, but Chinese is not case sensitive, so the emphatic

		discourse is marked by underline.
((4))	Unintelligible 4 seconds; a stretch of unintelligible speech with the length given in seconds	
(The teacher said with a smile)	Other modal markers in the classroom	Additional modal markers were added to the Walsh transliteration system.
/	Students have different viewpoints at the same time	Tags added on the basis of the Walsh transcription system.

Source: derived from transcription system of Walsh(2006)

3.3 Research Design

This study will use a combination of qualitative and quantitative research methods. The research will use iFIAS to conduct classroom observation of Modern Chinese classroom recordings and generate quantitative data on the actual situation of new and experienced teachers in the classrooms. At the same time, the study will use CA to conduct qualitative analysis on transcribed texts from interactional discourse in classrooms.

The purpose of this study is to explore and compare the interactive strategies used by new and experienced Modern Chinese teachers in the classroom and the interactional discourse patterns that their classrooms present. The overall design is shown in Figure 1.

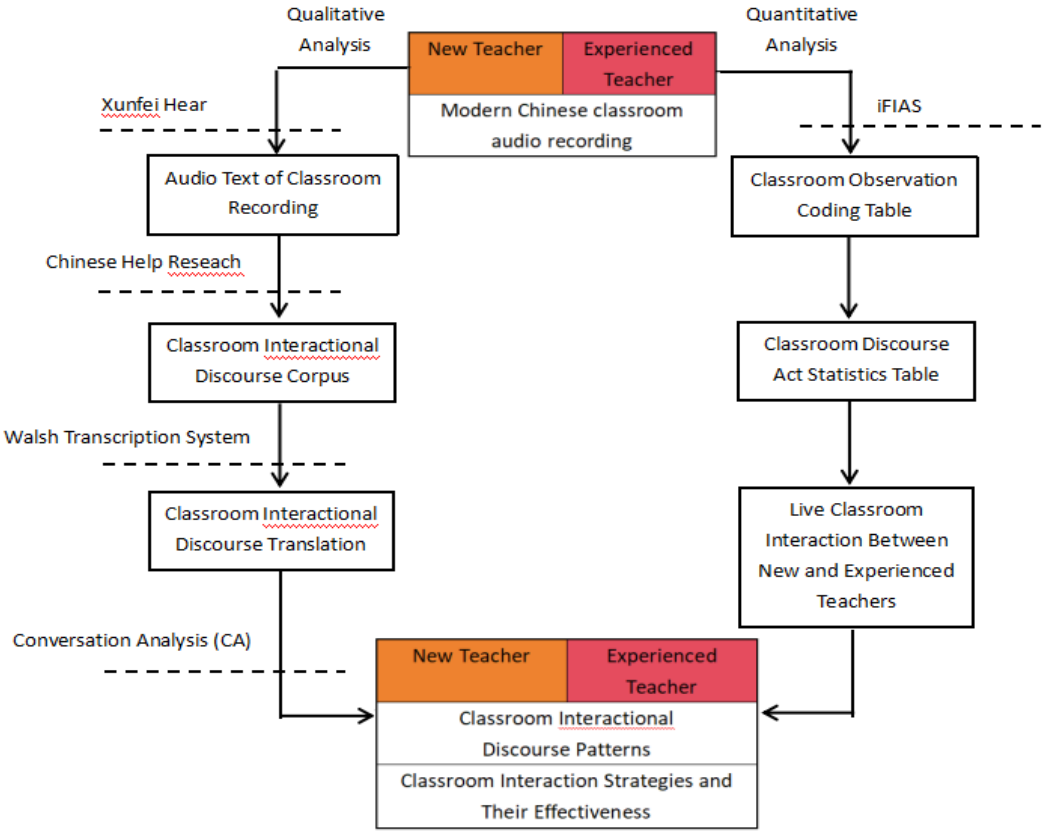


Figure 1 Overall Research Design

3.4 Data Collection

In stage 1, Due to the involvement of human participation, this study strictly adheres to the ethical standards of Srinakharinwirot University. March 2023, An ethical approval was submitted to the Institutional Review Committee of the School of Culture and Media of Zhanjiang University of Science and Technology, and was eventually approved by the ethic Committee. The proposal and related documents, including the informed consent form and the ethical approval, were submitted to the Human Research Ethics Committee of Srinakharinwirot University for review. After obtaining the permission of the committee, the experiment officially began.

In stage 2, the author informed the 6 target teachers of the specific research intentions in some informal interactions (such as during break times, lunchtime, etc.).

The basic information included the purpose of the research, the time and frequency of recording, etc., and ensured that the recording content was only used for research, and the information of the researcher was kept confidential. The study followed all ethical standards prior to data collection by having all participants sign the consent forms that include the purpose of research in naturalistic, non-intrusive environments.

In stage 3, Classroom observers entered the classrooms of six modern Chinese language teachers at Z University to conduct a five-week classroom teaching observation and audio recording. Each teacher's recording time is 10 class hours (45 minutes per class hour).

In stage 4, materials such as syllabuses, lesson plans, and PowerPoint presentations from the 6 teachers were collected at the end of the observation. Other supporting teaching materials such as classroom exercises, course assignments, student grades, and end-of-term teaching evaluations were collected at the end of the course.

3.5 Data Arrangement

3.5.1 Data Arrangement for Quantitative Analysis

In stage 1, the recorded audios were divided into two groups: new teachers and experienced teachers.

In stage 2, in this study, to maximize accuracy and impartiality of classroom observation data, the researchers viewed two sets of classroom videos repeatedly. Using the iFIAS coding tool. According to the coding requirements of iFIAS, by sampling every three seconds, two coders, who had undergone rigorous training, analyzed the videos. After initial coding, they compared results, discussed discrepancies, and reached consensus. This process generated a final coding table for each teacher. The coding tables are included in the appendix. This meticulous approach minimized errors, ensuring the reliability and objectivity of the observational data.

In stage 3, the coding tables were imported into the iFIAS analysis software to

generate analytical matrix, dynamic line chart of classroom teaching interaction behavior ratios, and quantitative statistical table of classroom verbal behaviors for each teacher. These were used for subsequent quantitative analysis.

3.5.2 Data Arrangement for Qualitative Analysis

In stage 1, the study used the "Xunfei Hearing (2024 version)" audio and video transcription tool to transcribe the text of the classroom recordings and correct the text in combination with the teacher's teaching courseware.

In stage 2, This study established fundamental principles for corpus construction, formulated rules for information - field writing, and defined the storage format. Transcribed texts were reformatted and saved to form two corpora: one for new teachers and one for experienced teachers, each consisting of three subcorpora.

In stage 3, The corpus data were loaded into the “Chinese help Research” corpus software for easy retrieval and analysis later.

In stage 4, to meet the research goals and questions, the study retrieved highly matching text from the corpus and translated it into English. To ensure translation accuracy, the study first translated the Chinese text into English, then back into Chinese. Any discrepancies were revised and adjusted. Finally, a professor with 20 years of English teaching experience reviewed both the Chinese and English versions.

In stage 5, Two teachers transcribed the target texts (both Chinese and English versions) using the adapted Walsh transcription system. Discrepancies in transcription were resolved through discussion to ensure the accuracy of the transcribed texts.3.6 Data Analysis

3.6 Data Analysis

As previously mentioned, the data analyzed in both quantitative and qualitative ways. Quantitative analysis utilized iFIAS to conduct relevant analysis of classroom observation data. The researcher examined the codes of iFIAS to get the full picture of Modern Chinese language teachers' classroom interaction. For example, the distribution

of teacher talk (teacher questioning, teacher feedback, etc.), discourse silence (active discourse silence and passive discourse silence), and the classroom interactional discourse structure incorporating educational information technology. Based on this, the similarities and differences between new and experienced teachers in their classroom interactional discourse were compared.

Qualitative analysis used CA to conduct a micro-analysis of the transcribed classroom interactional discourse. At the same time as conducting micro-analysis, the study combined quantitative analysis results with classroom exercises (including exercises that teachers use online teaching platforms such as Rain Classroom and Xue Xitong to distribute to students in the classroom), course assignments, student grades, final teaching evaluations and other auxiliary teaching materials to examine the teaching effects of interaction strategies adopted by new and experienced teachers on teacher-student interaction.

CHAPTER 4

RESULTS AND DISCUSSION

4.1 Analysis of classroom interactional discourse of New and Experienced Teachers

This section investigates the materials derived from the actual classroom teaching of six Modern Chinese language instructors at Z University. To safeguard the privacy rights of these educators, pseudonyms were assigned to them: Teachers A, B, C, D, E, and F. Teachers A, B, and C are experienced educators, each with over 8 years of teaching experience. Teacher A is a retired professor who has returned to service as a Silver Generation educator. The remaining three instructors are new teachers: Teachers D and E each have two years of teaching experience, while Teacher F is a new with less than one year of experience. All participants hold a master's degree in Teaching Chinese to Speakers of Other Languages (TCOL). They graduated from the same major and completed an educational internship before their formal teaching appointments.

Each participating teacher recorded ten sessions of Modern Chinese language classes, accumulating approximately 2700 minutes of teaching audio. The research began with coding each teacher's teaching process in accordance with the iFIAS coding requirements. This involved sampling every three seconds, resulting in individual coding tables for each of the six teachers. Subsequently, the iFIAS analysis program was applied to the coding tables of all six teachers to generate analysis matrices. Finally, based on these matrices and the actual classroom teaching scenarios, a quantitative analysis was conducted for all six teachers.

4.1.1 iFIAS Analysis of classroom interactional discourse of New Teachers

The study conducted coding of the teaching processes for the three new teachers in accordance with the coding specifications set forth by the iFIAS system. Using this approach, the teaching process of each teacher was translated into more

than 8,000 data points. The detailed coding outcomes are presented in appendix K, L, and M. Employing the iFIAS analysis software, the study integrated the coding tables from the three new teachers to derive their respective analytical matrices. See Appendix Q, R, S.

Ultimately, the study analyzed the actual teaching scenarios of the six teachers across three dimensions: classroom teaching structure, teaching style, and classroom interaction behaviors. The respective analytical matrices were used as the basis for evaluation.

4.1.1.1 Classroom Teaching Structure

In conjunction with the analytical matrices of the three teachers, the study has developed a quantitative statistical table of classroom verbal behaviors for the new teachers, as shown in Table 9.

Table 9 Quantitative Statistical Table of New Teachers' Classroom Verbal Behaviors

Statistical Item	NTD (%)	NTE (%)	NTF (%)
Ratio of Teacher Talk	73.37	72.74	71.05
Ratio of Student Talk	7.44	7.78	5.89
Proportion of Silence Beneficial to Teaching	15.9	17.99	12.21
Proportion of IT Application	2.91	1.11	9.59
Proportion of Teachers' Manipulation of Technology in IT Application	71.89	65.59	99.75
Proportion of Students' Manipulation of Technology in IT Application	28.11	34.41	0.25
Ratio of Indirect to Direct Influence of Teacher Talk on Students	5.12	6.41	4

Ratio of Positive to Negative Reinforcement in Teacher Talk	8.4	15.48	11.9
Proportion of Questions in Teacher Talk	4.54	5.38	3.59
Proportion of Open Questions in Teacher's Questions	15.44	33.54	12.32
Proportion of Students' Voluntary Responses in Voluntary Student Speech	98.01	98.76	95.42
Proportion of Students' Voluntary Questions in Voluntary Student Speech	1.99	1.24	4.58
Proportion of Students' Voluntary Responses in Total Student Responses	70.81	74.01	63.2

Note: New Teacher D is abbreviated as NTD, New Teacher E as NTE, and New Teacher F as NTF.

Upon integrating the data from the aforementioned tables, the study identified several key findings. Firstly, the proportion of teacher talk in the classroom is significantly higher than that of student talk, indicating that the classrooms of the three teachers are predominantly teacher-led. Notably, the proportion of student talk in Teacher F's class is only 5.89%, which is slightly lower than that of the other two teachers.

Secondly, all classrooms exhibit pedagogically beneficial silence, with the duration of such silence accounting for over 90% of the total silent time. For example, Teacher D has 97.70%, Teacher E has 97.98%, and Teacher F has 90.66%. Thirdly, regarding the application of information technology, all three teachers effectively utilized it as an auxiliary tool in teaching. Particularly, Teacher F's use of information technology is strikingly high at 99.75%, which is more pronounced compared to the other two teachers. Observations of Teacher F's teaching audio revealed that she played two lengthy videos for students during class, which increased her proportion of information

technology application.

Ultimately, despite the proportion of students' voluntary responses exceeding 95% across all classes, the incidence of students posing questions remained exceedingly low, with none surpassing 5%.

4.1.1.2 Teaching Style

Upon in-depth analysis of the classroom teaching of the three new teachers, we observed some intriguing phenomena regarding the impact of teacher talk on students. In the classroom, the ratios of indirect to direct influence of teacher talk on students were 5.12%, 6.41%, and 4%, respectively (see Table 9), all of which are below 1. Furthermore, the ratios of positive to negative reinforcement in teacher talk to students were 8.4%, 15.48%, and 11.9%, respectively (see Table 9), also below 1. It is noteworthy that the impact of teachers' talk on students varies among individuals. Teacher E exhibits a significantly higher proportion of positive reinforcement compared to the other two educators, reaching as high as 15.48%.

4.1.1.3 Classroom Teaching Interaction Behavior

Utilizing the iFIAS analysis program, the study also derived the dynamic line charts of classroom teaching interaction behavior ratios for the three new teachers, as shown in Figures 2, 3, and 4. To illustrate the overall interaction situation of each teacher's ten lessons as well as the interaction of a single lesson, each chart is divided into two parts: the upper half is the panoramic dynamic line chart of the ten lessons, and the lower half is the dynamic line chart of one specific lesson.

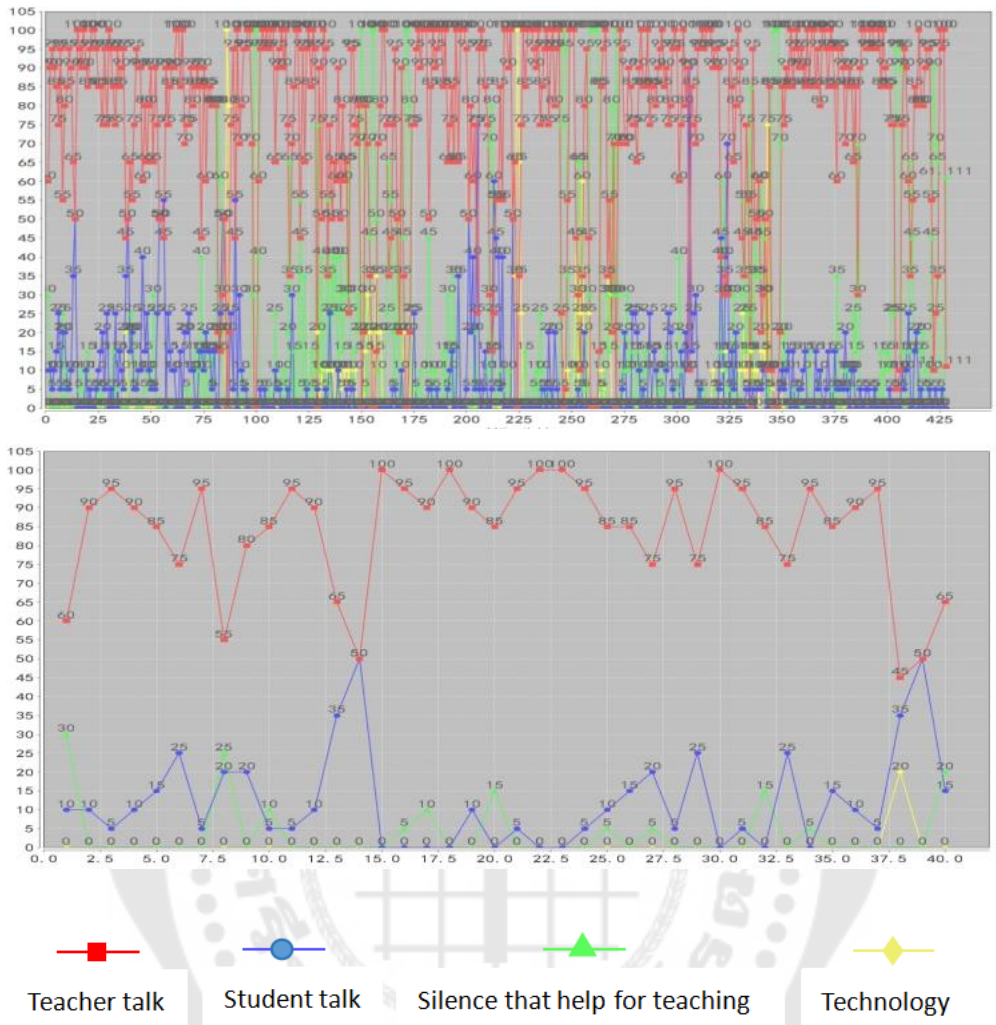
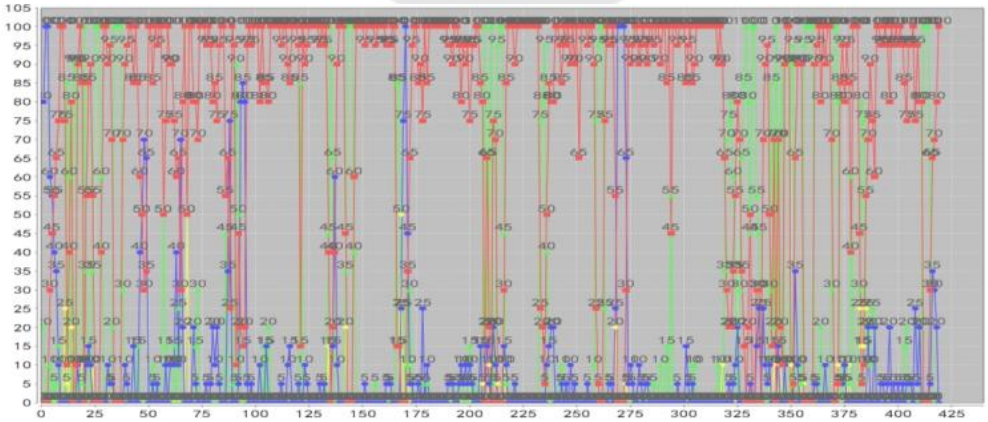


Figure 2 Dynamic Line Chart of Classroom Teaching Interaction Behavior Ratios for New Teacher D



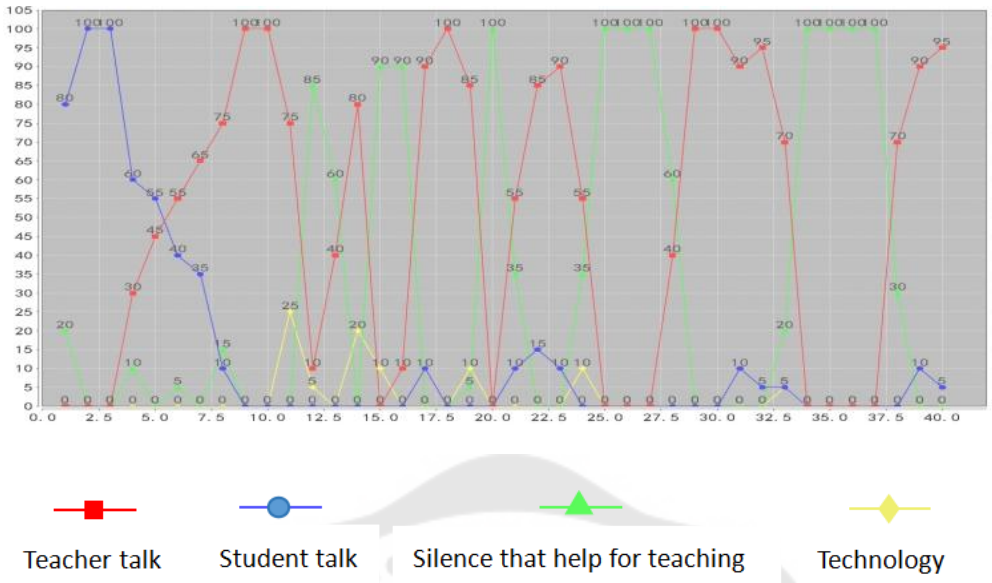
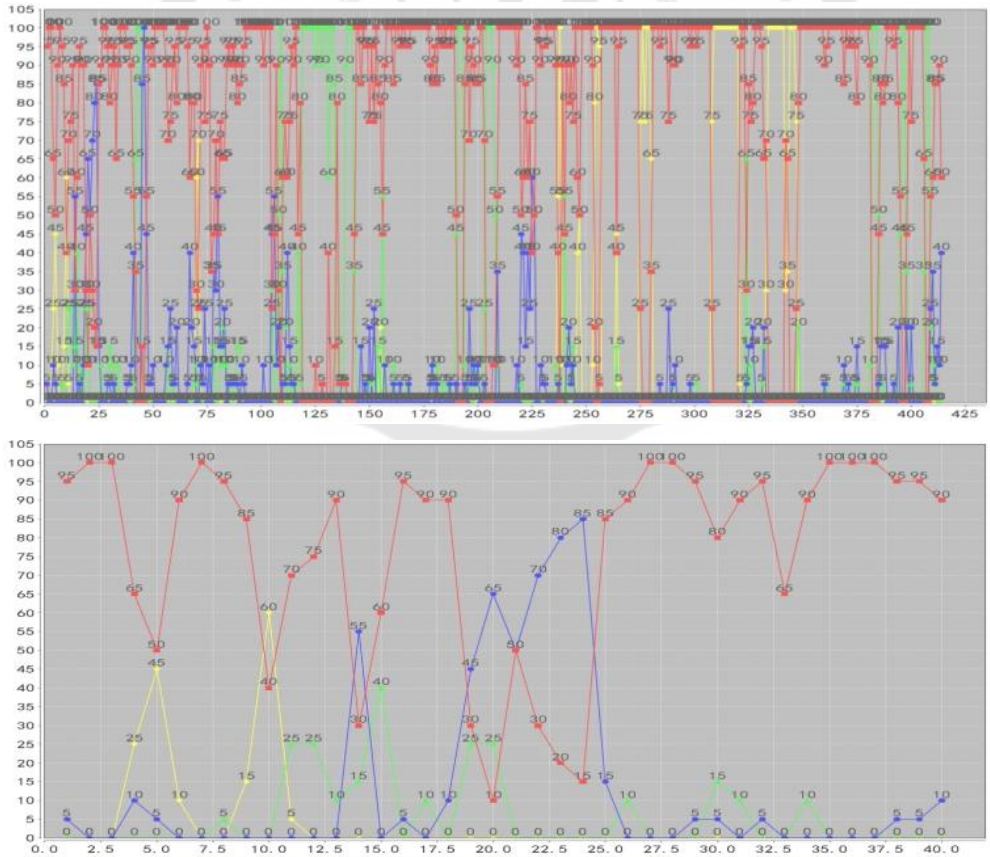


Figure 3 Dynamic Line Chart of Classroom Teaching Interaction Behavior Ratios for New Teacher E



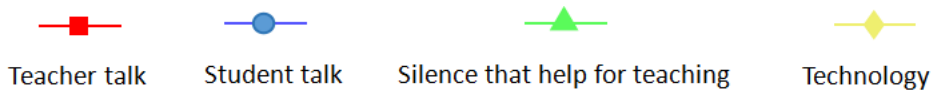


Figure 4 Dynamic Line Chart of Classroom Teaching Interaction Behavior Ratios for New Teacher F

After a meticulous analysis of the classroom teaching interaction behaviors of the three new teachers, the following conclusions can be drawn from the dynamic line charts. Firstly, the proportion curves of teacher talk and student talk show alternating peaks, indicating that the interaction between teachers and students is active. This suggests that teachers place a high value on students' responses and participation during the teaching process.

Secondly, overall, the proportion of student talk in the classrooms of the three teachers is relatively uniform, with no prolonged periods of single talk or silence. This reflects the teachers' ability to effectively control the classroom rhythm and maintain the fluency of teaching activities. However, it is worth noting that continuous teacher talk is frequent, while student talk mostly consists of brief interjections.

Thirdly, examining the classroom performance of each teacher, in Teacher D's class, the proportion of teacher talk shows about 10 peaks throughout a lesson, but there is no prolonged continuous lecturing. Each time the teacher talk reaches a peak, it quickly declines (as shown in Figure 2). This indicates that after teaching a certain knowledge point, the teacher promptly guides students to think or practice independently through questioning.

In Teacher E's class, the proportion of student talk shows a significant peak (as shown in Figure 3), mainly because Teacher E organized a poetry recitation activity. This led to a concentrated increase in student participation during this period. Additionally, Teacher E's class also shows multiple beneficial peaks of silence, primarily because the teacher arranged several exercises and provided students with ample time to complete them independently.

For Teacher F, the proportion of information technology use in the classroom shows two peaks (as shown in Figure 4). This is because the course mainly teaches the pronunciation of Mandarin consonants. To ensure that students can perceive accurate pronunciation, Teacher F chose to play lead-reading audio to assist in teaching. However, in the latter half of the course, Teacher F's classroom experienced extended periods of high-frequency student participation, which led to a marked reduction in interaction between the teacher and the students.

4.1.2 iFIAS Analysis of Classroom Interaction by Experienced Teachers

Based on the coding requirements of the iFIAS, the study derived classroom interaction coding tables for three experienced teachers, as shown in appendix H, I, and J respectively.

The study then employed the iFIAS analysis software to generate analytical matrices for the three teachers, as presented in appendix N, O and P.

Ultimately, the study conducted a real-time classroom teaching analysis of the three teachers, examining aspects such as classroom teaching structure, teaching style, and classroom teaching interaction behaviors, based on their respective analytical matrices.

4.1.2.1 Classroom Teaching Structure

In conjunction with the analytical matrices, the study has developed a quantitative statistical table of classroom verbal behaviors for experienced teachers, as shown in Table 10.

Table 10 Quantitative Statistical Table of Experienced Teachers' Classroom Verbal Behaviors

Statistical Item	ETA (%)	ETB (%)	ETC (%)
Ratio of Teacher Talk	91.02	71.8	82.02

Ratio of Student Talk	5.19	10.76	8.44
Proportion of Silence Beneficial to Teaching	2.46	14.88	7.83
Proportion of IT Application	1.13	2.55	1.56
Proportion of Teachers' Manipulation of Technology in IT Application	48.78	54.05	95.5
Proportion of Students' Manipulation of Technology in IT Application	51.22	45.95	7.5
Ratio of Indirect to Direct Influence of Teacher Talk on Students	2.54	8.85	11.14
Ratio of Positive to Negative Reinforcement in Teacher Talk	12.46	26.74	76.04
Proportion of Questions in Teacher Talk	1.9	7.4	7.41
Proportion of Open Questions in Teacher's Questions	10.32	31.97	33.33
Proportion of Students' Voluntary Responses in Voluntary Student Speech	93.43	99.57	99.49
Proportion of Students' Voluntary Questions in Voluntary Student Speech	6.57	0.43	0.51
Proportion of Students' Voluntary Responses in Total Student Responses	54.67	98.18	33.68

Note: Experienced Teacher A is abbreviated as ETA, Experienced Teacher B as ETB, and Experienced Teacher C as ETC.

After a thorough analysis of the classroom teaching data from three experienced teachers, the study has reached the following conclusions. Firstly, the proportion of

teacher talk in the classroom is significantly higher than that of student talk, reflecting a teacher-led classroom dynamic. Specifically, in Teacher A's class, the proportion of teacher talk exceeds 90%, while the proportion of student talk is only 5.19%. In the classrooms of Teachers B and C, the proportion of teacher talk was 71.8% and 82.02%, respectively. Although these proportions are slightly lower than that observed in Teacher A's classroom, they still significantly exceed the proportion of student talk.

Secondly, all three teachers' classrooms exhibit pedagogically beneficial silence, with the duration of such silence accounting for over 90% of the total silent time: Teacher A at 92.27%, Teacher B at 99.92%, and Teacher C at 98.04%.

Thirdly, the application of information technology is evident in the classrooms of all three teachers, serving as an auxiliary tool for classroom instruction. However, compared to the other two teachers, Teacher C has a higher proportion of information technology operation in the classroom (95.5%), mainly utilizing educational platforms such as Rain Classroom and Xue Xi Tong.

Lastly, although the proportion of students' proactive responses in the classrooms of all three teachers exceeds 90%, aside from 14 instances of proactive questioning in Teacher A's class, the other two teachers' classes have very few instances of student-initiated questions.

4.1.2.2 Teaching Style

In the classrooms of the three experienced teachers, the ratios of indirect to direct influence of teacher talk on students are 2.54%, 8.85%, and 11.14%, respectively, all of which are less than 1. The ratios of positive to negative reinforcement in teacher talk towards students are 12.46%, 26.74%, and 76.04%, respectively, also less than 1. However, Teacher C's proportion of positive reinforcement is significantly higher than that of the other two teachers. Observations from teaching videos reveal that Teacher C may use fewer threatening methods to accept or clarify students' feelings in the classroom. Instead, Teacher C favors praise and encouragement to provide feedback

on student behavior and places emphasis on accepting or utilizing students' viewpoints to deepen the teaching process.

4.1.2.3 Classroom Teaching Interaction Behavior

Utilizing the iFIAS analysis program, the study also derived dynamic line charts of classroom teaching interaction behavior ratios for the three experienced teachers, as shown in Figures 5, 6, and 7.

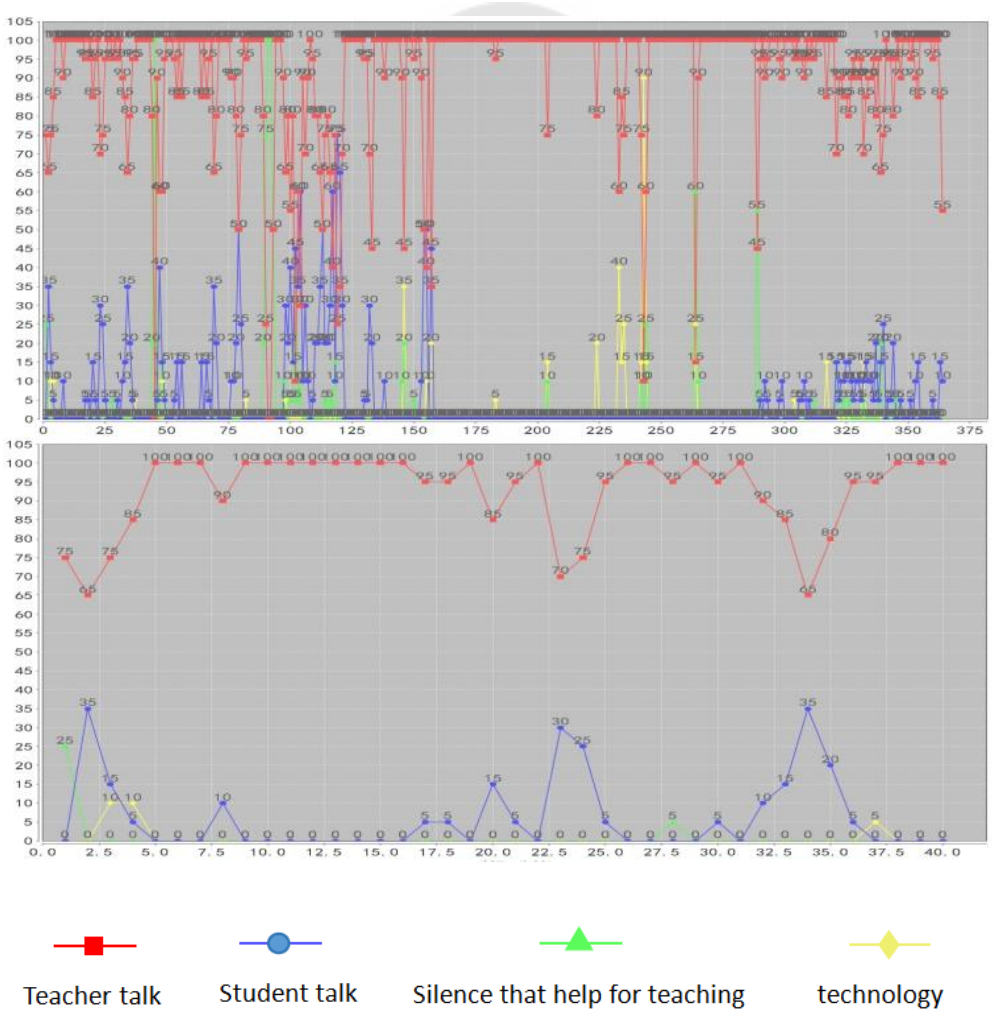


Figure 5 Dynamic Line Chart of Classroom Teaching Interaction Behavior Ratios for Experienced Teacher A

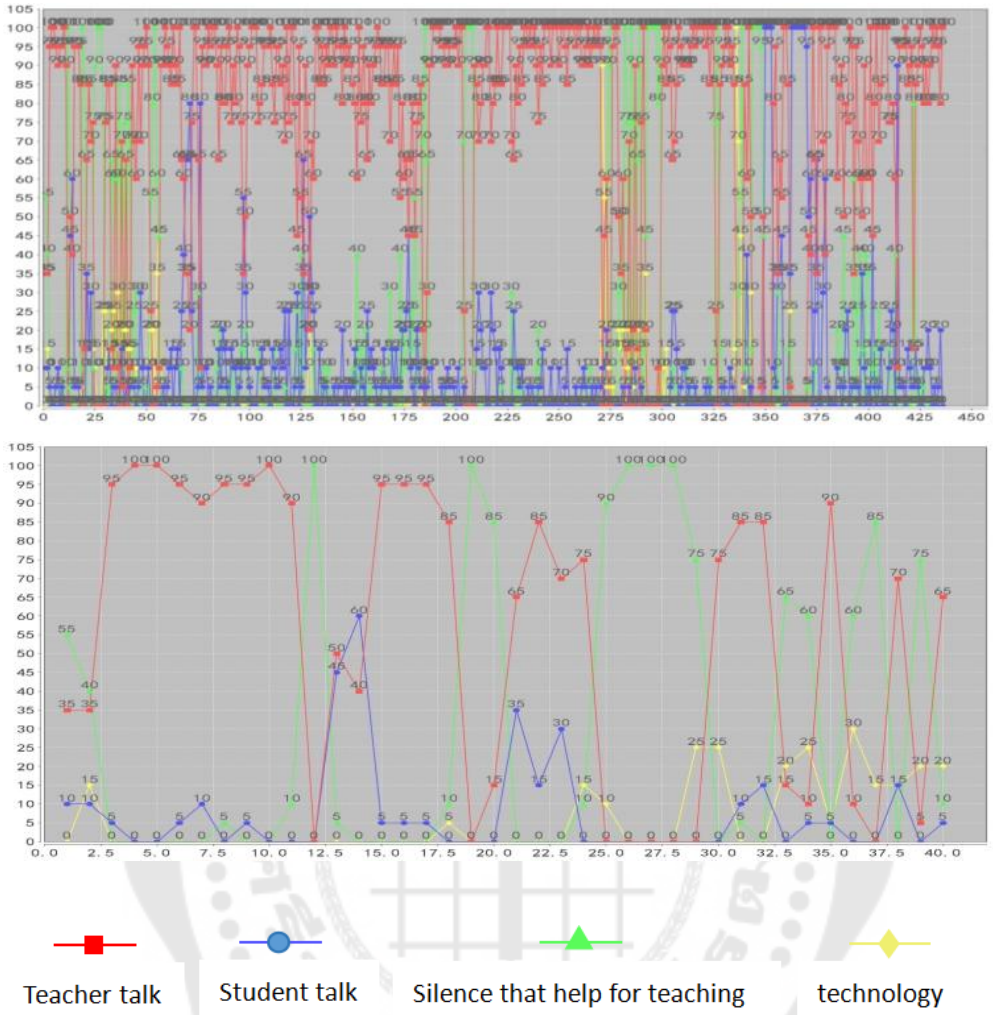
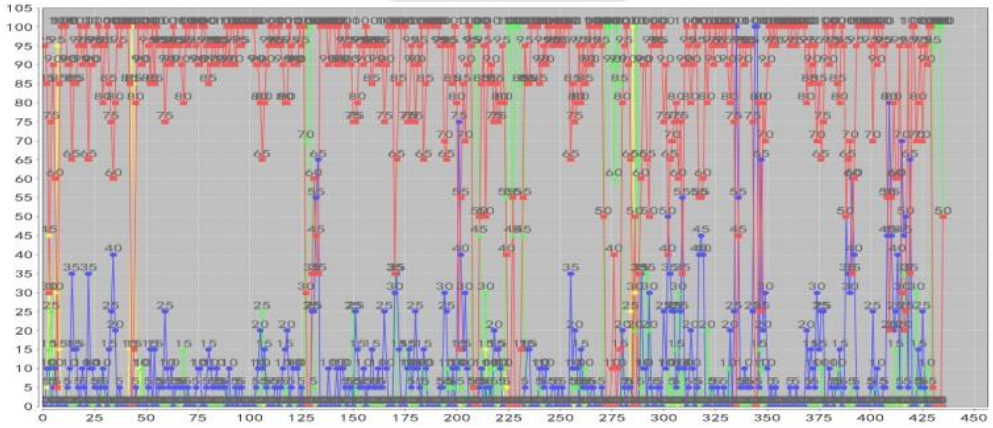


Figure 6 Dynamic Line Chart of Classroom Teaching Interaction Behavior Ratios for Experienced Teacher B



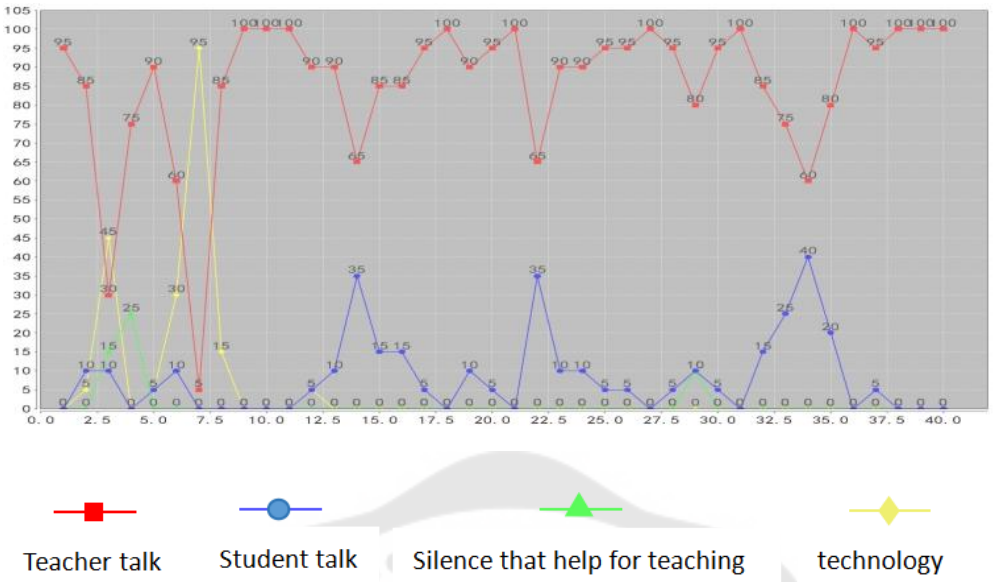


Figure 7 Dynamic Line Chart of Classroom Teaching Interaction Behavior Ratios for Experienced Teacher C

Upon examination of the dynamic line charts of classroom teaching interaction behavior ratios, several key findings emerge. Firstly, the proportion curves of teacher talk and student talk exhibit alternating peaks, suggesting a harmonious interaction between teachers and students.

Secondly, in the classrooms of Teachers B and C, the proportion of student talk demonstrates a high degree of uniformity, with no prolonged periods of speech or silence. However, data from Teacher A's classroom reveal instances of prolonged teacher talk and student silence. Teacher A's classroom had two significant periods of continuous teacher talk, lasting approximately 2.5 minutes and 5 minutes, respectively, with little interaction with students.

In Teacher B's classroom, seven peaks of classroom silence were observed, primarily due to the teacher leading students in classroom exercises and providing time for students to complete tasks independently. This approach allows the teacher to assess students' grasp of knowledge.

Teacher C's classroom exhibited about nine peaks in teacher talk, which quickly

declined after reaching a peak. This indicates that the teacher promptly stimulated student thinking or guided independent practice through questioning after teaching knowledge points, thereby fostering the development of students' creative thinking. Concurrently, two peaks in the use of information technology in Teacher C's classroom were attributed to the teacher utilizing the Rain Classroom platform. This increased student participation through thought-provoking questions and the use of barrage functions.

4.1.3 Comparative Analysis of Classroom Interaction Status between New and Experienced Teachers

4.1.3.1 Comparison of Classroom Teaching Structures

The study computed the average interactive behaviors of new and experienced teachers and compiled a quantitative statistical table of classroom verbal behaviors for both groups, as illustrated in Table 11. Analysis of the data from this statistical table revealed that the classroom teaching structures of new and experienced teachers share similarities as well as differences.

Table 11 Quantitative Statistical Table of Classroom Verbal Behaviors for New and Experienced Teachers

Statistical Item	NT(%)	ET(%)
Ratio of Teacher Talk	72.39	81.61
Ratio of Student Talk	7.04	8.13
Proportion of Silence Beneficial to Teaching	15.37	8.39
Proportion of IT Application	4.54	1.75
Proportion of Teacher-Manipulated Technology in IT Application	79.08	66.11
Proportion of Student-Manipulated Technology in IT	20.92	34.89

Application		
Proportion of Questions in Teacher Talk	4.5	5.57
Proportion of Open Questions in Teachers' Inquiry	20.43	25.21
Proportion of Students' Voluntary Responses in Voluntary Student Speech	97.40	97.50
Proportion of Students' Voluntary Questions in Voluntary Student Speech	2.6	2.5
Proportion of Students' Voluntary Responses in Total Student Responses	69.34	62.18

Note: New teacher is abbreviated as NT, and experienced teacher as ET.

1.Commonalities in the Classroom Teaching Structure of New and Experienced Teachers

Teachers' Domination and Students' Passive Listening

In the traditional classroom teaching model, teachers are often seen as the transmitters of knowledge, while students are regarded as passive recipients. Under this model, teachers hold the initiative in classroom discourse, whereas students are often in a state of passive listening. Observations of classroom discourse ratios reveal that the proportion of teachers' talk accounts for the vast majority of classroom communication. Specifically, the talk ratio of teachers exceeds 70%, while that of students is below 10%. This phenomenon reflects the current imbalance in teacher-student interaction in classroom teaching.

The Impact of Technology on Classroom Interaction

The proportion of new teachers using information technology in the classroom is 4.54%, while that of experienced teachers is 1.75%. These figures indicate that both types of teachers use information technology to assist in teaching. From the proportion of teachers and students manipulating technology (as shown in Table 11), a significant

trend can be observed: teachers dominate the manipulation of information technology in the classroom. Specifically, teachers mainly use multimedia to play videos or audio materials closely related to classroom teaching content. When explaining the pronunciation principles of initials and finals, Teacher F used audio materials to teach and guided students to perceive the principles by listening to standard pronunciation. They also utilize teaching platforms such as Rain Classroom and Xue Xi Tong for checking student attendance and issuing classroom exercises. After explaining theoretical knowledge, Teacher E releases class exercises via the Rain Classroom platform. The platform shows the accuracy rate of students' answers. Teacher E often uses this method to assess students' understanding of the knowledge and adjust the teaching content in a timely manner. This teacher-centered information technology usage model reflects the teachers' ability to control and schedule information resources in the teaching process.

Students Can Actively Respond to Teachers'Questions, but the Frequency of Initiative Questions is Low

Student participation in classroom teaching interaction is one of the key indicators to measure classroom quality. The study statistically and analytically found that students show a high level of initiative in responding to teachers' questions. In the interaction, the students basically followed the M-principle in Grice's cooperation principle and were able to give concise answers to the questions raised by the teacher. However, the frequency of students' initiative questions is relatively low. Specifically, in the classrooms of both types of teachers, the proportion of students' active responses to teachers' questions accounts for more than 97% of students' active talking. This demonstrates students' enthusiasm and participation in answering teachers' questions. However, the proportion of students' initiative questions is less than 3%. This indicates that students are more inclined to accept the guidance of teachers in classroom interaction, rather than taking the initiative to raise questions and challenge existing

knowledge.

2.Differences in Classroom Teaching Structure Between New and Experienced Teachers

Experienced Teachers' classroom discourse Slightly Exceeds That of New Teachers

In the field of education, the amount of a teacher's talk is an important measure of classroom interaction patterns and teaching styles. By comparing the talk volume of experienced teachers with that of new teachers in the classroom, the study reveals the impact of teaching experience on the use of teacher talk. The data show that the classroom discourse of experienced teachers is slightly higher than that of new teachers. Specifically, the talk ratio of experienced teachers reaches 81.61%, while the corresponding ratio for new teachers is 72.39%. This difference may be related to the teachers' teaching experience, classroom management skills, and mastery of teaching content.

New Teachers are Better at Using Information Technology to Assist Teaching

The integration of information technology into classroom teaching is a key driving force for teaching innovation. The study compared the application ratio of information technology by new and experienced teachers in the classroom and found that new teachers performed slightly better than experienced teachers in the application of information technology, reaching 4.54%, while the application ratio of experienced teachers was 1.75%, slightly lower than that of new teachers. New teachers used the Rain Classroom platform significantly more frequently than experienced teachers for in-class discussions, dan mu, and exercises. In contrast, experienced teachers used the platform mainly for after-class homework assignments via Rain Classroom or the Xuexitong platform. When teaching phonetics, experienced teachers rarely used audio or video materials, as they were confident in their own pronunciation. These differences suggest that teaching philosophy and familiarity with technological tools may influence how both new and experienced teachers apply information technology in their teaching.

The Proportion of Beneficial Classroom Silence in New Teachers' Classrooms is Higher Than That of Experienced Teachers

In teaching practice, classroom silence is often misunderstood as a sign of lack of interaction or insufficient student participation (Flanders, 1963). However, recent research has shown that classroom silence, especially that which is beneficial to teaching, is actually an indispensable part of students' deep thinking and learning processes (Walsh & Li, 2013; Taylor, 2020). The study analyzed the phenomenon of silence in the classrooms of new and experienced teachers and found that the proportion of beneficial teaching silence in new teachers' classrooms is 15.37%, while that in experienced teachers' classrooms is 8.39%, lower than that of new teachers.

The Proportion of Questions in Experienced Teachers' Classrooms is Higher Than That of New Teachers, and the Frequency of Open Questions is Also Higher

The question strategy is an important means for teachers to guide students to think, stimulate interest in learning, and assess learning outcomes. Combined with the data in Table 24, the study found that the proportion of questions in experienced teachers' classrooms is 5.57%, slightly higher than new teachers' classrooms. This indicates that experienced teachers are more inclined to use classroom questions to stimulate students' thinking and responses during the teaching process.

Classroom questions can be divided into two categories: closed questions and open questions (Long & Sato, 1983). Closed questions often have clear answers, which help teachers to test students' mastery of knowledge points. Open questions generally have no fixed answers and can encourage students to think deeply and express themselves creatively. The proportion of open questions asked by experienced teachers is 25.21%, slightly higher than asked by new teachers. This shows that experienced teachers have higher skills and tendencies in setting open questions to guide students in deep thinking.

4.1.3.2 Comparative Teaching Styles

A teacher's talk serves not only as a vehicle for knowledge transmission but also profoundly influences students' learning motivation and behavior. The study found that for both new and experienced teachers, the ratio of indirect to direct influence on students is less than 1 (as shown in Table 23). This indicates that both types of teachers prefer to use direct teaching methods and exert direct control over the classroom. While this teaching model helps to ensure the systematic conveyance of content, it may limit students' active participation and the development of creative thinking.

Upon further analysis, it was observed that experienced teachers slightly outperform new teachers in indirectly influencing students. Experienced teachers are better at using strategies such as praise, adopting student viewpoints, and questioning to motivate students. These indirect methods can promote students' self-efficacy and classroom engagement. However, this difference also indicates that new teachers need to pay more attention to how to stimulate students' intrinsic motivation through indirect means in teaching practice.

Table 12 Statistical Data Chart of Teaching Styles for New and Experienced Teachers

Statistical Item	NT(%)	ET(%)
The ratio of indirect to direct influence of teacher talk on students	5.18	7.51
The ratio of positive to negative reinforcement in teacher talk towards students	11.93	38.41

Additionally, the ratio of positive to negative reinforcement in teacher talk is an important metric for measuring teaching interaction (Fang et al., 2022). Positive reinforcement refers to teachers often using praise and encouragement in feedback turns to enhance students' positive behaviors. For example, after a student answers a question, teachers may use encouraging phrases like "Good" or "Correct answer" to evaluate and provide positive feedback. This makes students more willing to share their

views in subsequent interactions. On the other hand, negative reinforcement involves teachers using critical or punitive feedback to suppress negative student participation behaviors. For instance, if a student gives a wrong answer, the teacher might respond with "That's incorrect" or "We've covered this already, how come you still don't understand?" Such negative feedback can cause students to feel frustrated and reduce their participation in interactions. while negative reinforcement typically suppresses students' negative behaviors through criticism or punishment. In the classrooms of both types of teachers, the ratio of positive to negative reinforcement in teacher talk is less than 1 (as shown in Table 12). This indicates that the classrooms of both types of teachers are primarily dominated by negative reinforcement, resulting in a more serious atmosphere between teachers and students. Students may reduce their participation and expression for fear of making mistakes. The statistical data show that experienced teachers have a positive reinforcement ratio more than three times that of new teachers. This suggests that experienced teachers are better at praising or encouraging students and accepting or utilizing students' viewpoints.

4.1.3.3 Comparative Analysis of Classroom Teaching Interaction Behaviors between New and Experienced Teachers

1.Commonalities in Classroom Teaching Interaction Behaviors of New and Experienced Teachers

Teacher-Student Interaction Is Smooth, and Teacher Are Sensitive to Students' Response

In the dynamic process of classroom teaching, the proportion curves of teacher talk and student talk exhibit alternating peaks (refer to Figures 2, 3, 4, 5, 6, and 7). This pattern is not only an intuitive representation of interaction but also a reflection of the quality of teaching interaction. It indicates that the communication between teachers and students is bidirectional, rather than a unidirectional impartation. The teacher's sensitivity to student responses during the teaching process is a key factor in achieving

this interactive pattern.

The alternating peaks of teacher and student talk reflect the teacher's guiding role in the classroom and the students' active participation. Teachers stimulate students' thinking and expression through questioning, feedback, and summarization, while students engage in the teaching process by answering questions, raising doubts, and sharing viewpoints. This interaction not only promotes the transmission and understanding of knowledge but also enhances students' autonomy and sense of participation.

The teacher's sensitivity to student responses is manifested in the grasp of classroom atmosphere, the response to student needs, and the timely processing of student feedback. When Teacher B received feedback from students that the classroom network was not smooth, he immediately changed the way of distributing classroom homework from online to offline and dealt with the students' feedback in a timely and appropriate manner. This sensitivity requires teachers to have a high degree of teaching acumen and professional quality, enabling them to flexibly adjust teaching strategies during the teaching process to adapt to different student responses and needs.

Prevalence of Teacher Monologues with Student Speech Mostly in Short Contributions

Through careful observation of classroom teaching interaction, the study found that the ratio curves of teacher and student talk reveal a specific pattern of classroom communication. Specifically, it is rare for the troughs of teacher talk to be below 50%, and peaks of student talk exceeding 50% are also infrequent (refer to Figures 2, 3, 4, 5, 6, and 7). This phenomenon indicates that in the classrooms of the six teachers, continuous teacher speech dominates classroom communication, while student speech mainly appears in small, fragmented forms.

This teacher-dominated classroom communication pattern may be related to the teacher's teaching style, the complexity of the course content, and classroom management strategies. Teachers may prefer to lecture to ensure the systematicness

and integrity of the teaching content, while students' short contributions may be feedback or supplementation to the teacher's lecture. However, this pattern may limit students' opportunities to deeply participate in classroom discussions and express their own opinions.

2.Differences in Classroom Teaching Interaction Behaviors between New and Experienced Teachers

New Teachers Have More Beneficial Classroom Silences than Experienced Teachers

Classroom silence is a teaching phenomenon. Beneficial silences can provide students with space for reflection and knowledge internalization, while excessive silence may lead to distracted attention or weakened motivation to learn. Through in-depth analysis of the dynamic line charts of classroom teaching interaction behaviors of six teachers, the study found that new teachers' classrooms have more moments of silence beneficial to classroom teaching, and these moments of silence are relatively evenly distributed throughout the class (refer to Figures 2, 3, and 4). Further observation of teaching audio materials revealed that these silences mainly occur during students' in-class exercises. This phenomenon indicates that new teachers tend to arrange a certain amount of classroom exercises and reserve sufficient time for students to think and answer, which may be a teaching strategy they use to promote students' understanding and mastery of the teaching content.

In comparison with new teachers, experienced teachers have fewer moments of beneficial teaching silence in their classrooms, and the distribution is not uniform. Taking Teacher C's classroom as an example, teaching silence is mainly concentrated in specific periods of the class, such as from 200 to 225 minutes and from 275 to 300 minutes (as shown in Figure 7). These moments of silence mainly occur when leading students in language knowledge exercises. This indicates that Teacher C does not arrange classroom exercises in every class.

Through in-depth study of Teacher C's teaching audio, it was found that in some

classes, Teacher C arranged group work presentations and divergent thinking exercises. These activities not only enriched the forms of classroom interaction but also provided students with opportunities to present their views and think about problems. This shows that Teacher C selectively arranges teaching activities according to the teaching content and student needs.

Experienced Teachers Have a Higher Phenomenon of Long-Duration Monologues than New Teachers

The long-duration monologue of teachers reflects the intensity of classroom control and the breadth of student participation to a certain extent. The study carefully observed the classroom interaction behaviors of six teachers, paying special attention to the phenomenon of teacher talk peaks above 95% for sustained speech. This refers to a situation where teachers occupy almost all classroom communication time for a long period, and students have very limited opportunities to interact.

The study found that Teacher A, an experienced teacher, has more of these long-duration monologues in the classroom, and the distribution of time shows concentration. During the 150- to 290-minute period (refer to Figure 5), Teacher A's speech occupied the vast majority of classroom communication time, and students hardly had a chance to participate. This teaching model may reflect that Teacher A tends to use the lecture method to impart knowledge, using interactive teaching strategies less to promote students' active learning and thinking.

In contrast, although the phenomenon of long-duration monologues exists in new teachers' classrooms, the duration is relatively short. For example, in Teacher F's classroom, this phenomenon occurred during the 350- to 360-minute period, and a similar situation was observed in Teacher E's classroom during the 300- to 315-minute period (refer to Figure 4). This may indicate that new teachers value classroom interaction in the teaching process, but there may still be periods where teacher-led communication patterns occur.

No phenomenon of long-duration monologues was observed in the classrooms of the other three teachers, which may mean that these teachers pay more attention to the balance of student participation and classroom interaction in the teaching design and implementation process.

4.2 Analysis of classroom interactional discourse Patterns

4.2.1 Identification and Definition of classroom interactional discourse Patterns

Through in-depth analysis of the transcribed texts from teaching videos, the study identified and summarized seven main classroom interactional discourse patterns: IRF, $[I^nR^n]F$, I^nR^n, $I[R^nF^n]$, $[I^nR^n]FR$, $IR[F^nR^n]$, and IRFR(As shown in Table 13). The identification of these patterns is based on systematic text analysis and a comprehensive consideration of existing literature. The I^nR^n and $IR[F^nR^n]$ patterns, which are further identified and defined based on the interaction discourse patterns summarized by Li & Liu (2016), in combination with actual classroom interaction observations, make an important supplement to the existing classification of discourse patterns. The following text will provide detailed definitions and analyses of each pattern, discussing their application in actual teaching and their potential impact on teaching effectiveness.

Table 13 Classroom Interactional Discourse Patterns Table

Primary Classification	Secondary Classification	Definition
IRF		This pattern typically comprises three turns. The first turn is the teacher initiation phase. The teacher raises a question or topic to get students thinking and discussing. The second turn is the student response phase. In this turn students think about the question or topic and respond. Then the third turn is teacher

		feedback phase. In this turn the teacher gives feedback on students' responses.
$[I^nR^n]F$		This pattern manifests as a cyclical process in instructional interaction. Teachers first employ strategies like questioning or issuing instructions to elicit initial thought and discussion from students. Subsequently, teachers further prompt based on students' responses. After several turns of interaction, teachers provide feedback in the final turn.
I^nR^n	$I^nR^n(T)$	This pattern is mainly characterised by multiple cycles of initiation and response, with no feedback turn. It can begin with the teacher posing a question or introducing a topic, followed by the student's response to the question or topic, denoted as $I^nR^n(T)$. Alternatively, it can start with the student asking a question or introducing a topic, with the teacher responding, denoted as $I^nR^n(S)$.
	$I^nR^n(S)$	
$I[R^nF^n]$		In this pattern, teachers first pose questions or present viewpoints to stimulate discussion. After students respond, teachers don't hastily change the topic. Instead, they provide feedback to encourage students to think more deeply and offer more profound responses. In the last turn, teachers often evaluate the students' responses.
$[I^nR^n]FR$		This pattern first appears as multiple teacher-student initiation-response loops. At the end of this process, the teacher provides feedback or a summary, and

		then the students respond to the teacher's feedback.
IR[F^nR^n]		This pattern is typically initiated by teacher. And marked by a series of feedback-response cycles after students respond to the teacher's questions or discussion points.
IRFR	IRFR(T)	This pattern consists of four turns. After the initiation-response-feedback turn, a response to feedback is added. This teacher-initiated pattern, where students respond to teachers' feedback in the fourth turn, is denoted as IRFR(T). Conversely, the student-initiated version, where teachers respond to students' feedback in the fourth turn, is called IRFR(S).
	IRFR(S)	

Note: T stands for Teacher, indicating that the teacher initiates the conversation first, and S stands for Student, indicating that the student initiates the conversation first.

IRF

The IRF pattern (Initiation-Response-Feedback) is a classroom interactional discourse structure widely present in teaching practice, typically composed of three speech turns: the teacher's initiation, the student's response, and the teacher's feedback. In the dynamic process of this pattern, the teacher plays a dual role as a guide and the authority of knowledge, often stimulating students' thinking and participation through question; students mainly play the role of responding to the teacher's questions. Subsequently, the teacher provides feedback based on the student's response, aiming to confirm, supplement, or correct the student's understanding, thereby achieving a complete interaction cycle, as shown in Example 1.

Example 1:

1 I T Let's take a look, is Chinese a 大家看一下汉字是不是拼音

			phonetic text?	文字?
2	R	LL	No.=	不是。=
3	F	T	=No, it is a comprehensive text of form, meaning, and sound. We don't use letters, but use strokes to form square characters, so Chinese characters are also called ideographic characters.	=不是，它是表形、表意和表音三者综合的文字，我们不用字母，而是用笔画组成方块字，所以汉字又被称为表意文字。

In Example 1, the teacher employs a question strategy to stimulate students' thinking and engagement. The students collectively respond with "No," reflecting their basic stance on the question posed. On the third line of the transcript, the teacher repeats the students' response to confirm their position and further elaborates on the category of characters to which the Chinese script belongs. In this process, the teacher's feedback transcends a simple affirmation or negation, enriching the teaching content by providing additional information. Moreover, this method of feedback not only demonstrates the teacher's guiding role in classroom interaction but also shows a concern for promoting students' cognitive development.

The IRF pattern illustrates a teacher-centered teaching model, where the teacher holds the rights to initiate and conclude discourse. Although this model has advantages in systematically imparting teaching content, it may also reduce student engagement by limiting their proactivity. This limitation arises because it does not encourage students to ask questions or engage in in-depth discussions. In this model, the role of students is primarily defined as recipients and responders of information, rather than inquirers or co-constructors of teaching content.

$[I^nR^n]F$

The $[I^nR^n]F$ pattern ([Initiate-Response…Initiate-Response]-Feedback) manifests as a cyclical process in teaching interactions. Initially, the teacher stimulates students'

thinking through strategies such as question or giving instructions. Subsequently, based on the students' responses, the teacher further prompts them, engaging in several rounds of back-and-forth before providing feedback in the final turn. The teacher's repeated prompting may stem from the students' responses not being accurate or appropriate enough; multiple prompts facilitate students in self-correction. Additionally, the teacher may use multifaceted prompting to assist students in comprehensively and deeply understanding the topic, promoting self-construction of meaning. This pattern emphasizes the teacher's role in guiding and supporting students' cognitive development and meaning construction.

Example 2:

4	I1	T	"江(Jiang)" specifically referred to.....in ancient times.	“江(Jiang)”在古代特指.....
5	R1	LL	The Yangtze River.	长江。
6	I2	T	Now we read it as...jiāng, right? **(The teacher wrote jiāng on the blackboard)** So what is the phonetic component of it?	我们现在读作... jiāng，对不对？**（教师在黑板上写下jiāng）**那我们看它的声旁是什么？
7	R2	LL	Three dots of water.	三点水。
8	I3	T	Phonetic component? What is the phonetic component? **(Said with a smile)**	声旁？声旁是什么？ **（笑着说）**
9	R3	LL	Gōng(工)	工。
10	I4	T	It is this..."Gōng(工)". So according to this phonetic component, can we accurately pronounce this character correctly?	这个… “工”。那按照这个声旁，我们能不能准确读出这个字的正确发音？

11	R4	LL	No.	不能。=
12	I5	T	No. Foreign students learning Chinese will encounter some problems in this regard. Then let's look at the three dots of water next to it, which is its semantic component. When we see this character, can we guess that its general meaning should be related to what?	=不能。外国留学生在学习汉语的时候，在这方面就会出现一些问题。然后我们再看旁边的三点水，是它的形旁。我们看到这个字，是不是能够猜测出它的大致意思应该跟什么有关系？
13	R5	SS	Water.	水。
14	F	T	Right, it is related to water.	对，跟水有关系。

In Example 2, lines 6-8, after the students provided an incorrect response during the second response (R2) phase, the teacher employed various strategies, including repeating the students' answers, using emphatic tone, altering intonation, and utilizing body language, to guide the students in self-correction. These strategies facilitated the students in providing the correct answer during the third response (R3). Throughout the interaction, the teacher progressively guided the students to deeply understand the inherent logic of Chinese characters in terms of form, pronunciation, and meaning, starting from three dimensions: the meaning of the character "Jiang," its phonetic component, and its semantic component. This multidimensional guiding strategy helped students to understand the composition principles of Chinese characters more comprehensively and profoundly.

By meticulously analyzing the transcribed corpus, it can be observed that in this pattern, the teacher's initiation and the students' response (I-R) can undergo multiple iterations. At the conclusion of each topic, the teacher provides an evaluation or feedback. Although the teacher maintains a dominant position in this pattern, with

students typically in a passive role of responding to questions, the students' discourse output also increases as the number of teacher-initiated interactions grows. Compared to the traditional IRF pattern, students' classroom participation is significantly enhanced. Furthermore, this pattern offers teachers the opportunity to delve into related topics from multiple perspectives, thereby promoting students' in-depth understanding of core knowledge points.

I^nR^n

The I^nR^n pattern ([Initiate-Response…Initiate-Response]), which is divided into two categories, one where the teacher initiates and the student responds, denoted as I^nR^n(T), and the other where the student initiates and the teacher responds, denoted as I^nR^n(S), with [I-R] cycles that can recur multiple times. The I^nR^n(T) pattern often occurs in teaching activities that follow theoretical explanations, using concrete examples to elucidate abstract theories. The examples provided by the teacher are typically within the known cognitive range of the students and do not emphasize the provision of evaluation or feedback on the students' responses.

Example 3:

15	I1	T	Next...let's take a look at...the next...the light tone indicates a synthetic...meaning. So here we have two examples for you, when not pronounced with a light tone, what does 东...西 (dōng xī) indicate?	接下来...我们再来看一下...下一个...轻声表示合成的...词义。那么这里给大家举了两个例子，不读轻声的时候，东...西(dōng xī)表示的是？
16	R1	LL	Direction.	方向。
17	I2	T	Direction. And after pronouncing it with a light tone? 东西 (dōng xi)... indicates some...kind of...[Item.]	方向。读了轻声以后呢？东西(dōng xī)...表示的是...一种... [物品]
18	R2	LL	[Item.]	[物品。]

Prior to Example 3, the teacher had expounded the theoretical knowledge regarding how tone can alter word meaning. To enable students to understand this concept more concretely, the teacher adopted a teaching strategy of illustration through examples. Using the word "东西" (east and west) as an example, the teacher guided students to understand the semantic changes of the word when "西" (west) is pronounced with its original tone versus a neutral tone.

In the $I^nR^n(S)$ pattern, students assume the role of initiators in the interaction. This pattern typically begins with students asking questions about doubts arising from the teacher's explanation or presenting new viewpoints after the teacher concludes a round of dialogue. Subsequently, the teacher provides targeted responses to the students' inquiries and new perspectives. This pattern not only reflects the students' proactive involvement in classroom discussions but also facilitates effective communication between teachers and students, contributing to a deeper understanding of the teaching content.

Example 4:

19	I	L	Teacher, isn't it…a complement structure?	老师，它不是…中补吗？
20	R	T	Complement. So, let me ask you, can the head word in a complement structure be a noun? "性格(Personality)"is a noun. In a complement phrase, the head word should either be a verb or an adjective, not a noun, so we can rule out "性格直爽(straightforward personality)" as being this type of complement. When a noun comes	中补。那老师问你，中补关系的中心语的构成材料…可以是名词吗？“性格”是名词，中补短语的中心语，要么是动词性词语，要么是形容词性补语，不，要么是形容词性词语，不会是名词，所以否定了…“性格直爽”是中补这种类型。名词在前，动词在后，或者是名词在前，形容词在后，一般都是陈

			first and a verb or adjective follows, it usually forms a declarative relationship, which is subject-predicate. Go back to the basic types, review each one, and digest them again. Alright.	述关系，陈述就是主谓。回到基本的类型，再去把每一个类型看一看，再消化理解一下啊。好的。

Example 4 demonstrated a student's query after the teacher had explained that the phrase "性格直爽" (straightforward personality) belongs to a subject-predicate structure. The student questioned this explanation, believing that "直爽" (straightforward), serving as an adjective, was used to supplement the preceding noun "性格" (personality), and therefore argued that the phrase should be regarded as a modifier-head structure. In reply, the teacher provided a detailed exposition of the scholarly rationale for defining "性格直爽" as a subject-predicate structure and, on this basis, put forward further requirements for the student's in-depth learning.

Example 5:

21	I1	L	Also, some students in the front had voices that were a bit quiet.	然后，前面有一些同学声音有点小。
22	R1	T	Hmm.	嗯。
23	I2	L	Their vocal tone really suits this poem.	他们的音色很适合这首诗。
24	R2	T	Hmm, yes.	嗯嗯。
25	I3	L	There was a small mistake in the middle—the background music cut off.	中间有个小失误，背景音乐断了。
26	R3	T	The background music briefly stopped. Alright, very good, thank	背景音乐断了一下。好的，很好，谢谢你。观察得非常细致，

you. Your observations were very detailed. For example, the scripts they were reading from were long strips of ...paper, which might not attract the audience's attention as much as larger sheets would. This allows us to focus more on their recitation content. Alright, and their attire was very coordinated, wasn't it? That's also a strong point.	比如说他们拿的这一个，诵读的稿件是一个长长的这个…纸条可能不会像我们大的纸张一样吸引观众的注意力。嗯，让我们能把关注力更多的放在他们的诵读内容上面。好，然后，着装很统一，对不对啊？这也是优点。

Example 5 occurred during the commentary phase following the conclusion of a group project presentation. After completing a round of critiques, a student voluntarily stood up to present their perspective. In the final response (R3), the teacher not only affirmed the student's viewpoint but also introduced additional perspectives on this basis, providing supplementary expansion to the discussion.

The I^nR^n(T) pattern integrates theory with examples to construct cognitive bridges and provide non-evaluative feedback, thereby deepening students' understanding of abstract concepts. In contrast, the I^nR^n(S) pattern encourages students to actively participate by asking questions and sharing insights, which fosters effective communication with teachers, deepens the understanding of teaching content, and broadens the perspectives of academic exploration. Both patterns can enhance the guiding role of teachers and the agency of students, optimize teaching outcomes, and elevate students' cognitive abilities.

$I[R^nF^n]$

The $I[R^nF^n]$ pattern (Initiate-[Response-Feedback…Response-Feedback]) typically begins with the teacher posing a question or viewpoint to stimulate discussion. After the students provide a response, the teacher does not hastily move on to another

topic but instead offers feedback on the students' responses, encouraging them to continue thinking deeply and providing more profound replies. Finally, the teacher evaluates the students' responses. The responses and feedback (R-F) in this process can iterate multiple times, forming a dynamic cycle of communication.

Example 6:

27	I	T	Is there anyone else? We just saw many students in the back, let's ask...this boy to say something. **(The teacher pointed to one of the students who raised his hand)**	还有没有？刚才我们看后面有很多同学，我们请…这位男生来说一下。**（教师指着举手的其中一位学生）**
28	R1	L1	What I want to say is...the reason why Chinese characters are still in use, take the four ancient scripts as an example, the first one...the hieroglyphs of upper and lower Egypt were destroyed by Alexander, then the Sumerian cuneiform script, the Sumerians were also destroyed by something I forgot...later. And then, the second is...What comes from.....	我想说的是…汉字它之所以现在还在使用，就拿…四大古文字来作比方，第一个…圣书字…上下埃及被亚历山大给灭了，然后苏美尔楔形文字，苏美尔人也被后面的什么我给忘记了…给灭了。然后，第二个是…是什么来的.....
29	F1	T	Mayan script. =	玛雅文字。=
30	R2	L1	=Oh yes, the Mayan script was extinct due to climate reasons. But the Han people or the Huaxia civilization, from 5000 years ago, from the Xia Dynasty or even	=哦对，玛雅文字是因为气候原因灭绝了。但是汉族人或者华夏文明，从 5000 年前，从夏朝甚至之前就一直传承到现在，然后，汉字也一直

			before, has been passed down to now, and then, Chinese characters have also been in use all the time, although they were intermittently ruled by other minorities, but...the main culture, still a...in a narrow sense...called Han culture has been passed down.	在使用，虽然其中断断续续地会被其他的一些少数民族…统治，但是…主体的文化，还是一个…说狭义一点…叫汉文化是一直在传承的。
31	F2	T	Hmm! Very good, please sit down.	嗯！非常好，请坐。

In the I[R^nF^n] pattern, the teacher's feedback is crucial. Feedback that is targeted and thought-provoking not only motivates students to increase their discourse output but also encourages them to engage in deeper reflection. As seen in Example 6, lines 28 to 29, when a student encountered a block in their thinking, the teacher provided a key prompt in line 29. This prompt effectively facilitated the student to produce a richer discourse in line 30. By analyzing the content of the student's discourse, it can be observed that the student was able to consider multiple factors such as historical context and natural environment, leading to a more profound analysis of the development history of the four great ancient scripts. This pattern allows teachers to more accurately gauge students' mastery of specific knowledge points, aiding in the adjustment and optimization of teaching strategies.

[I^nR^n]FR

The [I^nR^n]FR pattern ([Initiate-Response…Initiate-Response]-Feedback-Response) features multiple rounds of [Initiation-Response] cycles in the interaction between teachers and students. At the culmination of this process, the teacher provides feedback or a summary, followed by a response from the student to the teacher's feedback. Compared to the [I^nR^n]F pattern, the distinctive feature of this mode is the

addition of a student response phase in the final discourse turn. This not only offers students the opportunity to reflect on and engage further in dialogue with the teacher's feedback but also fosters in-depth exploration and understanding of the teaching content.

Example 7:

32	I	T	Not only...not necessarily limited to the "Analects of Confucius", can we also find it in other classics? Have you memorized any verses from the "Book of Songs"? Reeds are green.....	不仅…不一定要局限于《论语》，其他的典籍当中也可以，有没有？《诗经》当中你们背过哪些诗句？蒹葭苍苍.....
33	R1	LL	White dew turns to frost. The so-called beautiful woman, on the other side of the water.	白露为霜。所谓伊人，在水一方。
34	I2	T	Is there any more?	还有没有？
35	R2	LL	Quacks quacks on the river island. Graceful and beautiful girls, young men are fond of them.	关关雎鸠，在河之洲。窈窕淑女，君子好逑。
36	F	T	Well, let's see if as long as we can read, even if we don't understand the ancient pronunciation, we can understand...their meaning.	好，我们看一下是不是…只要我们识字，我们即使不懂古代的发音，我们也能够理解…它们的意义。
37	R	LL	Right.	对。

In Example 7, the teacher effectively mobilized the students' knowledge reserve of poetry through continuous initiation strategies, thereby significantly increasing the students' discourse volume in the classroom. In the final stage of classroom interaction,

the teacher's feedback precisely illuminated the reason why Chinese characters serve as a bridge between ancient and modern times. The student's response in line 37 to the teacher's feedback not only indicated a profound understanding of the teacher's educational intentions but also demonstrated that they had formed their own judgment of the knowledge point. Compared to the [I^nR^n]F pattern, the advantage of the [I^nR^n]FR pattern lies in allowing teachers to assess students' understanding and recognition of relevant knowledge points through their responses in the last turn of the discourse. Additionally, this pattern reflects the process of students' active thinking in the classroom.

IR[F^nR^n]

The IR[F^nR^n] pattern (Initiate-Response-[Feedback-Response…Feedback-Response]) begins with the teacher's initial initiation, and after the students respond to the teacher's questions or discussion points, they go through a series of [Feedback - Response] cycles. The teacher provides targeted and constructive feedback based on the students' answers, aiming to further deepen the discussion or correct understanding. The students' responses are usually concise, mainly confirming or briefly expanding on the feedback provided by the teacher. This pattern often appears in scenarios where students participate in classroom discussions with a larger volume of discourse. The teacher uses continuous feedback to evaluate students' viewpoints or provide a broader perspective, thereby deepening students' understanding of the relevant topics.

Example 8:

38	I	T	Are there any other students who want to express their opinions? Do you think we should implement word segmentation and writing? **(Students raised**	还有没有其他同学想要说一下自己的看法？你觉得应不应该实行分词连写？**（有学生举手想要回答）**好，我们请这位同学来说一下，**（教**

			their hand to answer) Okay, let's ask this student to talk about it, **(The teacher pointed to one of the students who raised his hand)** what do you think.....	**师指向举手的其中一位学生）**你认为.....
39	R	L2	I think there is no need to implement word segmentation and writing, because we have...punctuation marks in Chinese characters to divide them, and then we can already express our meaning clearly. And secondly, from an aesthetic point of view, implementing word segmentation and writing is not beautiful enough.	我认为没有必要分词连写，因为我们那个…汉字中有标点符号去进行划分，然后就已经可以将我们的意思表达清楚。然后其次的话，从美观的角度来讲，实行分词连写就不够美观了。
40	F1	T	Well, implementing word segmentation and writing is not very beautiful, and it is not very convenient when we print, right?	嗯，实行分词连写的话就不太美观，我们印刷的时候也不太方便，对不对?
41	R1	L2	Yeah!	嗯!
42	F2	T	Okay, please sit down. That is to say...we do not implement...word segmentation and writing in Chinese characters, which is actually adapted to the needs of Chinese, right?	好，请坐。也就是说…我们汉字不实行…分词连写，其实它也是适应了汉语的需要，对不对?

43	R2	L2	Yeah!	嗯!

In Example 8, the teacher's initial initiation prompted the students to respond from two dimensions. At line 40, the teacher affirmed the students by restating part of their viewpoints and then delved into further expansion on this basis. At line 42, the teacher further abstractly generalized the students' viewpoints, clearly stating that the reason Chinese characters do not adopt word separation and continuous writing is to adapt to the needs of the development of the Chinese language. At the same time, the study observed that the students' responses at lines 41 and 43 were concise, both using words like "Yeah!" to express agreement with the teacher's feedback. The advantage of this pattern lies in the teacher's ability to continuously expand and deepen students' understanding of specific knowledge points through multiple rounds of feedback.

IRFR

The IRFR pattern (Initiation - Response - Feedback - Response) is divided into two categories: one initiated by the teacher, denoted as IRFR(T), and the other initiated by the student, denoted as IRFR(S). In the context of IRFR(T), when the teacher's feedback serves a corrective purpose or aims to introduce new knowledge points, students may demonstrate their understanding and acceptance of the teacher's information by imitating or repeating the teacher's most recent discourse.

Example 9:

44	I	T	Alright, let's look at the first option. The first stroke of "亦" is a left-falling stroke (撇), right?	好, 我们看一下第一个选项, "亦"的第一笔是撇，对吗?
45	R	LL	That's incorrect.	错的。
46	F	T	Wrong, [you start with the center and then write the sides].	错，[先写中间，后写两边]。
47	R	LL	[Start with the center and then write the sides].	[先写中间，后写两边]。

In Example 9, the teacher affirmed the student's response at line 46 and clearly stated the reason: the stroke order rule that should be followed when writing the Chinese character "亦" — "Start with the center and then write the sides" Notably, the student almost simultaneously uttered this rule with the teacher, indicating that the student had already understood the real reason why the first stroke of the character "亦" is a "dot" rather than a "left-falling stroke".

In the IRFR(S) scenario, the interaction is generally initiated by the student, with the teacher subsequently confirming the student's question or viewpoint and providing further responses after receiving feedback from the student. This pattern effectively demonstrates the students' proactive spirit of inquiry in the classroom and fosters in-depth communication between students and teachers.

Example 10:

48	I	L	Let's discuss the sixth one.	第 6 个讲一下。
49	R	T	The sixth one—do the students want to hear about it?	第 6 个，同学们想听是吧？
50	F	LL	Yes.	对。
51	R	T	Alright, sure. It seems our class is up for a challenge.	可以，好的。行，咱们班同学有挑战精神了。

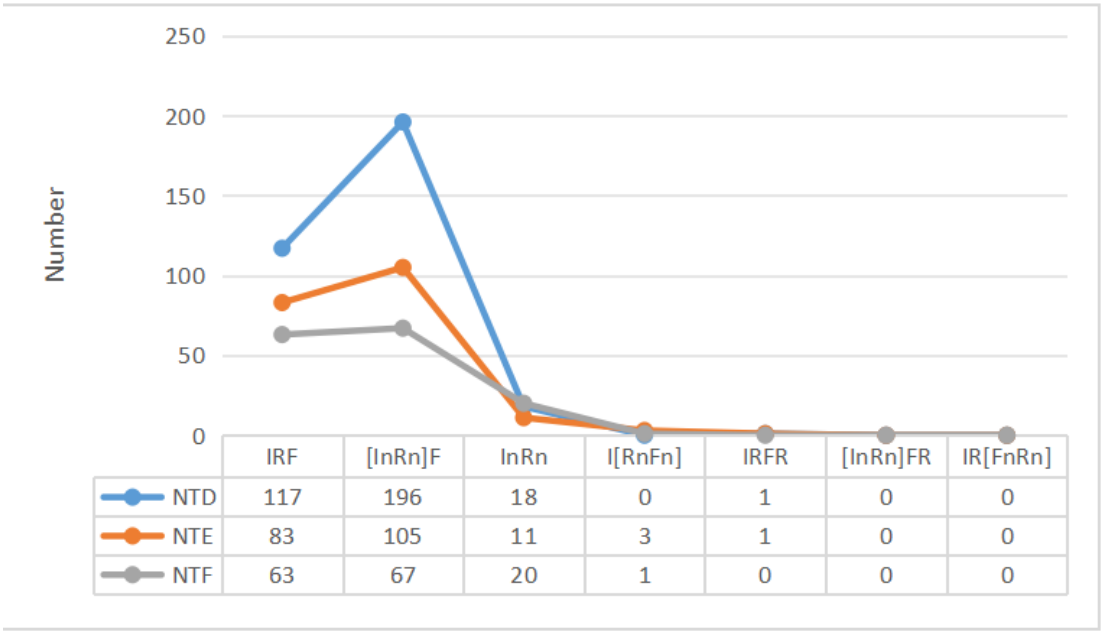
In Example 10, the interactive conversation occurred after the teacher had consecutively explained the hierarchical analysis of five sentences and asked the students to independently divide the remaining sentences. Faced with the challenge of dividing the hierarchy of the sixth sentence, a student proactively sought help from the teacher. Upon confirming the student's request, the teacher provided positive feedback at line 51, affirming and appreciating the student's spirit of challenge.

4.2.2 Analysis of classroom interactional discourse Patterns of new Teachers

Through the analysis of transcribed corpus data, the total number of occurrences of classroom interactional discourse patterns among the three new teachers was tallied

(as shown in Table 14). The data from Table 24 indicate:

Table 14 A Statistical Chart of the Number of Interaction Patterns of New Teachers



	IRF	[InRn]F	InRn	I[RnFn]	IRFR	[InRn]FR	IR[FnRn]
NTD	117	196	18	0	1	0	0
NTE	83	105	11	3	1	0	0
NTF	63	67	20	1	0	0	0

In the analysis of classroom interactional discourse patterns of the three new teachers, we identified five distinct patterns: IRF, [I^nR^n]F, I^nR^n, I[R^nF^n], and IRFR. Among these patterns, the [I^nR^n]F pattern occurred most frequently, followed by the IRF pattern. In contrast, the I^nR^n, I[R^nF^n], and IRFR patterns occurred relatively less often. This finding indicates that in the classroom teaching practice of new teachers, the IRF and [I^nR^n]F patterns constitute the primary forms of classroom interaction.

The IRF pattern is the earliest identified and most fundamental classroom interaction pattern. Its frequency in the classrooms of the three new teachers indicates that they continue to play a key role in content delivery and pace regulation during classroom teaching. However, it is noteworthy that the use of more complex interaction patterns in the classroom has reached 61.66%, which is a significant increase of 16.36% compared to the statistical results of Li &Liu in 2016 (45.3%). This upward trend reveals a growing emphasis on student participation and classroom contribution in the teaching

practice of new teachers.

By increasing the number of interactional rounds between teachers and students, new teachers can not only promote students' in-depth thinking more effectively but also stimulate their critical thinking and proactive learning abilities. This shift in teaching patterns indicates that new teachers are gradually moving away from the traditional teacher-centered model towards an educational strategy that highlights student agency and interactivity. By adopting a variety of interaction patterns, teachers motivate students' thinking and participation, achieving effective knowledge transfer and comprehensive enhancement of student capabilities. This transformation not only improves the quality of classroom interaction and learning outcomes but also provides new ideas and directions for the innovation of modern language teaching methods. It reflects the continuous pursuit of the depth and breadth of teaching interaction in educational practice, as well as the ongoing focus on improving students' comprehensive qualities.

Among the five patterns, the [I^nR^n]F pattern occurred significantly more frequently than the others. This indicates that new teachers adopt a variety of initiation strategies in classroom interaction to motivate students to think and respond, thereby promoting students' in-depth understanding of classroom content and the enhancement of cognitive abilities. As illustrated in Example 11:

52	I1	TD	Do you have any favorite Chinese characters?	你们有什么喜欢的汉字吗？
53	R1	L	Money. **(Other students laugh)**	钱。**（其他学生们笑了）**
54	I2	TD	Let's use "money" then. **(Wrote the pinyin "qián" on the blackboard)** This is the pinyin for "money," right? Let's see how many parts this pinyin has?	那我们就“钱”吧，**（在黑板上写下“钱(qián)”的拼音）**这是“钱”的拼音对吧？我们看一下这个拼音由几部分构成？

55	R2	LL	Three parts.	三部分。
56	I3	TD	How many parts?	几部分?
57	R3	LL	Three parts \ Two parts.	三部分\两部分。
58	I4	TD	I just mentioned the tone mark, and now you're saying two parts—what about the tone mark? Three parts, right? What is this?	我刚讲了声调符号，你就跟我说两部分，那声调符号呢？三部分，对吧？这个是什么?
59	R4	LL	Initial(声母).	声母。
60	I5	TD	Very good, this is called the initial(声母). And what about the rest?	很好，这个叫声母，那后面的就是?
61	R5	LL	Final(韵母).	韵母。
62	I6	TD	Yes, the rest is the final. And this one?	对，后面的就是韵母。这个呢?
63	R6	L	Tone(声调).	声调。
64	I7	TD	Is it the tone(声调)?	是不是声调?
65	R7	LL	Yes.	对。
66	I8	TD	In other words, except for the neutral tone, basically all syllables are made up of three parts. Now, can the initial be further divided?	也就是说，除了这个轻声啊，基本上所有的音节，它都是三个部分，那我们看一下这个声母还能不能再分了?
67	R8	LL	No.	不能。
68	F	TD	Right, when we divide the syllable, what is the smallest unit we get? Phoneme, right? Phoneme!	对，我们说分音节的话，我们分出来最小的单位是什么？音什么？音素对吧？音素嘛!

In Example 11, Teacher D utilized a variety of non-verbal and verbal cues,

including blackboard writing (line 54), intonation adjustments (line 56), and the alternating use of interrogative and alternative questions, to guide students' thinking and self-correction. At line 52, Teacher D posed a question from the students' perspective, prompting them to verbalize their favorite Chinese characters. Subsequently, at lines 64 and 66, Teacher D employed the form of yes-no questions to check students' understanding of specific knowledge points. By utilizing examples provided by the students themselves, Teacher D clearly explicated the relationship between Chinese syllables and phonemes.

Under this teaching pattern, although Teacher D continued to maintain the role of the leader in classroom interaction, a series of [Initiation-Response] cycles effectively enhanced students' classroom participation and discourse contribution. This teaching strategy not only achieved bidirectionality in teaching interaction but also endowed the classroom with dynamism. In the implementation of this pattern, students were given more space for thinking and expression, thus participating and contributing more actively in the learning process, which is of significant importance for cultivating students' critical thinking, problem-solving abilities, and communication skills.

Among the three patterns I^nR^n, $I[R^nF^n]$, and IRFR, the I^nR^n pattern occurred more frequently than the other two. The I^nR^n pattern typically appears in the segment where teachers provide specific examples after completing theoretical explanations to deepen students' understanding. As shown in Example 12:

69	I1	TE	For example, with...the structure of the three-sided enclosure(下三包围), we start from the inside and then go to the outside. For "凶," which stroke do we write first?	比如说…对于下三包围的结构，我们要先内后外，“凶”先写哪一笔啊？
70	R1	LL	((4))	((4))
71	I2	TE	Yes, first we write the left-falling	对，先写一撇，再写一点，再写

			stroke (撇), then the dot, and then the box below, right? Good. For the left three-sided enclosure(左三方围) structure, we start from the top, then the inside, and then the vertical bend. For "区," what is the first stroke? Horizontal. And the second stroke? =	下面的这个框框，对吧？好，左三方为结构，是先上后内，再竖折。区，区第一笔是什么？横。第二笔呢？=
72	R2	L	=Left-falling stroke.	=撇。
73	I3	TE	Left-falling stroke. The third stroke is a [dot].	撇，第三笔是[点]。
74	R3	L	[dot].	[点]。
75	I4	TE	Then write the vertical bend below. Also, for the structure with "言"' and "建" as components, we [start from the inside and then go to the outside].	再写下面的竖折啊。好，还有这种…言字旁和建字旁包围的结构，我们[先内后外]。
76	R4	L	[Start from the inside and then go to the outside].	[先内后外]。

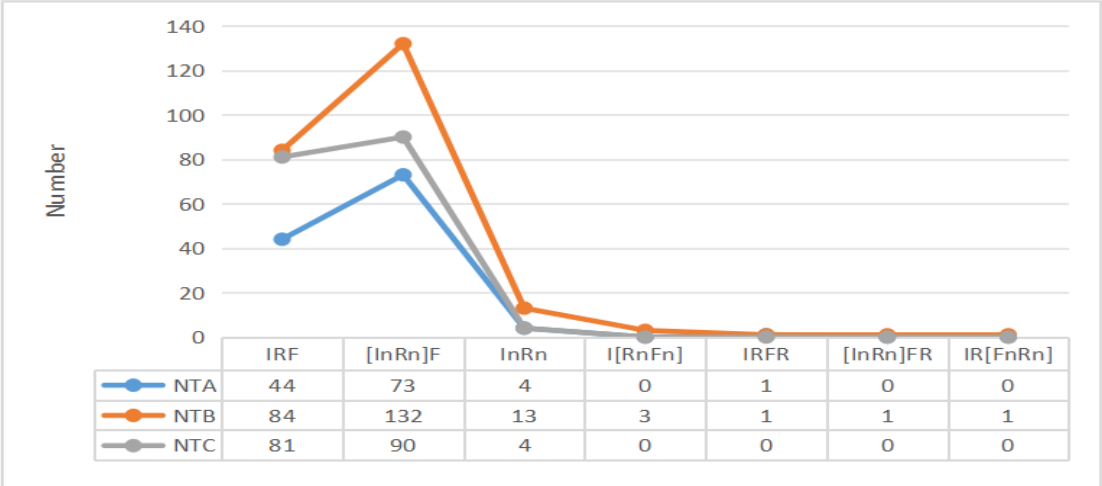
In Example 12, Teacher E, during the elucidation of the concept of stroke order, employed the Chinese characters "凶" (xiong, meaning "fierce" or "ominous") and "区" (qū, meaning "area" or "district") as examples to deepen students' understanding and appreciation of the rules of Chinese character stroke order. By utilizing the I^nR^n pattern, Teacher E demonstrated a teaching strategy inclined to use concrete examples to elucidate and reinforce abstract theories. This strategy not only facilitated students' comprehension and mastery of complex concepts but also stimulated their in-depth reflection and active engagement with the classroom content.

4.2.3 Analysis of classroom interactional discourse Patterns of Experienced Teachers

Through the analysis of transcribed corpus data, the total number of occurrences of classroom interactional discourse patterns among the three experienced teachers was tallied (as shown in Table 15). The data from Table 15 indicate:

In the detailed analysis of the classroom interactional discourse patterns of the three experienced teachers, the study identified seven patterns: IRF, [I^nR^n]F, I^nR^n, I[R^nF^n], IRFR, [I^nR^n]FR, and IR[F^nR^n]. Among these patterns, the [I^nR^n]F pattern occurred most frequently, followed by the IRF pattern, with the I^nR^n pattern ranking third in frequency. In contrast, the I[R^nF^n], IRFR, [I^nR^n]FR, and IR[F^nR^n] patterns occurred less often and were mainly concentrated in Teacher B's classroom. This phenomenon reveals a trend similar to that of new teachers: the IRF and [I^nR^n]F patterns constitute the dominant forms of classroom interaction for experienced teachers.

Table 15 A Statistical Chart of the Number of Interaction Patterns of Experienced Teachers



	IRF	[InRn]F	InRn	I[RnFn]	IRFR	[InRn]FR	IR[FnRn]
NTA	44	73	4	0	1	0	0
NTB	84	132	13	3	1	1	1
NTC	81	90	4	0	0	0	0

In Teacher B's classroom, the I[R^nF^n] pattern occurred three times. In the previous analysis, we understood that the interactive themes of this pattern are generally focused, and students' responses are not just minimal responses like "um" or "yes," but

rather small or sustained speeches that contain more of their own thoughts (Li, 2019). As illustrated in Example 13:

77	I1	TB	Alright, is there anyone else who would like to speak? So many of you, alright, let's have you start.	好，还有没有同学来说一下？这么多，好，我们请你来先说一下。
78	R1	L	First, I think Chinese characters have a feature where the same sound can be represented by many different characters.	首先认为汉字它本身就是有一个特点就是同一个音可以用很多字表示。
79	F1	TB	Yes!	嗯！
80	R2	L	This way, it extends their use over time, so we don't end up with a shortage of characters to express certain sounds.	然后这样的话就让它的寿命更长，不至于说那种很少字，然后说着说着没有字可以说了。
81	F2	TB	Very good, **(happily)** please sit down. Our classmate mentioned some characteristics of Chinese characters, right? For example, in Chinese, there are many homophones. But when we use Chinese characters to express these sounds in writing, we can clearly distinguish them.	好，非常好，**（开心地说）**请坐。我们这位同学他提到了汉字本身的一些因素，对不对？比如说，汉语里面有很多的同音词。但是我们用汉字去表达，在书面上他们是…可以清晰的分别开来。

Example 13 is an open discussion centered on the theme "The reasons for the longevity and vitality of Chinese characters." The theme has no set standard answers and is designed to stimulate students' thinking and discussion. At lines 78 and 80, students analyzed the reasons for the long-term transmission of Chinese characters

based on the rich characteristics of homophones in Chinese. Teacher B encouraged students to continue expressing their opinions at line 79 with an affirmative interjection, "Yes!", and at line 81, Teacher B affirmed the students' responses while summarizing and further deepening these viewpoints.

The I[R^nF^n] pattern can effectively promote students' independent thinking and creative thinking. Through this pattern, teachers can perceive the depth of students' understanding of specific themes. However, this pattern only appeared three times in the entire corpus, indicating that student-centered classroom interactional discourse patterns have not yet been widely adopted in actual teaching. This phenomenon implies that the further promotion and application of student-centered teaching models have significant research and practical value.

In the corpus of experienced teachers, the pattern IRFR(S) was observed. This pattern can effectively demonstrate students' proactive spirit of inquiry in the classroom (as illustrated in Example 10 of the previous text). It appeared once in the classrooms of Teachers A and B. This phenomenon indicates that situations where students take the initiative to raise questions or guide topics are very rare; students are mainly reactive to teachers' questions or instructions in classroom interactions, remaining in a relatively passive position. Although teachers have adopted various strategies in teaching design to enhance students' participation and discourse contribution, students' involvement in active question, exploration, and knowledge construction is still not satisfactory. This suggests that while teachers' efforts are commendable, there is still room for improvement in stimulating students' proactivity.

In Teacher B's classroom, the study also identified the two interaction patterns, IR[F^nR^n] and [I^nR^n]FR. The IR[F^nR^n] pattern tends to be observed in contexts where students actively participate in discussions and have a high volume of discourse production. The advantage of the [I^nR^n]FR pattern is that teachers can assess students' understanding and recognition of knowledge points through their responses in the last

turn of the discourse. Both patterns play a positive role in assessing students' proactivity in classroom interactions.

This phenomenon indicates that compared to Teachers A and C, Teacher B demonstrates greater diversity in the use of classroom interactional discourse patterns and places more emphasis on exerting students' agency in the classroom. Nevertheless, the low frequency of these two patterns also reflects that the potential for students to exert their agency in the classroom has not yet been fully explored.

4.2.4 Comparative Analysis of classroom interactional discourse Patterns between New and Experienced Teachers

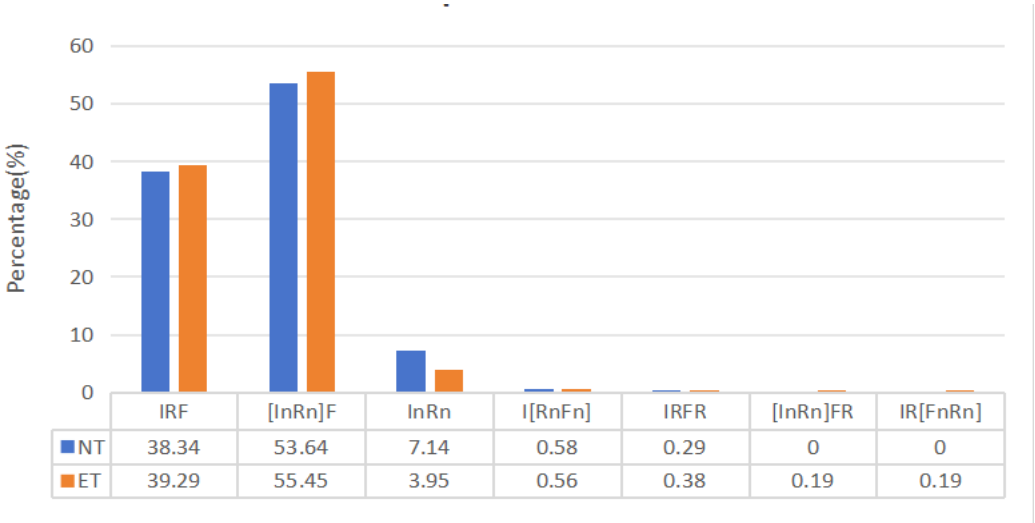
Based on the frequency count of interaction discourse patterns in the classrooms of new and experienced teachers, the study created a frequency chart of classroom interactional discourse patterns for both types of teachers. As shown in Table 16:

4.2.4.1 Similarities in classroom interactional discourse Patterns between New and Experienced Teachers

[I^nR^n]F and IRF are the Dominant Interaction Discourse Patterns

According to the statistical data in Table 16, the study found that [I^nR^n]F and IRF are the main interactive discourse patterns in the classrooms of both types of teachers.

Table 16 Classroom Interaction Patterns Frequency Chart of New and Experienced Teachers



	IRF	[InRn]F	InRn	I[RnFn]	IRFR	[InRn]FR	IR[FnRn]
NT	38.34	53.64	7.14	0.58	0.29	0	0
ET	39.29	55.45	3.95	0.56	0.38	0.19	0.19

The [I^nR^n]F pattern has an absolute advantage in classroom interaction, followed by the IRF pattern. This phenomenon indicates that both new and experienced teachers have classrooms that are teacher-led. However, the frequency of the [I^nR^n]F pattern is significantly higher than that of the IRF pattern, reflecting a conscious effort by both types of teachers to stimulate students' active thinking and enhance their discursive contributions in the classroom by increasing the cycles of initiation and response.

I^nR^n, I[R^nF^n], and IRFR are Distributed in the Classrooms of Both Types of Teachers

Both types of teachers' classrooms have exhibited the I^nR^n, I[R^nF^n], and IRFR patterns, with the I^nR^n pattern occurring significantly more frequently than the other two. This indicates that both types of teachers tend to use examples to assist students in understanding and mastering abstract theoretical concepts. The use of examples in teaching can effectively combine theory with practice and promote students' cognitive development. The I^nR^n pattern can be further divided into two subclasses:I^nR^n(T) and I^nR^n(S). A detailed comparison was made between the texts with I^nR^n(S) in the classrooms of new and experienced teachers. The study results show that in both types of teachers' classrooms, the frequency of students actively asking questions is higher than that of presenting new viewpoints, and the questions raised by students may be related to classroom teaching content or may involve matters unrelated to classroom teaching content, such as how to use teaching software. This also indirectly reflects that students' ability to actively construct knowledge in the classroom needs to be improved. However, the low frequency of the I[R^nF^n] and IRFR patterns also indicates that students have relatively few opportunities for sustained speech and active question in the classrooms of both types of teachers.

4.2.4.2 Differences in classroom interactional discourse Patterns between New and Experienced Teachers

The [I^nR^n]FR and IR[F^nR^n] Patterns only Appear in the Classrooms of Experienced Teachers.

When comparing and analyzing the classroom teaching interaction discourse patterns of experienced and new teachers, the study observed that the [I^nR^n]FR and IR[F^nR^n] patterns appeared in the classrooms of experienced teachers, while these two patterns were not applied in the classrooms of new teachers. The significant feature of the [I^nR^n]FR pattern is that its last turn R is usually completed by the student, providing an opportunity for teachers to assess students' understanding of relevant knowledge points. In the IR[F^nR^n] pattern, students' responses often manifest as continuous or small speeches, which include students' personal thinking and insights. The existence of these two patterns has a significant positive effect on assessing students' proactivity in classroom interaction. They not only demonstrate the diversity of experienced teachers in classroom interactional discourse patterns but also reflect these teachers' intentions to guide students to think actively in the classroom.However, it is worth noting that although these two patterns appear in the classrooms of experienced teachers, the frequency is extremely low, only 0.19%.

The Frequency of the I^nR^n Pattern Appears Differently in the Cassrooms of the Two Types of Teachers

The I^nR^n pattern occurred in the classrooms of both types of teachers, but the frequency in new teachers' classrooms (7.14%) was significantly higher than that of experienced teachers (3.95%). This difference indicates that the I^nR^n pattern was used more frequently in the teaching practice of new teachers, who tend to use examples to explain and illustrate theoretical knowledge when teaching.

The study counted the frequency of the two subclasses, I^nR^n(T) and I^nR^n(S). The results show that in the classrooms of experienced teachers, the frequency of the I^nR^n(S) pattern was 26.32%, slightly higher than that of new teachers (22.45%). This difference indicates that experienced teachers may be more inclined to create opportunities for students to participate in classroom discussions, thereby promoting students' active learning and the development of critical thinking.

The Frequency of the IRFR(S) Pattern Appears Differently in the Cassrooms of the Two Types of Teachers

Both new and experienced teachers' classrooms exhibited the IRFR pattern. The study particularly focused on the two subclasses of this pattern: IRFR(T) and IRFR(S). The study results show that in the classrooms of experienced teachers, the IRFR pattern appeared twice, all initiated by students, belonging to the IRFR(S) type. In contrast, in the classrooms of new teachers, the IRFR pattern also appeared twice, but one was initiated by a student, and the other was initiated by a teacher. This result reveals to some extent that students in the classrooms of experienced teachers show higher proactivity. Students in the classrooms of experienced teachers are more inclined to take the initiative to raise questions or viewpoints, thereby guiding classroom discussions.

4.3 The Classroom Interactional Strategies Used by New and Experienced Modern Chinese teachers

Classroom question, feedback, and silence are among the most frequently utilized interactional strategies by teachers when engaging with students in the classroom setting. This study conducts a comprehensive examination of how new and experienced teachers employ these strategies within the classroom to facilitate interaction with students. The analysis will delve into the specific applications of classroom question to stimulate thought, the provision of feedback to reinforce learning, and the intentional use of silence to create spaces for reflection.

4.3.1 Comparative Analysis of Classroom Question by New and Experienced Teachers

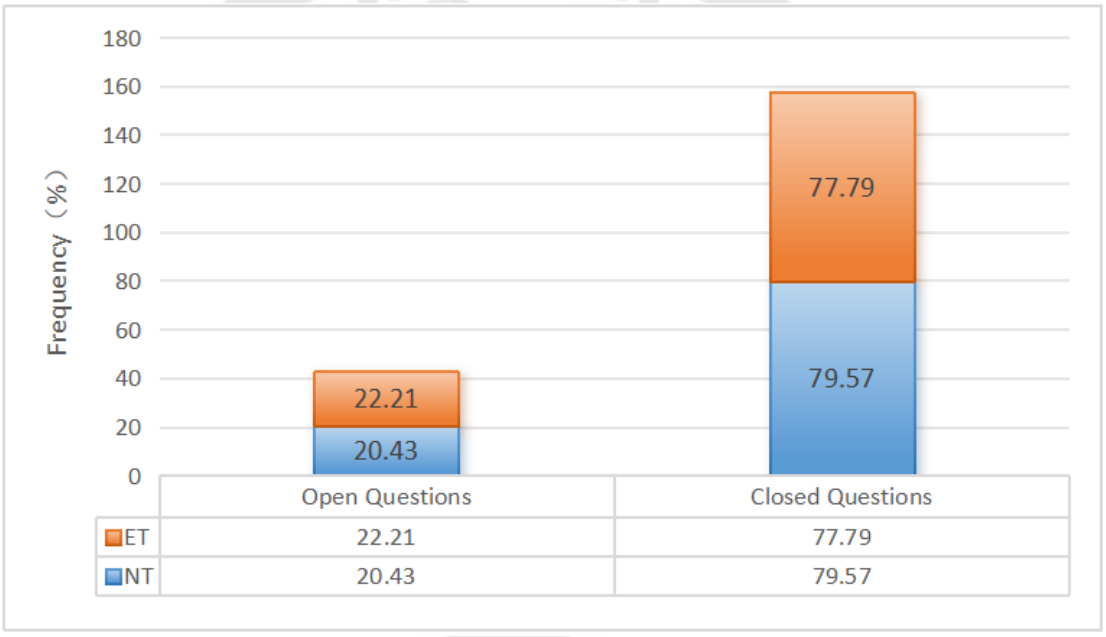
Classroom questioning is an important teaching strategy. It can not only promote students' participation and communication, but also help students adjust and improve their language expression ability. The study conducted a comparative analysis from two aspects: classroom questioning types and classroom questioning strategies, to examine the similarities and differences existing among new and experienced teachers in

classroom questioning.

4.3.1.1 Comparative Analysis of Classroom Question Types by New and Experienced Teachers

Building on the data from Table 16 in the preceding text, the study compiled the proportions of closed and open questions asked by new and experienced teachers in the classroom. As shown in Table 17:

Table 17 Classroom question Types Frequency Table for New and Experienced Teachers



After an in-depth analysis of the data in Table 17, it is evident that for both types of teachers, the proportion of closed questions used in classroom question significantly exceeds that of open questions. This phenomenon suggests that current classroom teaching remains primarily focused on knowledge dissemination, with less emphasis on the cultivation and expansion of students' thinking abilities.

Borich (2002) proposed an ideal ratio model for closed and open questions in classroom questioning in his research. Depending on the complexity of the classroom

content, Borich suggests that if the complexity level of the classroom content is low, the optimal ratio of closed to open questions should be 70:30; when the complexity level of the classroom content is high, this ratio should be adjusted to 60:40. This recommendation provides a reference standard for measuring the quality of classroom questioning. However, the study found that the ratio of closed to open questions in the classroom questioning of the two types of teachers observed did not reach the optimal state suggested by Borich.

The proportion of experienced teachers asking open questions in the classroom is 22.21%, while that of new teachers is 20.43%. This data indicates that the gap between the two types of teachers in setting open-ended questions is not obvious. However, we must not overlook individual differences. Taking experienced Teacher A and new Teacher E as examples, in the classroom of experienced Teacher A, the ratio of closed to open questions is 10.32:89.68. In the classroom of new Teacher E, the ratio is 33.54:66.46. This indicates that even though the data shows that the proportion of new and experienced teachers using open questions as a whole is not significantly different, this might mask the differences among individual teachers. Some new teachers have already shown a tendency to use open questions, while some experienced teachers may prefer closed questions.

4.3.1.2 Comparative Analysis of Classroom Question Strategies of New and Experienced Teachers

Classroom question strategies are key to fully leveraging the important role of questioning in classroom teaching. Gu et al. (2005) noted that high-density questioning has become an important means of classroom instruction. However, the application of classroom question strategies by Chinese teachers remains relatively singular, which may limit the maximization of teaching effectiveness. Combined with the research of Hu et al. (2004), the classroom questioning strategies are classified into six major categories: probing, chaining, repetition, simplification, rephrasing and decomposition.

As shown in the table 18.

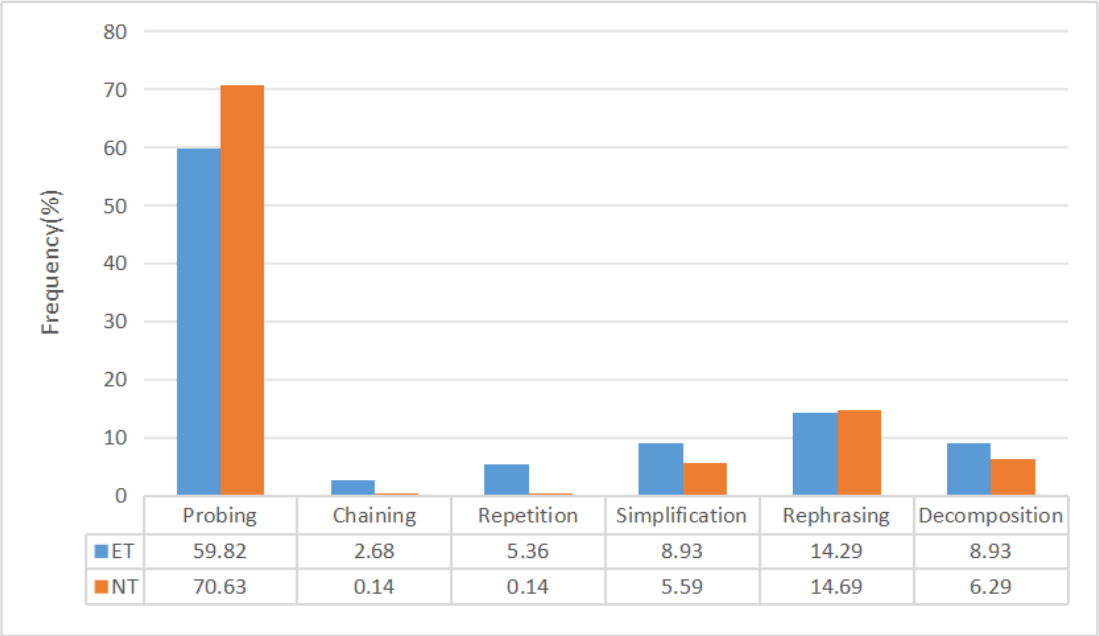
Table 18 Questioning Strategy Type Table

Type	Definition	Example
Probing	Probing refers to the teacher asking several related questions following an initial question, typically forming a chain of questions that guides students to delve deeply into the topic.	Teacher: Is it the middle(中(zhōng)) or the end(终(zhōng))? Student: All are possible. Teacher: If we write it down in words still have ambiguous?
Chaining	Chaining refers to the teacher skillfully linking students' answers in the form of questions during the questioning process, creating coherence in classroom interaction while capturing students' attention.	Student: The word "warrior" contains the meaning of male. Teacher: Makes sense. The words "strongman", "warrior" and "king" actually imply the meaning of male. So what does this reflect? What is the deeper reason?
Repetition	Repetition involves the teacher re-asking the same question to ensure there is no misunderstanding.	Teacher: Did I fall down? Students: no/fell. (the students had "no" and "fell" two different opinions) Teacher: Did I fall down?
Simplification	Simplification is when the teacher re-asks a complex	Teacher: What type of structure is it? (4)

	question in a simplified form, enabling students to more easily grasp the essence of the question.	Teachers: Is it superimposed words or overlapping tone words?
Rephrasing	Rephrasing is when the teacher restates the question using different words to help students understand the question from various perspectives.	Teacher : What kind of impression did this poem he recited give us? (2) Teacher: Can we feel the beauty of Chinese language from this poem?
Decomposition	Decomposition is when the teacher breaks down a question into multiple sub-questions and asks them one by one to ensure students can fully understand all aspects of the question.	Teacher: Which tone does the character "平" in the word "平台"(platform) ? Students: Rising tone. Teacher: Rising tone. Which tone does the character "台"?

The study conducts a detailed statistical analysis of the classroom question strategies of the six teachers. Comparisons reveal significant differences in the question methods of the two types of teachers (see Table 19). These findings not only provide an empirical basis for educators but also offer guidance for further optimizing teaching methods.

Table 19 Statistical Table of Classroom Question Strategies of New and Experienced Teachers



	Probing	Chaining	Repetition	Simplification	Rephrasing	Decomposition
ET	59.82	2.68	5.36	8.93	14.29	8.93
NT	70.63	0.14	0.14	5.59	14.69	6.29

Through comparative research, it was found that the six types of question strategies are present in the classrooms of both new and experienced teachers, but the distribution proportions vary. There are significant differences in the use of classroom question strategies between new and experienced teachers. The most frequently used question strategy by both types of teachers is probing, followed by rephrasing. The probing strategy can stimulate students' participation and interest in the classroom, make the teaching process more vivid, and provide teachers with immediate feedback, thus being more favored by teachers. The rate at which new teachers use the probing strategy is 70.63%, significantly higher than that of experienced teachers (59.82%), indicating that new teachers rely more on probing to organize classroom question and answer. The rate at which new teachers use the rephrasing strategy is 14.69%, while for experienced teachers, it is 14.29%, almost equal.

Rephrasing is the second most frequently used type of strategy. Experienced

teachers use the strategies of chaining, repetition, simplification, and decomposition more than new teachers. In other words, experienced teachers use a more diverse range of question strategies, possibly placing greater emphasis on the coherence of classroom interaction, consolidation of student understanding, comprehensibility of questions, and comprehensiveness of issues. However, the strategies of chaining, simplification, and decomposition are used by both types of teachers in proportions not exceeding 10%. This phenomenon indicates that these strategies are not widely applied in teaching practice.

4.3.2 Comparative Analysis of Classroom Feedback by New and Experienced Teachers

Teacher feedback refers to the immediate information provided by teachers to students regarding their learning performance and understanding during teaching activities (Shute, 2008). This feedback includes not only affirmation of correct answers but, more importantly, correction of students' misconceptions and guidance on difficulties encountered in the learning process. Teacher feedback can promote student learning and affect academic performance (Hattie & Zierer, 2019). Drawing on the theoretical framework of prior studies and incorporating actual data, this research has constructed a table of teacher-feedback categories. It conducts a comparative analysis of classroom feedback from new and experienced teachers.

4.3.2.1 Identification and Verification of Classroom Feedback Categories by New and Experienced Teachers

Nunan (1991) categorized teacher feedback into positive and negative feedback. Positive feedback refers to the affirmation and praise teachers give to students' responses, while negative feedback refers to the feedback given for less-than-satisfactory responses. Building on Nunan's (1991) work, researchers such as Hu et al. (2004) and Guo (2014) have further refined the classification of positive and negative feedback. This study, combining the previous classification methods with the actual transcribed texts, has generated the categories of teacher feedback for this

research, as shown in Table 20.

Table 20 Teacher Feedback Types Table

Primary Classification	Secondary Classification	Definition	Example
Positive Feedback	Simple Praise (F1)	Satisfied with the answer, give a simple affirmation and praise.	Students: Sequential semantic field. Teacher: Hmm, good.
	Repetition (F2)	Repeat the student's expression with a falling intonation. Affirm and emphasize the correct answers.	Students: Come on, let's go. Teacher: Come on, let's go.
	Supplementation and Expansion (F3)	Provide a detailed explanation of the answer, extend or elaborate on the discussed issue, or offer new knowledge information.	Students: Ideogrammatic compounds. Teacher: Chinese characters have the characteristic of being pictophonetic. We can roughly guess their meanings by looking at their shapes.
Negative Feedback	Direct Correction (F4)	Directly point out the errors in the student's answer and correct them or directly give the answer.	Teacher: Can the "蝴" in "butterfly(蝴蝶)" be used to form words? Students: It's mashed(糊了).

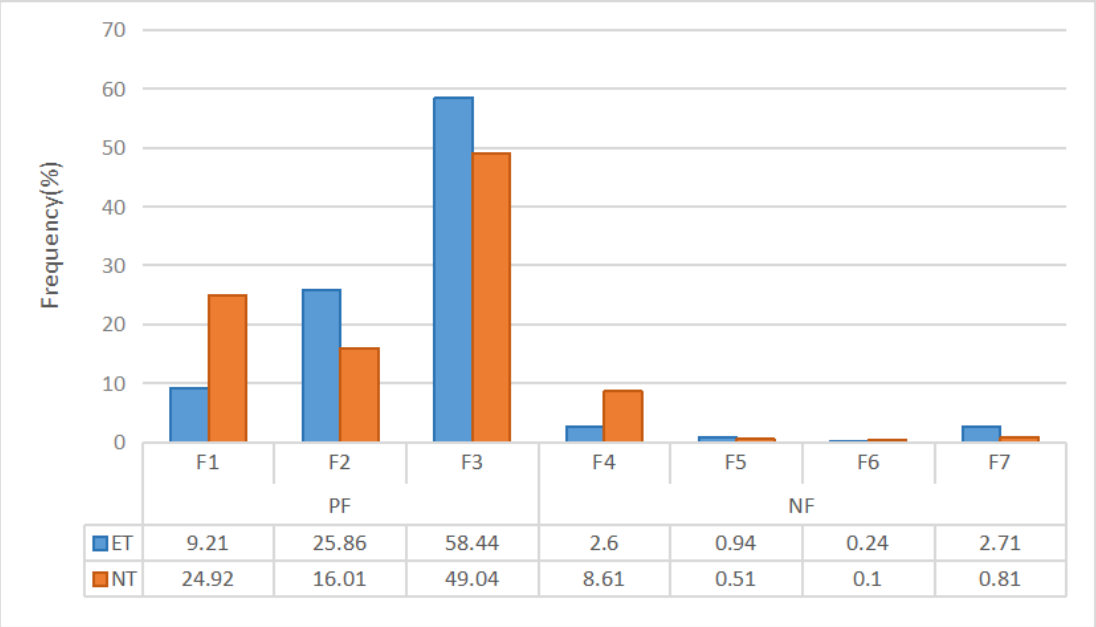
			Teacher: That's another character, it's not appropriate.
	Verification (F5)	Repeat the student's incorrect answer with a rising intonation. Draw students' attention, deny their answers and correct them	Students: Timbre. Teacher: Timbre?
	Clarification (F6)	Indicate to the student that their answer is incomprehensible or contains errors.	Students: [Little bird (小鸟儿)(pronounced as "xiao niao er")]. Teacher: [Little bird(小鸟儿) (pronounced as "xiao niaor")].Don't overemphasize the "'o", little bird(小鸟儿).
	Restatement (F7)	When the student's answer is incomplete or unclear, the teacher completes it without changing the meaning.	Students: On the knife= Teacher: =The sharpest part on the knife, this point represents...the sharpest part of the blade.

4.3.2.2 Statistical Comparison and Analysis of Classroom Feedback Types by New and Experienced Teachers

Based on the classification of teacher feedback from Table 20, this study conducted a statistical analysis of the feedback types in the classrooms of new and

experienced teachers. The results of the statistical analysis are presented in the following Table 21:

Table 21 Classroom Feedback Types Frequency Table for New and Experienced Teachers



	F1	F2	F3	F4	F5	F6	F7
ET	9.21	25.86	58.44	2.6	0.94	0.24	2.71
NT	24.92	16.01	49.04	8.61	0.51	0.1	0.81

Note: Positive feedback is abbreviated as PF, negative feedback as NF, experienced teacher as ET, and new teacher as NT.

Based on the data presented in Table 21, we can observe that new and experienced teachers exhibit certain commonalities as well as significant differences in classroom feedback practices. Specifically, both types of teachers tend to use positive feedback as the primary teaching tool, which is evident from the ratio of positive to negative feedback. In the provided feedback types, F1, F2, and F3 represent positive feedback, while F4, F5, F6, and F7 represent negative feedback. The data show that experienced teachers have a high proportion of positive feedback, reaching 93.51%, with a negative feedback proportion of only 6.49%. Relatively, although new teachers also have a relatively high proportion of positive feedback, at 89.97%, the proportion of negative feedback is slightly higher than that of experienced teachers, at 10.03%. These

data indicate that while both types of teachers recognize the importance of positive feedback in stimulating student participation and motivation in the classroom, new teachers seem more inclined to directly point out problems when dealing with student errors.

Upon in-depth analysis of the data on positive feedback, this study finds that experienced teachers tend to use more complex feedback strategies in the classroom. Specifically, the proportion of experienced teachers using repetition (F2) and supplementation and expansion (F3) is significantly higher than that of new teachers. This difference may reflect the experience accumulated by experienced teachers in educational practice and their profound understanding of teaching dynamics, enabling them to use feedback more effectively to guide students in thinking deeply and expanding their answers.

In contrast, new teachers show a preference for simple praise (F1) in the use of positive feedback. New teachers utilize F1 at a proportion of 24.92%, which is nearly three times that of experienced teachers. When providing feedback to students, new teachers tend to rely more heavily on the strategy of simple praise.

In terms of negative feedback, the study also finds differences between experienced and new teachers in the choice of feedback strategies. Specifically, experienced teachers have a slightly higher proportion of use in verifying student understanding (F5), clarifying student viewpoints (F6), and rephrasing student answers to promote in-depth thinking (F7) than new teachers. This difference may indicate that experienced teachers prefer a more nuanced and guiding approach when providing negative feedback, aiming to help students identify and correct errors while promoting a deeper understanding of knowledge points. At the same time, new teachers show a higher proportion in direct error correction (F4), reaching 8.61%, significantly higher than the 2.6% of experienced teachers. This phenomenon may reflect that new teachers tend to directly point out the problems when facing student errors, lacking skills in

guiding students to discover errors on their own.

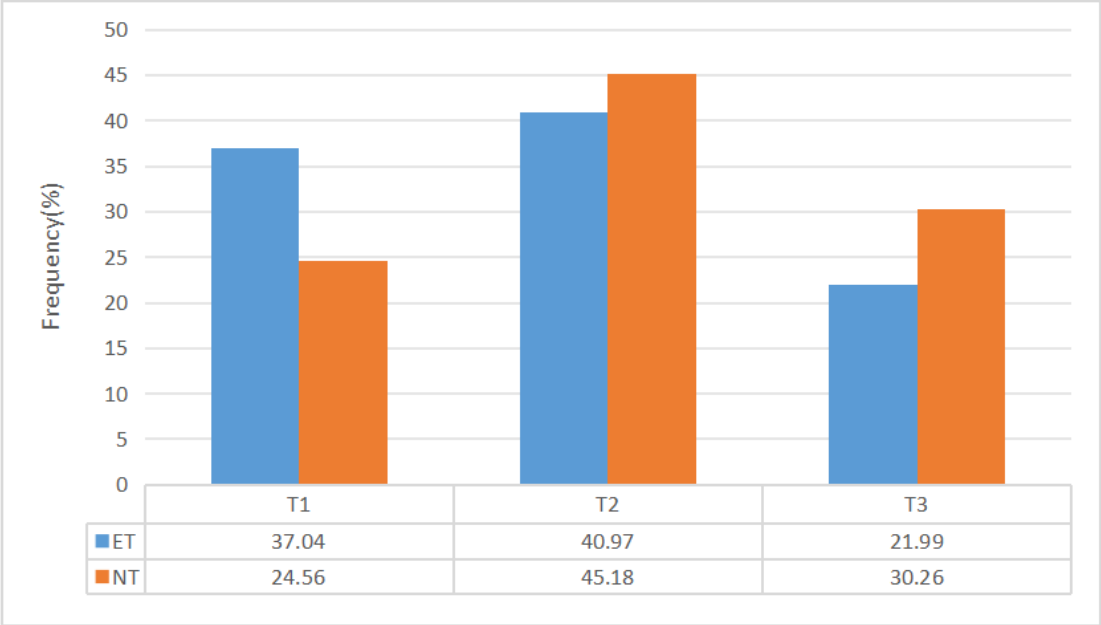
4.3.3 Comparative Analysis of Classroom Silence between New and Experienced Teachers

This study primarily explores the "wait time" strategy of classroom silence, analyzing its classification, statistical distribution, and comparative aspects to reveal its multi-dimensional value in teaching practice. We specifically examine the similarities and differences in the application of wait time strategies between new and experienced teachers, aiming to identify unique applications and potential teaching outcomes associated with each.

4.3.3.1 Classification of Wait Time for New and Experienced Teachers

Many scholars suggest that increasing the average wait time to 3 seconds or longer leads to a significant improvement in the quality of responses (Rowe, 1986; Ingram & Elliott, 2014). However, some research indicates that excessively long wait times may induce anxiety in students, leading to negative teaching outcomes (Borich, 2002). Based on previous research, we classified wait times into three distinct intervals: less than 3 seconds (denoted as T1), 3 to 5 seconds (denoted as T2), and more than 6 seconds (denoted as T3). Using these classifications, we conducted a detailed statistical analysis of classroom silence strategies employed by new and experienced teachers. The statistical results are presented in Table 22:

Table 22 Categorized Statistical Table of Wait Time for New and Experienced Teachers



4.3.3.2 Comparative Analysis of Wait Time between New and Experienced Teachers

Based on the statistical results presented in Table 22, the study reveals both commonalities and notable differences in the use of wait time as a classroom silence strategy between new and experienced teachers. The highest proportion of wait time used by both groups falls within the 3-5 seconds interval (T2). Specifically, new teachers choose T2 for wait time after eliciting student responses 45.18% of the time, while experienced teachers use it 40.97% of the time. This finding suggests that both new and experienced teachers prefer a moderate length of wait time to encourage student reflection and responses.

The comparative analysis also highlights some significant differences between new and experienced teachers in their use of wait time strategies. Notably, experienced teachers tend to use shorter wait times more frequently: they employ wait time of less than 3 seconds (T1) 37.04% of the time, which is significantly higher than the 24.56% observed for new teachers. This may indicate that experienced teachers are more confident in their classroom interactions, able to prompt students quickly with clear and

comprehensible cues, and possess precise control over the classroom pace.

Conversely, new teachers have a higher proportion of wait time exceeding 6 seconds (T3), at 30.26%, compared to 21.99% for experienced teachers. This difference suggests that new teachers may face some uncertainties in classroom management.

4.4 The Pedagogical Effects of Classroom Interactional Strategies Adopted by New and Experienced Teachers

Effective classroom interaction is crucial for enhancing teaching quality. To better understand and optimize this process, the study focuses on three key aspects of teacher-student interaction: classroom questioning, feedback, and silence (particularly wait time). By analyzing these elements, the research reveals the strengths and limitations of different interaction strategies in specific contexts, offering valuable insights for teachers to improve classroom-interaction effectiveness.

4.4.1 The Impact of Classroom question on the Effectiveness of Teacher-Student Interaction

4.4.1.1 The Impact of Question Types on the Effectiveness of Teacher-Student Interaction

In China, teacher-student interaction is less initiated by students and is mainly achieved through teachers asking questions related to classroom content (Xu, 2010). The quality of classroom questioning affects the quality of teacher-student interaction. As previously categorized, classroom questions are divided into open and closed types. Through in-depth observation and analysis of transcribed materials, the study found that when asking open questions, teachers allow more thinking time for students, making it more likely to receive responses that are structurally complex, longer in length, and reflective of higher-order thinking skills (Brock, 1986; Nunan, 1991; Hu et al., 2004). As illustrated in Example 1.

Example 1:

1 TB How should we approach Chinese 我们应该如何对待汉字呢?

		characters?	
2		(3)	(3)
3	TB	Feel free to share your thoughts.	可以表达一下你们的想法。
4		(2)	(2)
5	TB	Which student would like to speak about how we should view Chinese characters?	哪位同学可以来说一下，你觉得我们应该如何看待汉字?
6		(6)	(6)
7	TB	Take a moment to think about it, and raise your hand when you have something to say.	可以先思考一下，有想法了可以举手来说。
8		(12)	(12)
9	TB	As Chinese people, how should we view Chinese characters? And as students majoring in Chinese language and literature, how should we view them?	作为中国人我们应该如何看待汉字呢？作为汉语言文学专业的学生我们又应该如何看待汉字呢?
10	L	First and foremost, I believe it's essential to have cultural confidence. We need to inherit and develop our writing system and protect it. We can also use innovative methods to promote our Chinese characters to the world.	首先最重要的我认为一定要有文化自信，然后我们要继承和发展文字，要保护它。然后我们可以通过一些创新的手段让我们的汉字走出去。
11	TB	Very good, please take a seat.	非常好，请坐。

In Example 1, Teacher B posed an open question, "How should we approach Chinese characters?" From lines 1-8, Teacher B continuously guided the students while also allowing 23 seconds for them to contemplate. At line 10, the student responded.

The response was not a minimal one or two-word utterance (such as "No," "Hmm," etc.), but rather a sustained speech. The student expressed how to treat Chinese characters from three levels: belief ("have cultural confidence"), behavior ("inherit and develop our writing system ", "protect it"), and innovation ("innovative methods"). The student's answer engaged high-level cognitive activities.

Closed questions typically require students to provide brief, direct answers and often involve lower-level cognitive activities (Brock 1986; Nunan 1991). As shown in Example 2.

Example 2:

12	TF	How many phonemes does it ("强") have?	它（"强"）有几个音素?
13	LL	4.	4 个。
14	TF	The first one is?	第一个是?
15	LL	q.	q。
16	TF	The second one?	第二个?
17	LL	I, a, ng.	i、 a、 ng
18	TF	Alright, this is...which type of the four apertures?	好，这是…四呼哪个类型?
19	LL	It's not open aperture. It's even aperture. I is a even aperture.	开口呼，不对，是齐齿呼，i 是齐齿呼。
20	TF	So, even if a syllable has 1, 2, 3, 4, or 5 **(the teacher omitted the word "letters")**, it still only has four phonemes at most. It can have up to four phonemes.	所以说一个音节里面，哪怕是它有 1, 2, 3, 4, 5 个**（教师省略了"字母"二字）**。它都是只有四个音素而已，它最多是四个音素。

In Example 2, an interactive dialogue emerged as the teacher led students in a classroom exercise. The questions posed by the teacher at lines 12, 14, 16, and 18 all

had very clear answers and were classified as closed questions. The interaction between teachers and students typically followed a question-and-answer format, allowing limited time for student reflection. Teachers could assess students' understanding and mastery of syllable and rhyme classification in a short span of time. At lines 13, 15, and 17, the students' responses were minimal, while at line 19, a response was given in a short sentence of more than two words. The study, combining all transcribed materials, found that students' responses to closed questions were generally minimal or short, predominantly the former. Notably, at line 15, the student's response required not just recognition or reproduction of content but also analysis and integration based on the four apertures theory and the structure of rhymes. This indicates that closed questions can also be an effective teaching strategy in classroom instruction.

However, closed questions also have some drawbacks. In Example 2, at lines 18-19, after Teacher F poses a question on line 18, the student responds hastily, initially providing an incorrect answer before correcting it to give the right response. This may bring pressure to some students who need to answer quickly without ample time for reflection. These questions might also overlook the diverse understandings and perspectives students have on issues.

The study, through meticulous analysis, reveals the respective strengths and limitations of open and closed questions in teaching practice. Open questions can promote in-depth thinking and knowledge integration in students, stimulate creative expression, enhance student participation, and cultivate critical thinking. However, they may consume considerable classroom time and place higher demands on teachers' professional knowledge and instructional design capabilities. In contrast, closed questions demonstrate unique advantages in saving time, being easy to manage, clear, participatory, and suitable for review, but they also have potential drawbacks in limiting the depth and creativity of students' thinking.

4.4.1.2 The Impact of Classroom question Strategies on Teacher-Student Interaction Effectiveness

The article, combining the research of Hu et al. (2004), classifies classroom question strategies into six types: probing, chaining, repetition, simplification, rephrasing, and decomposition. Each question strategy affects teacher-student interaction.

The probing strategy, where a teacher asks several related questions following an initial question, guides students to think deeply through consecutive questioning. This helps them better understand the core of the issue and the connections between knowledge points. It also stimulates students' classroom participation and interest. This strategy supports personalized teaching, allowing teachers to adjust questions based on students' responses, thereby improving classroom efficiency and promoting students to combine new information with existing knowledge, building and internalizing knowledge. However, probing may also bring pressure to students who need to answer immediately. Therefore, teachers need good classroom management skills when implementing probing strategies to ensure all students can participate and benefit. In summary, probing strategies can enhance students' thinking and participation and strengthen teacher-student interaction and communication. However, teachers need to regulate the classroom atmosphere and encourage students to answer questions actively.

The chaining strategy involves teachers skillfully connecting several students' responses in the form of questions during the questioning process. This strategy enhances the coherence and dynamics of classroom discussions and promotes students' intellectual exchange and collaborative learning. It encourages students to listen and respond to their peers' views, thereby increasing their participation and sense of belonging. At the same time, it requires teachers to have high sensitivity and responsiveness to capture and utilize students' responses to promote classroom conversation. However, this strategy may also pose certain challenges to students,

especially those who are not used to expressing their views in public. Therefore, teachers should balance the needs of different students when using chaining strategies to ensure that all students have the opportunity to participate and benefit from this interaction.

The repetition strategy involves teachers repeating the same question when there is no response from students. This strategy can reinforce the importance of the question, ensuring that students pay attention and think carefully. It also provides additional time for students to organize their answers, especially for those who need more time to process information or feel less confident. Moreover, repeating questions helps maintain classroom attention and focus, preventing students from getting distracted. However, if overused, repeating questions might make students feel frustrated or bored, especially when they have understood the question but find it difficult to express. It might also inadvertently convey doubt about students' abilities, affecting their confidence. Therefore, teachers should be cautious when using the repetition strategy, balancing its frequency and manner to ensure it effectively promotes student participation without becoming an obstacle to classroom interaction.

The simplification strategy involves teachers transforming complex or difficult questions into simpler forms. This strategy increases student participation and confidence by lowering the cognitive threshold, allowing students of various levels to engage in classroom discussions. Simplifying questions helps students better understand the core elements of the problem, promoting their mastery and application of knowledge. Additionally, the simplification strategy encourages students to gradually attempt more complex problems after understanding simplified ones, fostering their problem-solving abilities. However, this strategy requires teachers to have keen insight to ensure that the simplification of questions does not lose their essential meaning and does not limit students' exploration of in-depth understanding. Overall, the simplification strategy is an effective teaching method that adjusts the difficulty of questions to ensure

students can participate effectively at their cognitive level and provides a bridge to higher difficulty challenges.

The rephrasing strategy involves teachers restating a previous question using different words. This strategy helps students understand the question without language barriers, especially for those who may be confused or do not understand the original question. By rephrasing, teachers can present the problem from different perspectives, promoting students' cognitive flexibility and creative thinking. Moreover, rephrasing also shows teachers' attention to students' understanding, encouraging them to actively participate in classroom discussions, enhancing their sense of participation and confidence. However, if the rephrasing strategy is used too frequently or unclearly, it may cause confusion or distract students. Therefore, teachers should ensure that rephrasing is clear, accurate, and consistent with the original question to maximize its potential value in promoting students' understanding and participation.

The decomposition strategy involves teachers breaking down a complex question into several smaller, more comprehensible ones. It reduces students' cognitive load, enabling them to tackle problems step by step, thereby enhancing their confidence and ability to solve problems. This strategy also helps students understand the different parts of the question more clearly, promoting gradual mastery of complex concepts. Decomposition encourages students to demonstrate their thought process in answering, allowing teachers to better assess students' understanding and cognitive development. However, if the problem is broken down too much, it may cause students to lose their grasp of the overall concept. Therefore, teachers need to maintain moderation when decomposing problems, ensuring that students can understand the details while maintaining the overall framework of the question. Overall, the decomposition strategy is an effective teaching method that promotes students' cognitive development and the quality of classroom interaction through detailed problem breakdown.

According to the statistical data shown in Table 19, we can observe that the six

question strategies are applied in the classroom teaching of both new and experienced teachers. Through in-depth analysis of the transcribed materials, the study found that teachers can use a single strategy when asking questions (as shown in Example 3), or they can flexibly apply a combination of multiple strategies (as shown in Example 4).

Example 3:

21	TC	Next, let's look at Section Three. The Mongols and the Manchus—this ethnic group I misspelled—ruled China. The Mongols established the Yuan Dynasty, right? And the Manchus established?	接下来我们再来看一下磨难三。蒙古族，满族，这个族我打错了啊，统治中国。蒙古族统治中国，建立了元朝，对吧？满族统治中国，建立了？
22	LL	[Qing Dynasty].	[清朝]。
23	TC	[Qing Dynasty]. Now, let's see, the policies implemented by these two ethnic minorities when ruling China were different. During the Yuan Dynasty, what was the status of the Han people?	[清朝]，来看一下啊，这两个少数民族统治中国实行的政策是不一样的。元朝时期汉族人的地位怎么样？
24	LL	Very low.=	很低下。=
25	TC	=Very low, yes, very low. The Mongols prohibited Han culture from influencing them, but the Manchus were different. What policy did the founding emperor of the Qing Dynasty implement?	=很低，啊，很低。然后呢，蒙古族它是禁止汉文化去影响他们的，但是满族不一样，满族的开国皇帝就实行了什么样的政策？
26	LL	Han-Manchu.=	满汉。=
27	TC	=Yes, the policy of Han-Manchu integration. So, when these two ethnic minorities ruled China, a peculiar phenomenon appeared, showing the	=满汉融合的政策。所以大家看一下，这两个少数民族统治中国的时候，出现了一种奇异的现象，我们汉语的这种同化能

		assimilation ability of the Chinese language. Did you find that the Chinese language was conquered?	力一下子就体现出来了。大家会发现汉语有没有被征服啊？
28	LL	No.	没有。
29	TC	No, it was not conquered. Instead, you see, it assimilated the Manchu language.	没有，没有被征服，反而，你看把满语给同化了。

In Example 3, when explaining the abstract concept of the strong assimilative capacity of the Chinese language, Teacher C did not proceed directly with theoretical exposition. Instead, Teacher C chose to illustrate it in conjunction with the history and current development of Mongolian and Manchu languages. Throughout the conversation, Teacher C employed the probing strategy, asking four consecutive questions at lines 21, 23, 25, and 27. The first three questions were related to historical knowledge of China, all of which fell within the students' known information, enabling them to promptly respond to Teacher C's inquiries. At line 27, Teacher C posed the question, "Will everyone notice if the Chinese language has been conquered?" to help students understand the powerful assimilative capacity of the Chinese language in a more concrete manner. Even when the Han ethnicity was dominated by minority ethnic groups, the Chinese language continued to be passed down, constantly influencing minority languages and causing them to gradually align with and be assimilated by Chinese.

Example 4:

30	TA	Next, where is the cut for "An apple falls down(掉下一个苹果来)"?	然后"掉下一个苹果来"，这个切口在哪里呢？
31	LL	At "down(下)" / "apple(苹果)". **(Students have differing opinions. Due to the mixed sounds, only two main viewpoints could be heard clearly)**	"下"。/ "苹果"。**（学生们的意见出现分歧，由于声音混杂只能听清两种主要观点）**
32	TA	"down(下)" and "apple(苹果)" are both	"下"、"苹果"两种，咱们先看"

		options. Let's first examine "down(下)" and what it constitutes...what kind of relationship does it form?	下"后边...构成什么关系？
33	LL	Verb-object.	动宾。
34	TA	Right, if we cut here, let's look at both sides...is it a reasonable structure? "fall down(掉下)" is reasonable, but then for "An apple come(一个苹果来)", does "An apple(一个苹果)"and "come 来" still fit the original meaning?	好，如果切在这儿的话，我们看一下左右两边...本身是不是一个合理的结构，"掉下"合理，再看"一个苹果来"，"一个苹果"和"来"在这里组合之后还符合原来的语义吗？
35	LL	No, it does not fit.=	不符合。=
36	TA	=It's deviated, so this cut is incorrect. Now, what comes after "An apple(一个苹果)"? If we cut here, what relationship does it have?	=走样了，偏离了，所以...这儿切的又不对。好，"一个苹果"的后面是什么？如果切在这儿是什么关系？
37	LL	Complement.	中补。
38	TA	Complement. Good, we'll mark that. So the verb-object phrase is "An apple falls down(掉下一个苹果)", and this action... the direction is "come 来", from top to bottom and from far to near. Therefore, cutting here is correct. **(Teacher A marked "Head-Complement(中补)" on the board)** Write "Head(中)" here and "Complement(补)" here."	中补，好，我们划上。那么前边的这个动宾短语是"掉下一个苹果"，这个动作...趋向就是"来"，从上到下、由远及近的趋向。所以切在这里是正确的，**（教师 A 在黑板上划分"中补"）**在这儿写"中"，在这儿写"补"。

Example 4 is an interactive dialogue that emerged when Teacher A was

explaining the method of hierarchical division for the phrase "An apple falls down (掉下一个苹果)." In this dialogue, Teacher A employed both chaining and probing strategies. At line 32, Teacher A, integrating the differing opinions of students, posed a new question: "Let's first examine 'down (下)' and what it constitutes... What kind of relationship does it form?" At lines 34 and 36, Teacher A used the probing strategy, asking two successive questions about the significance and relationship of the division. All three questions received positive responses from the students, and the answers were correct. The method of hierarchical division is a very challenging knowledge point in modern Chinese, and Teacher A guided the students to learn and master this knowledge point through the continuous use of chaining and probing strategies.

Examples 3 and 4 illustrate that teachers' question strategies play an important role in achieving effective teacher-student interaction. The flexible and interwoven use of various question strategies helps to meet the needs of different students and promotes the depth and breadth of classroom discussions.

However, the study also found that the success of question strategies in actual teaching is complex. Although these strategies can effectively facilitate positive interactions between teachers and students in many cases, there are also some cases of failure (as shown in Example 5).

Example 5:

39	TE	Alright, students, let's discuss. How do you think this poem should be recited, in terms of what kind of standard and emotional tone?	好，同学们，你们一起说一说，你们觉得这首诗如果诵读的话，我们是以一个什么样的基准，什么样的感情基调来诵读?
40		(11)	(11)
41	LL	Profound.=	深沉。=

42	TE	=Profound? Yes, there is a sense of nostalgia for the hometown here, right? The emotion is profound. In terms of...the overall intonation, how should we approach it?	=深沉？对，这里有对故乡的怀念，对不对？情感是深沉的。在...总体的语调上，我们应该怎么样？
43	LL	(5)	(5)

In Example 5, Teacher E employed a probing strategy at line 42, asking students about the intonation used in poetry recitation but failed to receive any response, leading to a failed dialogue. A detailed analysis revealed that the main reason for the failure was that the questions posed by the teacher exceeded the students' cognitive range. This indicates that while the probing strategy itself has the potential to promote deep thinking and cognitive engagement, if it is not properly set up and does not match the students' cognitive level and known information, it may result in students being unable to participate or respond, thereby affecting the teaching effectiveness.

The study analyzed cases of failed interactions in the transcribed materials and found that the reasons for failure were multifaceted, mainly including the difficulty of the questions, students' cognitive preparation, classroom atmosphere, teachers' questioning skills, clarity of teachers' language expression, and students' reactions to the questions.

4.4.2 The Impact of Classroom Feedback on the Effectiveness of Teacher-Student Interaction

Classroom feedback serves as a vital link for interaction and communication between teachers and students, with different types of feedback playing distinct roles in the interaction. This study analyzes the role and effectiveness of classroom feedback in teacher-student interaction from two aspects: positive feedback and negative feedback.

As a key component of teaching interaction, classroom feedback is an essential conduit for communication between teachers and students. It not only influences

students' emotions and motivation but also has a profound impact on the learning process. Different types of feedback play various roles during the interaction, which is crucial for students' learning experiences and cognitive development. To understand the role of classroom feedback in teacher-student interaction, the study employs qualitative methods to analyze the application of positive and negative feedback in different teaching contexts and their impact on student learning.

4.4.2.1 The Impact of Positive Feedback on the Effectiveness of Teacher-Student Interaction

Positive feedback is generally considered to enhance students' self-confidence, stimulate learning motivation, and promote active student participation in classroom activities (Nunan, 1991). It provides positive encouragement and support to students through praising, encouraging, and affirming their efforts and achievements. Positive feedback can be divided into three types: simple praise (F1), repetition (F2), and supplementation and expansion (F3). However, the effectiveness of positive feedback also depends on its specific form and content, as well as its match with individual student differences, as illustrated in Examples 6 and 7.

Examples 6:

44	L	Play the piano(弹(tán)琴(qín)), attack(进 (jìn) 攻 (gōng)), confidant(亲(qīn)信(xìn)).	弹琴、进攻、亲信。
45	TF	Alright.	好。

In Example 6, the conversation described took place during a teaching segment on distinguishing between anterior and posterior nasal sounds in Mandarin Chinese. For students from certain Chinese dialect regions, differentiating these nasal sounds was a challenge. To evaluate the students' pronunciation abilities, the teacher invited them to read aloud words containing these nasal sounds. After the students finished reading, the teacher responded with a simple "Alright " using a basic form of positive feedback

known as simple praise (F1).

However, this form of feedback, while seemingly offering affirmation, did not provide specific guidance or in-depth analysis. It lacked a detailed assessment of the students' pronunciation accuracy and did not identify strengths or areas needing improvement. Effective feedback should be specific, timely, and instructive to help students understand their performance and guide them on how to enhance it (Yan et al., 2009). In this scenario, the teacher's feedback may not have fully leveraged its potential educational value.

Examples 7:

46	L	Another aspect is Lao She's writing style, which tends to be more colloquial. This is something we should consider, because it is already indicated that the author is Lao She, so we cannot view it with our usual language habits.	还有一个就是老舍的写作特点，它是比较口语化现象的，这个也是我们应该要考虑在里面，因为它已经点明了作者是老舍了，所以我们不能，用我们平常的语言习惯去看待它。
47	TC	Hmm, very good. The other perspective she mentioned is something I hadn't considered before. From the first student's perspective, we find that using "round(圆)" is more vivid than "more(多)", giving us a sense of imagery, right? The image of the little horse immediately stands out in front of us. From the author's perspective, as mentioned by another student,	嗯，好，非常好啊。另外一个角度，她说的这个角度我原来都没有考虑到。我们第一位同学讲的这个角度，我们会发现用"圆"比用"多"更加的形象，会给我们一种画面感，对不对啊？这个小马儿的形象一下子就立在我们面前了啊。我们另外一位同学，从作者的角度来讲，我觉得这个也是大家应该考虑到的，每一个作者他的写作作品都有自己的语

this is also something everyone should consider. Every author has their own style of language use in their works, and it also involves some stylistic content, which everyone needs to take into account.	言使用的风格，而且也涉及到一些文体的内容，都是大家需要考虑的。

In Example 7, the classroom interaction described occurred during a teaching scenario where the teacher discussed the contrasting effects of using the words "more (多)" and "round (圆)" in sentences. After the student finished responding, the teacher initially employed a simple praise feedback strategy (F1), affirming the student's answer with expressions like "Hmm, good, very good indeed." This affirmative feedback not only provided emotional support for the student but also encouraged active participation in classroom discussions.

Subsequently, the teacher further adopted a supplementation and expansion feedback strategy (F3), providing a detailed critique of the student's response. The teacher first pointed out that the student's answer exceeded expectations, then delved into a summary and expansion of the student's response from aspects such as the imagery of language expression, the author's writing style, and literary form. This combined use of simple praise (F1) and supplementation and expansion feedback (F3) not only met the student's emotional needs by affirming their response through praise but also helped the student understand the merits of their answer through the extension of knowledge. This comprehensive feedback strategy not only made students feel the teacher's recognition and encouragement but also provided them with profound insights into their learning process, motivating them to explore, learn, and improve.

Further analysis of the transcribed texts revealed that the proportion of experienced teachers using a single positive feedback strategy alone was 39.65%, while the proportion using a combination of multiple positive feedback strategies was

60.35%. For new teachers, the proportion using a single positive feedback strategy was 26.24%, and the proportion using a combination of multiple positive feedback strategies was 73.76%. These data indicate that both experienced and new teachers tend to adopt comprehensive feedback strategies rather than a single feedback method.

4.4.2.2 The Impact of Negative Feedback on the Effectiveness of Teacher-Student Interaction

Negative feedback refers to the feedback provided by teachers in response to students' answers that are not entirely correct or do not meet expectations. This feedback mechanism is primarily divided into four types: Direct Correction (F4), Verification (F5), Clarification (F6), and Restatement (F7). Each type has its unique purpose and application scenarios, aiming to promote students' learning and understanding in different ways.

Direct Correction (F4) is a feedback method that directly points out students' mistakes and provides the correct information. It is swift and clear, helping students immediately recognize and correct their errors. Verification (F5) is a more nuanced approach where teachers help students discover their mistakes through inquiry and confirmation, thereby promoting students' self-reflection. Clarification (F6) involves elucidating vague or unclear student responses to ensure that their answers accurately convey their intentions. Finally, Restatement (F7) is when the teacher rephrases the student's answer to ensure correct understanding and may implicitly point out areas for improvement within the rephrased response.

The effectiveness of negative feedback is influenced by various factors, including the timing, manner, and content of the feedback. The timing of feedback should be just right, neither too early to hinder students' independent thinking nor too late to miss the educational opportunity. The manner of feedback should respect students, avoid hurting their self-esteem, and ensure the clarity and comprehensibility of the information. The content of the feedback needs to be specific and accurate, providing sufficient

information to help students understand where they went wrong and how to improve. As illustrated in Example 8:

Example 8:

48	TE	What about "five(五)"?	"五"呢？
49	LL	Five horizontal strokes.	五横。
50	TE	Hehe, is "five(五)" made of five horizontal strokes? No. For "five(五)", we put two ropes together and tie a knot.	呵呵，"五"是五横吗？不是。"五"，我们就把两个绳放在一起打个结。

In Example 8, the classroom interaction took place during a teaching scenario where the teacher explained the writing methods of the numbers one to ten in Oracle Bone Script, an ancient form of Chinese writing. The unique writing style of Oracle Bone Script is both educational and challenging for modern students. The script for the number "five" in Oracle Bone Script does not follow the pattern of one to four and has its particularities. After the students successfully answered the writing methods for the numbers one to four, Teacher E skillfully posed a question at line 48, aiming to deepen students' understanding and mastery of the subsequent numbers' writing methods.

At line 49, the student failed to correctly answer the Oracle Bone Script writing method for the number "five (五)." Faced with this situation, Teacher E organically combined the restatement and direct correction feedback strategies. The teacher first restated the student's answer with a smile, a gentle feedback method that helps alleviate any pressure or embarrassment the student might feel, while also showing respect and encouragement for the student's attempt. Subsequently, Teacher E corrected the student's mistake and provided a detailed explanation of the correct writing method for the number "five (五)" in Oracle Bone Script. This strategy, while respecting the student's self-esteem, helped the student recognize their mistake and promoted understanding and memory of the knowledge point by providing sufficient

information.

This study further conducted a detailed statistical analysis of the use of negative feedback strategies by new and experienced teachers. The results showed that new teachers tended to use a single negative feedback strategy alone, with a proportion as high as 89%, while the proportion of using a combination of multiple feedback strategies was relatively low, at only 11%. This data may reveal the singularity of new teachers in the application of feedback strategies, possibly due to insufficient mastery of different feedback strategy combinations or lack of confidence in classroom dynamic adjustment, as shown in Example 9.

Example 9:

51	LL	Phoneme.	音素。
52	TF	Not a phoneme.	不是音素。
53	LL	Syllable.	音节。
54	TF	Not a syllable.	不是音节。

In Example 9, the classroom interaction took place during the pre-class review session, where Teacher F inquired about the Chinese language units, asking, "What is the smallest linguistic unit in Chinese that has both sound and meaning?" This question aimed to assess students' understanding of the basic linguistic units of Chinese. At lines 51 and 53, the students failed to provide the correct answer, revealing a deficiency in their grasp of this fundamental concept.

Faced with the students' incorrect responses, Teacher F employed a direct correction (F4) feedback strategy at lines 52 and 54. The use of this strategy by Teacher F might have been based on a rapid assessment of the students' cognitive state, opting for the most direct method to guide the students back onto the correct learning path. However, the provision of feedback is not only for correcting mistakes but, more importantly, for stimulating students' thinking and self-reflection (Li & Wang, 2018). Therefore, while direct correction can quickly resolve issues, teachers should also

consider incorporating more instructional elements in their feedback, such as guiding students to think about the reasons for their errors, encouraging students to explore the correct answers, and providing further explanations and examples to deepen students' understanding.

In contrast, experienced teachers demonstrated greater diversity and flexibility in the use of negative feedback strategies. Specifically, the proportion of experienced teachers using a single negative feedback strategy alone was 52.73%, while the proportion using a combination of multiple feedback strategies was 47.27%. This data indicates that with the accumulation of teaching experience, experienced teachers may be more inclined to adopt comprehensive feedback methods.

In the classrooms of experienced teachers, various combined strategies such as simple praise plus direct correction, restatement plus supplementation and expansion, direct correction plus supplementation and expansion, verification plus direct correction, and verification plus clarification were observed, as shown in Example 10.

Example 10:

55	TA	Alright, later the teacher will call on another student. Please...Qin Yun, come and read again.	好，后面老师再叫一位同学，请...秦运同学再来读一次。
56	Qin Yun	In, mood(心(xīn)境(jìng)), calm mind(静(jìng)心(xīn)), ing, clear mirror(明(míng)镜(jìng)), evaluation(评(píng)定(dìng)), command(命(mìng)令(lìng)).	in，心境，静心，ing，明镜，评定，命令。
57	TA	Good, the anterior nasal sound is very good. For the posterior nasal sound... please correct and refine it a bit more.	好，后鼻音很好，前鼻音...再修正，再提炼一下。

In Example 10, the classroom interaction took place during Teacher A's explanation of the distinction between anterior and posterior nasal vowels in Mandarin phonetics. This teaching content was particularly crucial for students to master the pronunciation of Mandarin, especially for those whose native languages did not distinguish between anterior and posterior nasal sounds. After the students attempted to read aloud related words, the accuracy of their anterior nasal pronunciation did not meet the expected standards. Faced with this situation, Teacher A adopted an integrated feedback strategy. At line 57, Teacher A first provided positive emotional feedback on the students' reading, praising the aspects in which they performed well. This strategy helped to enhance the students' self-confidence and motivation to learn. Subsequently, Teacher A offered specific corrective suggestions, which constituted negative cognitive feedback, directly addressing the deficiencies in the students' pronunciation. This type of feedback could promote the maximum absorption of language knowledge by students and reduce the potential rejection of negative feedback (Li & Wang, 2018). It seems that negative feedback can have both positive and negative aspects in teacher-student interactions to a certain extent.

4.4.3 Impact of Wait Time Strategy on Teacher-Student Interaction

The classroom silence strategy of wait time less than 3 seconds (T1) has unique advantages and potential limitations. Its advantages include maintaining a brisk and dynamic classroom pace, quickly eliciting student responses, and being suitable for situations requiring immediate feedback or simple answers. This strategy helps teachers rapidly assess students' understanding and make timely adjustments to teaching content or methods, as illustrated in Example 11.

Example 11:

58	TB	So, what is a phoneme?	那我们说音素是什么?
59		(3)	(3)
60	LL	The smallest……	最小的.....

61	TB	The smallest what?	最小的什么单位?
62	LL	Phonetic unit。	语音单位。

Example 11 illustrates a conversation that occurred in a context where Teacher B was guiding students in reviewing the concept of phonemes, demonstrating Teacher B's effective use of the wait time strategy. After posing a question in line 58, Teacher B waited for 2 seconds before receiving a student response. This indicates that the students had a good understanding of the phoneme concept and were able to respond quickly, without requiring additional thinking time. When the student's response was incomplete, Teacher B followed up with a probing question in line 61, receiving a prompt reply. This series of interactions not only confirms the students' grasp of the material but also reflects Teacher B's precise control over the classroom pace. In other words, when students are proficient with a specific topic, using shorter wait times (T1) can enhance classroom fluidity and interactivity, facilitating a rapid advancement of the instructional process.

However, this strategy must be used with caution, as it can also limit students' deeper thinking, leading to inadequately organized responses and less thorough consideration of complex issues, which can impact the quality and depth of their contributions. Additionally, for students who require more time to process information, excessively short wait times may increase their anxiety, reduce their engagement, and even result in missed opportunities to demonstrate their understanding or insights, as shown in Example 12.

Example 12:

63	TF	You see, "just(就(jiù))" and "is(是(shì))" are both fourth-tone characters. You can relate this to real life, are fourth-tone characters the most common?	你看"就""是"都是去声，第四声的字。你们可以跟现实生活联系，是不是第四声的这一个字是不是最多的?

64		(2)	(2)
65	TF	Now, let's revisit this concept. A tone is a pitch variation in a syllable that has a distinguishing meaning. It is primarily composed of pitch, which plays a role in distinguishing meaning.	那我们回头看这个概念，这个声调，它是音节中具有区别意义的音高变化，它主要是由音高构成，这个音高它有区别意义的一个作用。

Example 12 demonstrates a situation where Teacher F posed a question in line 63 and, after waiting 2 seconds without receiving any student responses, quickly changed the topic. Analysis reveals that the question required students to infer connections between classroom knowledge and real-life experiences. Clearly, a 2-second wait time was insufficient to stimulate students' thinking and prompt them to draw upon relevant knowledge to answer.

Additionally, the study identified some ambiguity in Teacher F's question formulation. The repeated use of "is it(是不是)" and the ambiguous phrasing "the fourth tone of this character(第四声这一个字)" created difficulties for students in accurately interpreting the teacher's intent. Specifically, "this character(这一个字)" could refer to a single character with a fourth tone or to all characters with the fourth tone. This ambiguity increased the challenge for students to understand the question and organize their responses.

In reality, Teacher F's intent was to have students determine whether characters with the fourth tone are the most numerous in Mandarin Chinese, based on their practical knowledge. This question required students not only to have some understanding of the tonal system but also to relate it to actual language usage. Consequently, students needed more time to process and respond to this question.

Wait time of 3-5 seconds (T2) as a classroom silence strategy offers a moderate length of time, with the advantage of promoting adequate student reflection while

avoiding extended periods of silence or inactivity. This strategy provides students with enough time to organize their thoughts and address the question, potentially improving the quality and depth of their responses. Furthermore, T2 allows teachers to effectively manage the classroom pace, maintaining the continuity of instructional activities and enhancing teaching efficiency, as demonstrated in Example 13.

Example 13:

66	TB	We often say "five grains(五谷)", right? Is it a numeral abbreviation? Four limbs untrained, five grains not distinguished(四体不勤，五谷不分), **(laughed)** right? Is there anything else?	我们经常说"五谷"对不对？是不是数词略语？四体不勤，五谷不分，**（笑着说）**对吧？还有没有？
67		(4)	(4)
68	LL	Five insurances and one fund(五险一金).	五险一金。

In the dialogue of Example 13, which occurred during Teacher B's explanation of numerical idiomatic expressions, at line 66, Teacher B initially provided an instance of a numerical idiom and then inquired if the students could provide more similar examples. This question demanded that the students retrieve from their knowledge base idioms containing numbers, which posed a cognitive challenge. In this context, Teacher B opted for a 3-5 second pause (denoted as T2) as a wait-time strategy, offering students a moderate space for contemplation, which facilitated the activation and recall of relevant knowledge. This illustrates that the appropriate use of T2 not only promotes students' cognitive processing but also encourages their active participation in classroom discussions, enhancing the quality and relevance of their discourse output.

However, the limitation of T2 lies in the fact that if the question itself is highly challenging or if students' grasp of the relevant knowledge is insufficient, a 3-5 second

period may not be adequate to stimulate in-depth thinking or meet their cognitive needs. Sometimes it might even lead to students feeling time pressure, which can affect the natural fluency of their responses. Furthermore, if the teacher fails to accurately assess the students' cognitive levels and the difficulty of the question, the use of T2 might also miss the opportunity to guide students into a more profound discussion, as demonstrated in Example 14.

Example 14:

69	TF	Next, is there such a syllable?	下一个，有这个音节吗？
70		(3)	(3)
71	TF	It might be that hearing too much of internet language led to the mistaken belief that it exists. But there is no such syllable. It's "jiao", the initial part is…incorrect.	可能就是，网络语听得听得太熟了，可能就误以为有。但没有这个音节，它这个是 jiao，它是…声母部分错了。

The dialogue in Example 14 occurred during a classroom exercise led by Teacher F, where the main task was to judge the correctness of syllable writing. One of the erroneous syllables, influenced by internet slang, was easily mistaken as existing in Chinese. After posing the question at line 69, Teacher F only waited for 3 seconds and, without receiving a response from the students, directly provided the correct answer.

The language habits of current university students are heavily influenced by internet language, making the question posed in Line 69 challenging for them. A 3-second wait time (T2) is too brief to stimulate deep student thinking. Teacher F did not fully recognize this and chose to provide the answer immediately. While this approach quickly resolves the issue, it misses the opportunity to delve into students' cognitive processes regarding the incorrect syllable and the impact of internet language on their linguistic abilities.

The advantage of a 6-second or longer pause (T3) is that it provides students

with ample time to think deeply and organize their answers, promoting critical thinking and creative expression, particularly when dealing with complex problems or those requiring comprehensive analysis. T3 can reduce the anxiety caused by time pressure, offering a more relaxed and supportive learning environment, which helps students actively participate in classroom discussions, improving the quality of their responses and their level of engagement, as demonstrated in Example 15.

Example 15:

72	TD	Can anyone think of some Chinese characters or syllables related to d, t, n, l? Are there any students who can try to find four characters, each starting with d, t, n, and l?	大家能不能想出来一些这个 d、t、n、l 相关的一些汉字呢，或者音节呢？有没有同学可以试一下，就是找四个字，然后分别是 d、t、n、l 开头的？
73		(3)	(3)
74	TD	Try forming words with d, t, n, and l and see if it's possible?	用 d、t、n、l 组个词试一下，看可不可以？
75		(9)	(9)
76	TD	Too difficult, right?	太难了，是吧？
77		(6)	(6)
78	TD	Try again to see if there are any others?	试一下还有没有？
79	L	Sorry to bother you(打(dǎ)扰(rǎo)你(nǐ)了(le)).	打扰你了。

The dialogue in Example 15 took place during a teaching scenario where Teacher D was explaining the initial consonants of Chinese. Teacher D employed a series of strategies to facilitate students' understanding and participation. At line 72, after posing a question and waiting for 3 seconds (T1) without receiving a response from the students, Teacher D did not rush to provide the answer but chose to continue

guiding the students towards deeper contemplation. At line 74, Teacher D rephrased the question, hoping that a clearer statement would help students better grasp the essence of the question. Despite the lack of student responses during the subsequent 9-second wait (T3), at line 76, Teacher D conveyed an understanding of the difficulty of the question by expressing empathy ("Too difficult, right?") and continued to use the T3 strategy, waiting for another 6 seconds. This approach not only acknowledged the challenge of the question but also encouraged students not to give up on thinking. Finally, at line 78, Teacher D further encouraged students to attempt an answer, and this positive guidance ultimately led to the students providing the correct response.

This teaching interaction demonstrated Teacher D's patience and strategic guidance when faced with student silence. Instead of immediately providing the answer, Teacher D effectively stimulated students' thinking and participation by rephrasing the question, expressing empathy, encouraging attempts, and using the T3 strategy. This step-by-step guidance method not only helped students overcome difficulties but also enhanced their self-confidence and problem-solving abilities.

The downside of T3 is that if the waiting time is too long, it may slow down the classroom pace, thereby affecting the normal teaching progress. Some students may become distracted or lose interest due to the prolonged wait. Additionally, prolonged silence might be misinterpreted by some students as a sign of confusion or difficulty, which could impact their self-confidence and level of engagement, as shown in Example 16.

Example 16:

80	TF	Does anyone want to make a correction?	有人改一改吗？
81		(45)	(45)
82	TF	Since no one is coming up to make changes, we'll just look at it directly.	没有人上来改，我们就是直接看了哈。

The dialogue in Example 16 occurred during a classroom exercise where Teacher F was guiding students in the annotation of Chinese characters with their corresponding pinyin. After the students completed the annotation on the blackboard, Teacher F noticed errors in their annotations and adopted an interactive teaching strategy by inviting other students to correct them on stage. At line 80, Teacher F issued the invitation and chose a relatively long waiting time—45 seconds—to encourage active participation from the students. However, despite this waiting time exceeding the conventional classroom duration, it failed to elicit a response from the students. This could point to several potential teaching issues: first, students may lack confidence or knowledge on how to correct the errors; second, the prolonged waiting time may make students feel uncomfortable or anxious, thus affecting their willingness to participate; finally, the setting of the waiting time may not match the students' cognitive needs and the classroom atmosphere. Faced with this situation, Teacher F ultimately chose to give up waiting and directly explained the corrections. This decision ensured the continuity of the teaching activity but missed the opportunity to deepen understanding and promote learning through student interaction.

4.5 Conclusion of the results

The objective of this study was to depict the authentic interactive situations in modern Chinese language classrooms through macro-analysis and micro-description. The research aimed to analyze the patterns of interactive discourse in modern Chinese classrooms, understand the current state of teacher-student interaction, and summarize the main interaction strategies used by new and experienced teachers in classroom teaching and their effects. Based on these findings, the study sought to refine the teacher competency structure and enhance the quality of classroom discourse interaction.

4.5.1 Macro-quantitative Analysis Results

The study employed the iFIAS system to conduct a quantitative analysis of

classroom interaction behaviors among new and experienced modern Chinese language teachers. The data comparison revealed both commonalities and differences in the classroom teaching interactions between new and experienced teachers.

Commonalities are primarily manifested as follows: In the classrooms of both types of teachers, the proportion of teacher talk significantly exceeded that of student talk. Teachers engaged in more continuous speech, while student contributions were often brief. Teachers acted as the dominant voices in classroom discourse, with students often playing a passive listening role. Students showed a high level of responsiveness to teacher questions but asked questions infrequently on their own initiative. Interactions between teachers and students were smooth, with teachers being sensitive to student performance in class. Educational information technology had become an essential auxiliary teaching tool in classroom instruction, with teachers holding the initiative in its use.

Differences are primarily manifested as follows: Experienced teachers had a slightly higher volume of classroom discourse compared to new teachers. They also had a higher proportion of questions asked and a greater frequency of open-ended questions. Experienced teachers outperformed new teachers in indirectly influencing students and in positive reinforcement, being more adept at using interaction strategies such as praise, incorporating student perspectives, and questioning. Experienced teachers were more likely to engage in extended periods of continuous speech. In contrast, new teachers had a higher proportion of silence beneficial to teaching in their classrooms, primarily occurring during student practice sessions. New teachers were more adept at utilizing information technology to assist in teaching, showing a higher acceptance and familiarity with emerging technologies.

4.5.2 Micro-discourse Analysis Results

Comparison of classroom interactional discourse Patterns between New and Experienced Teachers

In terms of commonalities, both new and experienced teachers primarily relied on the [I^nR^n]F and IRF discourse patterns for classroom interaction. The I^nR^n, I[R^nF^n], and IRFR patterns were present in the classrooms of both groups of teachers, with the I^nR^n pattern occurring more frequently due to its effective integration of theory and practice compared to the other two patterns.

Regarding differences, the [I^nR^n]FR and IR[F^nR^n] patterns emerged in the classrooms of experienced teachers, albeit with low frequency. Nevertheless, their presence held positive significance. The I^nR^n pattern was more frequently observed in new teachers' classrooms, but the I^nR^n(S) pattern appeared slightly more often in the classrooms of experienced teachers. The IRFR(S) pattern also occurred more frequently in the classrooms of experienced teachers compared to new teachers.

Comparison of Classroom Interaction Strategies between New and Experienced Teachers

The study examined how new and experienced teachers utilized strategies such as classroom questioning, teaching feedback, and classroom silence to promote interaction with students. In terms of classroom questioning, the comparative analysis of the types and strategies used by new and experienced teachers revealed that the proportion of closed questions was significantly higher than that of open questions in both groups, consistent with the quantitative analysis results. Although experienced teachers used open questions slightly more than new teachers, neither group achieved the ideal ratio of closed to open questions. New teachers relied more on probing to organize classroom, while experienced teachers employed a more diverse range of questioning strategies, more frequently using chaining, repetition, simplification, and decomposition. Notably, even among experienced teachers, there was an underutilization of certain questioning strategies. Chaining, simplification, and decomposition were underutilized in both groups, indicating that these potentially valuable strategies in teaching practice were not fully explored or employed.

Regarding teaching feedback, the statistical and comparative analysis of the types of feedback given by new and experienced teachers showed that both groups highly valued the role of positive feedback in stimulating student participation and motivation. However, experienced teachers demonstrated greater complexity and guidance in their use of feedback strategies. They were more inclined to use repetition and expansion to deepen students' thinking and answers, while new teachers relied more on simple praise. In terms of negative feedback, experienced teachers employed more nuanced and guiding methods, such as verifying students' understanding, clarifying students' viewpoints, and rephrasing students' answers to promote deeper thinking, whereas new teachers were more likely to directly point out students' mistakes.

In terms of classroom silence, the study's classification, statistical analysis, and comparative analysis of waiting times in the use of classroom silence strategies by new and experienced teachers deeply revealed the multi-dimensional value of waiting time as a non-verbal form of classroom interaction in teaching practice. The study found that both new and experienced teachers tended to use a medium length of waiting time (3-5 seconds) to promote students' thinking and responses. However, there were significant differences in the use of waiting times between new and experienced teachers. Experienced teachers were more likely to use shorter pauses (less than 3 seconds), while new teachers had a higher frequency of using longer waiting times (more than 6 seconds).

Impact of Classroom Interaction Strategies on Teacher-Student Interaction Outcomes

The study conducted an in-depth analysis of the impact of classroom questioning types and strategies on the effectiveness of teacher-student interaction in teaching. It was found that open-ended questions could guide students in deep thinking, promote knowledge integration, and encourage creative expression, while closed questions played an irreplaceable role in reviewing and checking students' grasp of the material due to their clarity, ease of management, and time-saving advantages. However, both

types of questions had their limitations; open-ended questions might consume more classroom time and place higher demands on teachers' professional abilities, while closed questions could limit the depth and creativity of students' thinking. In terms of questioning strategies, probing, chaining, repetition, simplification, rephrasing, and decomposition each had their strengths and could effectively promote teacher-student interaction in different contexts. Probing could lead students to engage in deep thinking, while linking strategies enhanced the coherence of classroom discussions and the exchange of ideas among students. Repetition strategies could emphasize the importance of a question and provide additional thinking time for students, simplification strategies could reduce the difficulty of a question and increase student participation and confidence. Rephrasing strategies helped to eliminate language barriers and promote students' understanding of the question, and decomposition strategies could reduce cognitive load, allowing students to tackle difficult problems step by step. However, the success of questioning strategies was not absolute and was influenced by various factors such as the difficulty of the question, students' cognitive preparation, classroom atmosphere, teachers' questioning skills, and the clarity of language expression. Therefore, teachers needed to fully consider the actual situation of students and teaching needs when employing questioning strategies, flexibly adjust strategies, ensure that the difficulty of the question matches students' cognitive levels, and pay attention to creating a classroom atmosphere and improving questioning skills to maximize the potential of questioning strategies in promoting teacher-student interaction and enhancing teaching effectiveness.

In terms of teaching feedback, the study deeply explored the role and effectiveness of classroom feedback in teacher-student interaction from the dimensions of positive and negative feedback. Positive feedback, including simple praise, repetition, and supplementation and expansion, could enhance students' confidence, stimulate motivation to learn, and promote active participation in classroom activities. However,

the effectiveness of positive feedback depended on its specific form, content, and match with individual student differences. Both experienced and new teachers tend to employ a combination of strategies when utilizing positive feedback; however, new teachers may exhibit slightly less flexibility and depth in the combination of strategies compared to their experienced counterparts. Negative feedback, including direct correction, verification, clarification, and restatement, aimed to promote students' learning and understanding in different ways. The effectiveness of negative feedback was also influenced by various factors, such as the timing, manner, and content of the feedback. New teachers tended to use a single strategy when employing negative feedback, while experienced teachers were better at integrating multiple strategies, guiding students to recognize mistakes and promote self-reflection and learning in more flexible and diverse ways.

Regarding classroom silence, the study mainly analyzed the role of waiting time strategies in maintaining classroom rhythm, stimulating student thinking, promoting deep learning, and ensuring teaching efficiency. The study found that different types of waiting time strategies—T1 (less than 3 seconds), T2 (3-5 seconds), and T3 (more than 6 seconds)—each had unique advantages and limitations and were suitable for different teaching contexts and student needs. The T1 strategy could quickly elicit immediate responses from students and was suitable for simple answers or classroom situations requiring immediate feedback. However, it might also limit in-depth student thinking, leading to insufficient discourse quality and depth, especially for students who needed more time to process information or think about complex problems. The T2 strategy provided a medium-length waiting time, which could promote moderate student thinking and avoid long periods of silence or awkwardness in the classroom. However, if the question was too difficult or students' grasp of related knowledge was insufficient, the T2 strategy might not be enough to stimulate in-depth student thinking or meet their cognitive needs. The T3 strategy provided ample time for students to think deeply and

organize their answers, reducing anxiety caused by time pressure. However, excessively long waiting times could slow down the classroom rhythm, affect teaching progress, and even lead to some students becoming distracted or losing interest. Therefore, when choosing classroom silence-waiting time strategies, teachers needed to fully consider factors such as students' cognitive levels, question difficulty, classroom atmosphere, and teaching objectives, flexibly apply different types of waiting time strategies, and maximize student thinking, promote deep learning, and ensure teaching efficiency.

CHAPTER 5

IMPLICATION AND CONCLUSION

5.1 Research Summary

This study is anchored in the practical context of modern Chinese classroom teaching. It employs two research tools—the improved Flanders Interaction Analysis System (iFIAS) and Conversation Analysis (CA)—to conduct a detailed comparative analysis of new and experienced teachers' classroom interactional discourse from both macro and micro perspectives. Initially, the iFIAS system is utilized for a quantitative statistical analysis of teachers' classroom speech behaviors, examining the proportions of various speech behaviors such as teacher talk, student talk, teacher questioning, and student responses. This analysis provides a macroscopic view of the discourse patterns used by both types of teachers. Subsequently, CA is applied for an in-depth microscopic examination of the transcribed classroom discourse texts, revealing the specific situations and effectiveness of the interactional strategies employed by new and experienced teachers. The findings uncover similarities and differences in their use of classroom interactional discourse, which manifest not only in aspects like discourse volume, questioning strategies, feedback methods, and the use of classroom silence but also in their ability to master and regulate classroom interaction patterns. These findings offer an empirical basis for understanding the impact of teachers' professional development stages on teaching practice.

5.2 Major Findings of the Study

5.2.1 Macroscopic Comparison of Classroom Interactional Discourse Between New and Experienced Teachers Based on the iFIAS System

Using the iFIAS system, this study conducts a quantitative comparative analysis of new and experienced teachers' classroom interactional discourse. Significant

differences and commonalities are revealed in classroom teaching structure, teaching style, and classroom teaching interaction behaviors.

In terms of classroom teaching structure, both types of teachers dominate classroom discourse, with students primarily playing the role of passive listeners, resulting in low student discourse volume. This is generally consistent with Gibbons (2015)'s research conclusion that a question-and-answer pattern characterized by closed teacher questions and simple student responses is quite common in classrooms. However, due to their deeper teaching philosophy, richer experience, and mastery of professional knowledge, experienced teachers generally exhibit a higher discourse volume. This imbalance in teacher-student interaction highlights the need for educators to promote a more democratic and interactive teaching environment. Both types of teachers predominantly use closed questions. Students actively respond to teachers' questions but rarely initiate them, suggesting untapped potential for critical and creative thinking. Information technology is used as an auxiliary teaching tool by both, with teachers maintaining control. New teachers are more adept at using it to increase student participation, possibly due to their higher receptiveness to emerging technologies. The proportion of beneficial silence is higher than classroom confusion in both classrooms, but new teachers have more beneficial silence, potentially indicating their tendency to create an environment for contemplation and knowledge internalization, whereas experienced teachers may prefer a faster-paced teaching mode.

Therefore, both types of teachers should strive to balance classroom interaction, encouraging student participation and proactive questioning to stimulate critical and creative thinking. New teachers should increase the use of open-ended questions, while experienced teachers should refine their questioning strategies. New teachers should leverage their familiarity with emerging technologies to enhance student participation, while experienced teachers should explore the use of technologies like artificial intelligence and Rain Classroom to improve interaction. New teachers can maintain their

inclination towards creating a contemplative environment while gradually introducing a faster-paced mode to balance the teaching pace. Experienced teachers, in contrast, should adjust their pace to accommodate different students' learning needs.

Regarding teaching style, both types of teachers tend to use direct instruction, but experienced teachers demonstrate higher flexibility and sensitivity, using indirect means such as praise and adopting student perspectives to motivate students. This approach enhances students' self-efficacy and classroom participation, ultimately improving learning outcomes. New teachers, however, are less skilled in employing indirect motivational strategies and need to learn how to stimulate students' intrinsic motivation through non-direct means. Both classrooms are dominated by negative reinforcement, leading to a serious atmosphere that may inhibit student participation. Experienced teachers, however, display a more refined ability in praising and encouraging students, creating a more positive classroom atmosphere. This research outcome aligns with the conclusion of Sha (2009), which states that experienced teachers have stronger capabilities in classroom organization and arrangement compared to new teachers.

Thus, both new and experienced teachers should seek a balance between direct instruction and indirect motivation, incorporating more interaction and discussion to increase classroom vitality. A positive and inclusive classroom atmosphere should be cultivated to encourage students to make mistakes and learn from them. New teachers should recognize the importance of motivating students beyond knowledge impartation and learn to stimulate their intrinsic motivation. Teachers should view professional development as a continuous process, learning new teaching methods and motivational strategies to improve effectiveness.

In terms of classroom teaching interaction behaviors, teacher-student interaction is smooth in both classrooms, with teachers responsive to students. Through questioning, feedback, and summarization, teachers stimulate students' thinking and

expression, while students actively participate. This interaction facilitates knowledge transmission and enhances students' subjectivity, embodying the core value of interactive teaching. However, the study also found that experienced teachers have a higher proportion of long speeches in the classroom compared to new teachers, which is consistent with the research conclusions of Zhang (2013), Wang & Ren (2015), and others, suggesting that experienced teachers have a higher proportion of discourse in the classroom. This may point to the emphasis experienced teachers place on systematic knowledge transfer and the integrity of teaching content in their teaching. In contrast, new teachers seem to prefer using interactive teaching strategies to promote active learning and critical thinking among students. This difference reveals individual variations among teachers in terms of teaching philosophy, classroom management skills, and the level of mastery of teaching content.

Thus, both new and experienced teachers should recognize that classroom interaction is not only a process of knowledge transmission but also crucial for the development of student autonomy. Teachers should create conditions that encourage active student participation to achieve bidirectional teaching interaction. They should be adept at listening to students' opinions and ideas and provide timely constructive feedback to foster effective communication and understanding between teachers and students (Guo et al., 2022). Experienced teachers, while maintaining their advantage in systematic knowledge delivery, can draw on new teachers' interactive teaching strategies to promote active student learning. New teachers need to enhance their mastery of professional knowledge and classroom management skills to increase their sensitivity to student responses.

5.2.2 Microscopic Comparison of Classroom Interactional Discourse between New and Experienced teachers Based on Conversation Analysis

The study employs conversation analysis methods, such as questioning, feedback, and silence, to explore the occurrence of teaching and learning in classroom

instruction (Gass & Mackey, 2013). And conducts an in-depth micro-analysis of the transcribed texts of classroom discourse for both types of teachers, revealing the specific circumstances and effectiveness of their application of interactive strategies such as classroom interactional discourse patterns, classroom questioning, feedback, and classroom silence in teaching. The results provide an empirical basis for understanding how teachers stimulate student participation, promote knowledge internalization, and enhance learning motivation.

5.2.2.1 Similarities and Differences in classroom interactional discourse Patterns between New and Experienced Teachers

The study, through in-depth analysis of transcribed teaching audio texts, systematically identified and summarized seven main classroom interactional discourse patterns: IRF, $[I^nR^n]F$, I^nR^n, $I[R^nF^n]$, $[I^nR^n]FR$, $IR[F^nR^n]$, and IRFR. This result corresponds to Seedhouse's (1996b) description that the interactive discourse patterns in actual classrooms are more complex than those described by McHoul (1978) and Mehan (1979). Particularly noteworthy is that the I^nR^n and $IR[F^nR^n]$ patterns are newly identified based on the research of Li & Liu (2016), complementing and expanding the existing classification system of classroom interactional discourse patterns. These patterns not only reveal the diversity of teaching interactions but also reflect the different strategies teachers employ in guiding student thinking and participation.

In classrooms of both new and experienced teachers, the $[I^nR^n]F$ and IRF patterns are dominant, indicating the prevalence of teacher-led instructional models. This is generally consistent with McHoul's (1978) research conclusion that teachers control the initiative in interaction, with students having less autonomy. The frequent use of the $[I^nR^n]F$ pattern highlights the efforts made by teachers to stimulate student thinking and enhance their discursive contributions. Meanwhile, the IRF pattern, as a fundamental classroom interaction model, reflects the central role of teachers in content delivery and pace control due to its persistence and ubiquity. Both types of teachers

tend to use examples to assist students in understanding and grasping abstract theoretical concepts. The use of exemplification effectively promotes cognitive development by combining theory with practice. However, the low frequency of student-initiated interaction patterns suggests that student proactivity in classroom interactions is not fully stimulated, and their discursive contributions require enhancement.

Experienced teachers demonstrate greater diversity in the use of classroom interactional discourse patterns, with two patterns, [InRn]FR and IR[FnRn], having a significantly positive effect on assessing student proactivity in classroom interactions. These patterns provide important indicators for evaluating student initiative and facilitate deeper communication between students and teachers. However, despite the greater variety of interaction patterns in experienced teachers' classrooms, the frequency of these patterns remains low, suggesting that the potential for students to play a leading role in the classroom is not yet fully realized. The I^nR^n pattern occurs more frequently in new teachers' classrooms than in those of experienced teachers, but the I^nR^n (S) pattern occurs more frequently in experienced teachers' classrooms. This indicates that new teachers tend to use examples more often when explaining theoretical knowledge, while experienced teachers focus more on creating opportunities for student participation in classroom discussions. The IRFR (S) pattern is more common in experienced teachers' classrooms, where more students proactively ask questions or express their opinions.

Therefore, both new and experienced teachers should recognize that classroom interaction is not merely a simple question-and-answer process (IRF pattern) but can be more diverse and complex. When designing courses and teaching activities, teachers can consider employing various interaction patterns to meet different teaching objectives and student needs. Although the $[I^nR^n]$F and IRF patterns dominate in the classrooms of both new and experienced teachers, it is also essential to focus on stimulating student proactivity. Teachers can enhance student engagement and

initiative by designing more student-led activities, such as group discussions, debates, or project work. The [I^nR^n]FR and IR[F^nR^n] patterns provide significant indicators for assessing student proactivity in classroom interactions. Teachers can use these patterns to observe and evaluate student participation in class, thereby adjusting teaching strategies to better stimulate student initiative. Experienced teachers' classrooms are more diverse in interaction patterns, and they are more capable of flexibly adjusting teaching strategies according to classroom situations. New teachers can learn from experienced teachers by attempting to introduce more interaction patterns in their teaching. Experienced teachers can also further improve teaching quality through reflection and innovation. However, given the low frequency of certain patterns, teachers should create more opportunities for students to lead classroom discussions, pose questions, and present viewpoints, continuously exploring the potential for students to play a central role in the classroom. The use of examples in teaching can effectively help students understand abstract concepts; therefore, teachers can try to incorporate more examples or case studies in daily teaching to promote cognitive development. The above suggestions not only enhance the quality of classroom interaction and learning outcomes but also provide new ideas and directions for the innovation of modern teaching methods.

5.2.2.2 Main Classroom Interaction Strategies Employed by New and Experienced Teachers

Classroom questioning, feedback, and silence are key interaction strategies frequently employed by teachers in their interactions with students. This study utilized CA to conduct an in-depth micro-analysis of the transcribed classroom discourse of both new and experienced teachers, revealing the specific application and effectiveness of these strategies in teaching practice. The findings provide an empirical basis for understanding how teachers can stimulate student engagement, facilitate knowledge internalization, and enhance learning motivation through these strategies.

In the realm of classroom interaction, The result corresponds with Gibbons (2015)'s observation that closed teacher questions and simple student responses are common patterns of question to answer in classrooms. The conclusions of this study support Gibbons (2015)'s viewpoint, finding that both new and experienced teachers rely heavily on closed-ended questions in classroom questioning. This tendency indicates that current classroom teaching remains centered on knowledge transmission, and there is still room for improvement in fostering students' thinking abilities, especially in critical and creative thinking development. Compared to the ideal ratio model proposed by Borich (2002), there is a significant deviation in the structure of classroom questioning observed among teachers, suggesting that both types of teachers have considerable room for improvement in the quality of classroom questioning. The study found that experienced teachers use open-ended questions slightly more than new teachers, which can be attributed to their richer teaching experience and a deeper understanding of the importance of open-ended questions. However, individual differences should not be overlooked. Specifically, some new teachers have shown a higher tendency to use open-ended questions, while some experienced teachers still prefer closed-ended questions, challenging the traditional notion that experienced teachers are more effective in using open-ended questions.

New and experienced teachers both employ six questioning strategies in the classroom: Probing, Chaining, Repetition, Simplification, Rephrasing, and Decomposition. Among these, probing and rephrasing are the most frequently used, suggesting that both groups of teachers place a high value on the clarity of students' understanding of classroom knowledge. Experienced teachers use chaining, repetition, simplification, and decomposition more often than new teachers, demonstrating their advantage in classroom management and the diversity of questioning strategies. However, the overall low usage of these strategies indicates that their promotion and application in actual teaching are still insufficient. It is worth noting that the frequent use

of the probing strategy by new teachers reflects that they may rely more on this strategy to organize classroom questions and answers. However, this kind of strategy often requires students to think quickly and respond. Excessive use may bring greater interaction pressure to students. In the classroom, it is necessary to consciously control the number of such strategies used. In contrast, experienced teachers, while using Probing less frequently, exhibit a balanced use of other strategies, showing the diversity and flexibility of their questioning strategies.

Thus, new and experienced teachers share commonalities as well as significant differences in classroom questioning. Both groups exhibit deficiencies in the practical application of questioning strategies, suggesting that further research should explore how to effectively enhance teachers' abilities to use open-ended questions and diverse questioning strategies, thereby promoting the development of students' thinking and the overall improvement of classroom teaching quality.

In terms of classroom feedback, the study reveals both commonalities and significant differences in the use of feedback strategies between new and experienced teachers, offering valuable insights into teacher professional development. Overall, both groups of teachers highly value the role of positive feedback in stimulating student engagement and motivation in the classroom. However, in the specific application of feedback strategies, experienced teachers demonstrate greater complexity and depth, while new teachers tend to use more direct and simple forms of feedback.

Specifically, experienced teachers tend to use strategies such as repetition and supplementation and expansion in their positive feedback, which not only affirms students' correct responses but also encourages them to think further and elaborate on their answers. This reflects the deep understanding and extensive experience of experienced teachers in the dynamics of teaching. In contrast, new teachers, although they also use positive feedback extensively, rely more on simple praise. As Burnett (2002) stated, teachers' praise feedback can sometimes be ineffective and may even

have a detrimental impact on learning. The excessive use of simple praise in new teachers' classrooms is not beneficial to students' learning, thereby limiting the in-depth development of students' thinking and the exploration of their learning potential. Regarding negative feedback, experienced teachers exhibit higher strategy levels as well. They prefer detailed and guiding methods such as verification, clarification, and restatement to help students identify mistakes, correct errors, and promote a deeper comprehension of the subject matter. This type of feedback, containing sufficient information without being overly detailed (Kluger & DeNisi, 1996; Shute, 2008), not only helps to enhance students' cognitive abilities but also fosters their capacity for autonomous learning. New teachers, on the other hand, have a higher proportion of direct correction, which may indicate a lack of nuanced and skillful guidance when addressing students' mistakes, tending to point out issues directly, potentially suppressing students' enthusiasm for self-discovery and problem-solving.

In summary, experienced teachers demonstrate greater strategic proficiency and complexity in classroom feedback practices, effectively utilizing feedback to promote in-depth cognitive development and learning ability enhancement among students. New teachers, however, require continuous learning and growth in the application of feedback strategies, particularly in diversifying positive feedback and enhancing the guiding nature of negative feedback, to better align with teaching demands and student development needs. This finding holds significant importance for guiding teacher professional development and optimizing classroom instructional strategies.

Regarding classroom silence, the study delves into the commonalities and differences between new and experienced teachers in their use of wait time as a classroom silence strategy, providing crucial insights into the characteristics of different teacher professional development stages in classroom management and student interaction. The research findings indicate that both new and experienced teachers tend to adopt a moderate wait time (a pause of 3-5 seconds, T2) after eliciting student

responses, a conclusion that is consistent with the results of Rowe's (1986). This suggests that both groups of teachers recognize the importance of extending waiting time appropriately to facilitate student thinking and responding (Ingram & Elliott, 2014). This commonality underscores teachers' collective pursuit of improving classroom interaction quality and encouraging deep student engagement.

However, when comparing the waiting time strategies of new and experienced teachers, the study also revealed some significant differences. Experienced teachers tend to use shorter pause times (less than 3 seconds, T1), which may be related to their high confidence in teaching practice and accurate anticipation of student responses. They can quickly and accurately guide student responses while precisely controlling the pace of the classroom, making teaching interactions more fluid and efficient. This not only reflects experienced teachers' profound grasp of teaching dynamics but also shows their superior classroom management skills. In contrast, new teachers have a higher proportion of using longer pause times (more than 6 seconds, T3), which may reveal some uncertainties in their classroom management. New teachers may need more time to observe student reactions, think about how to guide student responses, or lack sufficient patience and confidence while waiting for student answers. The use of longer pause times may affect the fluidity and efficiency of classroom interactions to some extent and may also suppress students' enthusiasm for participating in class discussions (Taylor, 2020).

Thus, new and experienced teachers both share commonalities and exhibit significant differences in the use of waiting time as a strategy for classroom silence. Experienced teachers demonstrate greater confidence and precise control in classroom interactions, while new teachers need more learning and practice in classroom management strategies. This finding is of significant importance for guiding the professional growth of new teachers and enhancing the quality of classroom teaching. It also provides valuable reference for educational administrators and teacher trainers.

5.2.2.3 The Impact of Classroom Interaction Strategies Employed by New and Experienced Teachers on Teacher-Student Interaction

In the realm of classroom questioning, the study conducted an in-depth analysis of the impact of question types and questioning strategies on the quality of teacher-student interaction and teaching effectiveness. The results indicate that both the choice between open-ended and closed-ended questions and the use of strategies such as probing, chaining, repetition, simplification, rephrasing, and decomposition variously influence the quality of teacher-student interaction and educational outcomes.

In terms of question types, open questions significantly enhance the depth and breadth of teacher-student interaction by stimulating students' deep thinking, knowledge integration, and creative expression. These questions typically allow more time for reflection, encouraging students to engage in higher-order thinking activities, which results in complex and lengthy responses. However, open questions may consume considerable classroom time and place higher demands on teachers' professional knowledge and instructional design skills. In contrast, closed questions excel in their clarity, ease of management, and time efficiency, particularly in reviewing and assessing students' grasp of basic knowledge. Yet, such questions may also limit the depth and creativity of students' thinking, and even cause stress for some students, affecting their classroom participation.

In terms of questioning strategies, each strategy has its unique strengths and limitations. The probing strategy guides students to think deeply by asking consecutive questions, helping them construct and internalize knowledge, but it may also cause stress for students. The chaining strategy enhances the coherence and dynamism of classroom discussions by skillfully connecting students' responses, promoting the exchange of ideas and collaborative learning, but it may challenge students who are not adept at public expression. The repetition strategy reinforces the importance of a question and provides additional time for students to think, but overuse may lead to

frustration or boredom. The simplification strategy increases student participation and confidence by reducing the difficulty of questions, but it may also limit the exploration of deeper understanding. The rephrasing strategy helps eliminate language barriers and promotes comprehension, but improper use may confuse students. The decomposition strategy reduces cognitive load by breaking down questions, enhancing students' confidence and ability to solve problems, but excessive decomposition may cause students to lose grasp of the overall concept.

The study also found that teachers' flexible and integrated use of various questioning strategies helps to meet the needs of different students and promotes the depth and breadth of classroom discussions (Hu et al., 2004). However, the success of questioning strategies is complex and influenced by various factors, including the difficulty of questions, students' cognitive preparation, classroom atmosphere, teachers' questioning skills, and the clarity of language expression. Therefore, teachers need to consider these factors comprehensively in actual teaching, design questions carefully, and flexibly apply questioning strategies to ensure smooth teacher-student interaction and the achievement of teaching objectives.

In summary, the types of questions and questioning strategies have a significant impact on the effectiveness of teacher-student interaction in teaching. Teachers should reasonably choose question types and strategies based on teaching objectives, student characteristics, and classroom contexts, continuously optimize the way of questioning, stimulate students' thinking vitality, promote a virtuous cycle of teacher-student interaction, and improve teaching quality and effectiveness. At the same time, teachers should also focus on improving their professional literacy and teaching abilities to better meet the challenges and opportunities in classroom questioning.

At the level of classroom feedback, the study comprehensively explored the roles and effects of positive and negative feedback in teacher-student interactions. The results indicate that different types of classroom feedback have significant differences in

promoting student learning, stimulating motivation, and enhancing teaching effectiveness (Nunan, 1991; Yan et al., 2009; Li & Wang, 2018). In terms of positive feedback, both experienced and new teachers tend to use comprehensive feedback strategies rather than singular feedback methods. However, experienced teachers excel in integrating various positive feedback strategies. They are better at providing students with comprehensive positive reinforcement and specific learning guidance through a combination of simple praise, repetition, and expansion. This integrated feedback strategy not only strengthens students' confidence and motivation but also helps them gain deep insights into their learning process, motivating them to explore, learn, and improve. In contrast, new teachers, while showing some diversity in positive feedback, fall slightly short in terms of comprehensiveness and targeting. Regarding negative feedback, new teachers tend to use a single negative feedback strategy, such as direct correction, while experienced teachers demonstrate more diversity and flexibility. Experienced teachers can flexibly choose and integrate various feedback strategies, including direct correction, verification, clarification, and restatement, according to different teaching contexts and student needs. This integrated use of negative feedback not only effectively corrects students' mistakes but also stimulates their thinking and self-reflection, promoting deeper learning and understanding. New teachers, when using negative feedback, may appear more singular and mechanical due to a lack of mastery of different feedback strategy combinations or insufficient confidence in adjusting classroom dynamics.

Overall, experienced teachers are not only able to effectively use positive feedback to enhance students' self-confidence and motivation to learn, but also to correct students' mistakes and stimulate their thinking and self-reflection through flexible and diverse negative feedback strategies. New teachers, on the other hand, need to continuously learn and accumulate experience in teaching practice to improve their professional literacy and teaching skills in classroom feedback, thereby better

leveraging the role of classroom feedback in teacher-student interactions.

Therefore, for teachers, mastering and flexibly applying different types of classroom feedback strategies is crucial. This requires not only a solid foundation in professional knowledge and teaching skills but also keen observation and judgment to choose the most appropriate feedback method based on different teaching contexts and student needs. Additionally, teachers should focus on communication with students and establish positive teacher-student relationships to create a conducive atmosphere and conditions for the effective implementation of classroom feedback.

At the level of classroom silence, the study, through comparative analysis of the application of new and experienced teachers' classroom silence strategies and their impact on teacher-student interaction, reveals the unique advantages and potential limitations of different waiting times (T1, T2, T3) in classroom interaction.

The T1 strategy (waiting time less than 3 seconds) has a significant advantage in maintaining a fast pace and vitality in the classroom. It can quickly elicit student responses and is suitable for situations requiring immediate feedback or simple answers. However, this strategy may also limit in-depth student thinking, leading to insufficient quality and depth of discourse (Rowe, 1986). For students who need more time to process information, an overly brief waiting time may increase their anxiety and decrease their participation. Therefore, the T1 strategy should be used cautiously, especially when students are not proficient in specific knowledge points or when the question itself is challenging. The T2 strategy (3-5 seconds of pause) provides a moderate waiting time that helps students engage in moderate reflection while avoiding long periods of silence in the classroom. This strategy promotes cognitive processing, encourages active participation in classroom discussions, and enhances the quality and relevance of responses. However, if the question is too difficult or students have insufficient mastery of the relevant knowledge, the T2 strategy may not be sufficient to stimulate in-depth thinking or meet their cognitive needs. Moreover, if teachers fail to

accurately assess students' cognitive levels and the difficulty of the question, using the T2 strategy may also miss opportunities to guide students into deeper discussions. Ingram & Elliott (2014) believed that extending waiting time can improve the accuracy of student responses. The T3 strategy (more than 6 seconds of pause) gives students ample time to think deeply and organize their answers, helping to stimulate critical thinking and creative expression. This strategy reduces anxiety caused by time pressure and provides a more relaxed and supportive learning environment. However, an excessively long waiting time may slow down the classroom pace and affect the normal progress of teaching (Taylor, 2020). Additionally, prolonged silence may be misinterpreted by some students as a signal of confusion or difficulty (Kim & Marcus, 2002), thereby affecting their self-confidence and participation (Hao, 2011). Teachers should try to avoid excessively long waits in interactions and consider simplifying or breaking down questions to reduce the silence following a prompt, creating a more relaxed interactive situation.

Synthesizing the comparative analysis results of new and experienced teachers, the study finds that experienced teachers can flexibly choose and integrate different waiting time strategies based on the difficulty of the questions, students' cognitive levels, and classroom atmosphere, creating a more harmonious interactive context. Compared to new teachers, experienced teachers are better at stimulating students' thinking through moderate waiting times while maintaining the fluency and interactivity of the classroom. In contrast, new teachers may appear more singular and mechanical in their use of classroom silence strategies, lacking precise grasp of individual student differences and classroom dynamics.

Therefore, for teachers, mastering and flexibly applying classroom silence strategies is crucial. This requires not only solid professional knowledge and teaching skills but also keen observation and judgment to select the most appropriate waiting time strategy based on different teaching contexts and student needs. Additionally,

teachers should focus on communication with students and establish positive teacher-student relationships to create a conducive atmosphere and conditions for the effective implementation of classroom silence strategies. Through continuous learning and practice, teachers can gradually enhance their professional quality and teaching wisdom, thereby better leveraging the role of classroom silence strategies in teacher-student interaction.

5.2.3 Comparison of Individual Differences among Teachers

In addition to a comparative analysis between two distinct categories of teachers, this study also identified significant individual differences among teachers within their respective groups. Experienced teacher A exhibited a markedly higher proportion of teacher talk in her classroom compared to the other two teachers in her cohort; conversely, her utilization of information technology was the lowest among the three. Consistent with her background, Teacher A, who possessed the longest teaching tenure, appeared more accustomed to traditional didactic teaching methodologies and demonstrated a less proactive approach to information technology integration than her colleagues.

Among the new teachers, Teacher E's classroom practices were characterized by a significantly higher frequency of positive reinforcement and a greater proportion of open questions compared to the other two news. CA revealed that Teacher E typically incorporated a student presentation segment at the beginning of her classes, during which she frequently posed open questions to stimulate student cognition. Furthermore, when providing feedback on student responses, Teacher E predominantly employed praise and encouragement, fostering a harmonious classroom atmosphere.

New teacher F also demonstrated a notably higher proportion of teacher talk than the other two news, frequently engaging in extended monologues. However, her information technology usage was the highest. CA findings indicated that Teacher F, concerned about potentially misleading students with inaccurate pronunciation during

phonetics instruction, utilized several video clips in her lessons. Compared to the other two new teachers, Teacher F had less teaching experience, a less consolidated foundation of subject matter knowledge, and limited pedagogical practice, which manifested as several less mature aspects in her classroom organization.

5.2.4 Comparison of Macro-Level Quantitative and Micro-Level Qualitative Analysis

The quantitative analysis shows that teachers dominate classroom discourse, with students as passive listeners. Teachers talk more in class than students. This aligns with the qualitative analysis. CA analysis indicates most classroom interactions are initiated by teachers, and student contributions are mostly brief or very brief utterances.

Teachers mainly pose closed questions aiming to impart knowledge, which is consistent with the qualitative analysis. The study found through specific-question analysis that teachers' questions mostly focus on theoretical knowledge in textbooks. Due to iFIAS item limitations, quantitative analysis can't examine the specific questioning strategies teachers use in class, but qualitative analysis overcomes this limitation.

In teaching feedback, experienced teachers showed slightly better positive feedback strategy use than new teachers in the quantitative analysis, which is consistent with the qualitative analysis. New teachers tend to use single feedback strategies, while experienced teachers use multiple feedback strategies.

Regarding classroom silence, the quantitative analysis shows new teachers have slightly more beneficial silence for teaching than experienced teachers, which aligns with the qualitative analysis. experienced teachers prefer use T1, whereas New teachers use T3 more. Experienced teachers allow slightly less student thinking time than New teachers.

In summary, combining quantitative and qualitative analyses effectively captures macro and micro level classroom interaction aspects. This approach validates results, enhancing research finding reliability.

5.3 Research Contributions

This study has made significant theoretical contributions and practical insights in the field of modern Chinese language teaching. Theoretically, the research integrates the iFIAS system with conversation analysis methods to construct a multi-level, multi-dimensional framework for analyzing classroom interactional discourse. It not only quantifies teachers' verbal behaviors from a macro perspective but also provides an in-depth analysis of the specific use of interactive strategies from a micro perspective, offering a more comprehensive and detailed analytical perspective for classroom interaction research. The study's comparison of new and experienced teachers' classroom interactional discourse deepens the understanding of the relationship between teachers' professional development stages and teaching practices. It emphasizes that teacher professional development is an ongoing process involving the mastery and formation of professional concepts and thought mechanisms. By analyzing the interactive discourse of teachers at different stages in the classroom, the study reveals the importance of teacher professional theory in explaining the processes and causal relationships of teaching students to learn, educate, and serve, thereby deepening the theoretical model construction of teacher professional development (Zhu, 2014). The study applies conversation analysis to deeply analyze the interactive strategies used by teachers in classroom teaching, such as questioning, feedback, and classroom silence, providing an empirical basis for understanding how teachers stimulate student participation, promote knowledge internalization, and enhance learning motivation through these strategies. This has not only promoted the application of conversation analysis theory in the field of education but also provided a new theoretical perspective for the study of teachers' classroom interactional discourse. The study's identification of two new patterns, I^nR^n and $IR[F^nR^n]$, on the basis of existing research, supplements and expands the current classification system of interaction discourse patterns. These patterns not only reveal the diversity of teaching interactions

but also reflect the different strategies teachers employ in guiding student thinking and participation, providing new theoretical support for the classification and understanding of teachers' classroom interactional discourse patterns.

On the practical front, the study's findings offer specific guidance and recommendations for teacher training and classroom practice. Firstly, the research emphasizes the importance of balanced classroom interaction, suggesting that teachers should try various ways to give students the initiative in class, encourage student participation in discussions, and increase the frequency of student-initiated questions to stimulate critical and creative thinking. Secondly, the study indicates that new teachers should increase the proportion of open-ended questions, while experienced teachers should optimize their questioning methods and strategies to further inspire students' thinking. Additionally, the research advises teachers to actively learn about and apply emerging technologies, such as AI and Rain Classroom, to improve student engagement and teacher-student interaction methods. In terms of teaching style, the study recommends that teachers find a balance between direct instruction and indirect motivation, incorporating more interaction and discussion to increase classroom vitality and student participation. Regarding questioning, feedback, and silence strategies, the study provides specific strategy usage analysis, guiding teachers on how to flexibly apply different teaching strategies based on teaching objectives and student needs to enhance teaching effectiveness and student learning experiences. These practical recommendations not only help new teachers improve their teaching skills but also promote experienced teachers to reflect on and innovate teaching methods, collectively advancing the development of modern Chinese language classroom teaching.

5.4 Research Limitations and Future Directions

The study has certain limitations in sample selection and analysis scope. The limited sample size, involving only three new and three experienced teachers from one university, may affect the universality of the results. In addition, the study mainly focuses

on teachers' teaching behaviors and interaction strategies, with relatively less analysis of students' active participation and interaction feedback. Future research can expand the sample size to cover modern Chinese classroom teaching in different regions and types of colleges and universities to enhance the representativeness and universality of the research results. The study can also pay more attention to students' subjectivity, starting from the perspective of students, to deeply explore students' roles, behaviors, and experiences in classroom interaction, in order to comprehensively understand the teacher-student interaction process.

5.5 Conclusion

The study is dedicated to exploring the phenomena of interactive discourse in modern Chinese language teaching, and by ingeniously integrating iFIAS with CA, it has constructed a multidimensional and systematic analytical framework. This innovative research approach not only captures key elements of classroom interaction such as verbal behavior, emotional communication, and information feedback with precision but also profoundly reveals how different stages of teacher professional development subtly and profoundly affect every aspect of teaching practice.

Specifically, the study, through meticulous data collection and analysis, demonstrates the differences and developmental trajectories of teachers from new to experienced in the use of classroom interactive discourse, further validating the importance of teacher professional growth in enhancing teaching interactivity, increasing student engagement in learning, and promoting effective knowledge transfer. These findings not only provide a new perspective for understanding the nature of interactive teaching in modern Chinese language classrooms but also offer a solid empirical foundation for optimizing teaching strategies and designing more engaging teaching activities.

The research outcomes demonstrate value and prospects at both the theoretical and practical levels. Theoretically, it enriches the research domain of interactive

discourse in modern Chinese language teaching, providing researchers in related fields with more abundant data support and theoretical insights. Practically, it provides a scientific basis and practical guidelines for teachers' self-improvement, planning of professional development paths, and the formulation of educational policies, helping to promote a comprehensive improvement in educational quality and creating more favorable conditions for the holistic development of students.

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APPENDICES

Appendix A: Modern Chinese classroom interactional discourse Corpus

Link: https://pan.baidu.com/s/11d8IyKbGWdcEok5IxZQOsg?pwd=mvct

Password: mvct

Appendix B: Classroom Coding Table

Link: https://pan.baidu.com/s/1Vwbp3DRa2DAbYk4-hj6R-g?pwd=z3fg

Password: z3fg

Appendix C: A List of Abbreviations

Number	Abbreviation	Prototype
1	CA	Conversation Analysis
2	FIAS	Flanders Interaction Analysis System
3	FOCUS	Foci for Observation Communications Used in Setting
4	COLT	Communicative Orientation of Language Teaching Scale
5	ITIAS	Information Technology-based Interaction Analysis System
6	iFIAS	Improved Flanders Interaction Analysis System
7	CLT	Communicative Language Teaching
8	IREs	Initiate-Response-Evaluation structure
9	CIC	Classroom Interactional Competence
10	IRFs	Initiate-Response-Feedback structure
11	TPACK	Technological Pedagogical Content Knowledge
12	TCOL	Teaching Chinese to Speakers of Other Languages
13	IRF	Initiate-Response-Feedback
14	$[I^nR^n]F$	[Initiate-Response…Initiate-Response]-Feedback
15	I^nR^n	[Initiate-Response…Initiate-Response]
16	I^nR^n(T)	[Initiate-Response…Initiate-Response] (Teacher)
17	I^nR^n(S)	[Initiate-Response…Initiate-Response] (Student)
18	$I[R^nF^n]$	Initiate-[Response-Feedback…Response-Feedback]
19	$[I^nR^n]FR$	[Initiate-Response…Initiate-Response]-Feedback-Response
20	$IR[F^nR^n]$	Initiate-Response-[Feedback-Response…Feedback-Response]
21	IRFR	Initiate-Response-Feedback-Response
22	IRFR(T)	Initiate-Response-Feedback-Response (Teacher)
23	IRFR(S)	Initiate-Response-Feedback-Response (Student)
24	F1	Simple Praise

25	F2	Repetition
26	F3	Supplementation and Expansion
27	F4	Direct Correction
28	F5	Verification
29	F6	Clarification
30	F7	Restatement
31	T1	Less than 3 Seconds
32	T2	3-5 Seconds
33	T3	More than 6 Seconds

Appendix D: Classroom Question Strategy Statistics Table

Group_____ Object _____ Number_____

Number / Type	01	02	03	04	05	06	07	08	09	10	Total
Probing											
Chaining											
Repetition											
Simplification											
Rephrasing											
Decomposition											

Appendix E: Classroom Feedback Strategy Statistics Table

Group_____ Object _____ Number_____

Number / Type	01	02	03	04	05	06	07	08	09	10	Total
F1											
F2											
F3											
F4											
F5											
F6											
F7											

Appendix F: Wait Time Statistics Table

Group_____ Object _____ Number_____

Number / Type	01	02	03	04	05	06	07	08	09	10	Total
T1											
T2											
T3											

Appendix G: Partial Coding Table for New Teacher A

	3秒	6秒	9秒	12秒	15秒	18秒	21秒	24秒	27秒	30秒	33秒	36秒	39秒	42秒	45秒	48秒	51秒	54秒	57秒	60秒
1分	6	6	4.2	4.2	4.2	4.2	6	4.2	4.2	4.2	12	12	12	6	6	12	12	5	6	6
2分	8	6	8	8	8	8	8	4.2	4.2	4.2	4.2	8	2	2	5	5	5	5	5	5
3分	5	5	5	4.2	9.1	9.1	9.1	3	5	5	5	5	5	5	5	5	5	5	13	13
4分	13	13	4.1	9.1	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
5分	5	5	5	5	4.2	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
6分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	5	5	5	5
7分	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5	5	5	5	5
8分	5	5	5	5	5	6	8	5	5	9.1	5	5	5	5	5	5	5	5	5	5
9分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
10分	6	6	6	6	6	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5
11分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
12分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
13分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
14分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
15分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
16分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
17分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	6	8
18分	5	5	5	5	5	5	5	5	5	5	5	5	5	6	8	5	5	5	5	5
19分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6
20分	8	5	5	5	5	5	6	8	5	5	5	5	5	5	5	6	8	4.2	5	5
21分	5	5	6	8	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
22分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
23分	5	5	5	5	5	5	5	5	5	5	5	6	9.1	4.2	9.1	9.1	4.2	9.1	9.1	9.1
24分	9.1	4.2	9.1	9.1	4.2	8	8	5	5	5	5	5	5	5	5	5	5	5	5	5
25分	5	4.2	5	5	5	5	5	5	5	5	9.1	5	5	5	5	5	5	5	5	5
26分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
27分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
28分	5	5	5	5	5	5	12	5	5	5	4.2	5	5	5	5	5	5	5	5	5
29分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
30分	5	5	5	5	5	5	5	5	5	9.1	5	5	5	5	5	5	5	5	5	5
31分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
32分	5	5	5	5	5	5	5	5	5	5	6	5	5	6	5	5	5	9.1	6	9.1

Appendix H: Partial Coding Table for New Teacher B

	3秒	6秒	9秒	12秒	15秒	18秒	21秒	24秒	27秒	30秒	33秒	36秒	39秒	42秒	45秒	48秒	51秒	54秒	57秒	60秒
1分	12	12	12	12	12	12	12	12	12	12	12	5	5	4.2	8	4.2	9.1	5	5	4.2
2分	9.1	9.1	12	12	12	12	5	5	5	5	5	5	12	12	12	12	13	13	13	5
3分	5	5	5	5	5	5	5	5	5	5	5	5	5	4.1	9.1	5	5	5	5	5
4分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
5分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
6分	6	5	5	5	5	5	5	5	4.2	9.1	5	5	5	5	5	5	5	5	5	5
7分	4.2	8	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	9.1	5
8分	5	5	5	5	5	12	5	5	5	5	5	5	5	5	5	5	5	5	5	5
9分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	9.1	5	5	5
10分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
11分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	12	12
12分	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
13分	12	6	6	6	6	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	5	5	5	5	5	5
14分	6	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	5	5	5	5	5	9.1	5	5
15分	5	5	5	5	5	5	5	5	5	5	4.2	9.1	5	5	5	5	5	5	5	5
16分	5	5	5	5	4.2	9.1	5	5	5	5	5	4.2	5	5	5	5	5	5	5	5
17分	9.1	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
18分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	12	5	6	13	6	12
19分	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
20分	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	6	5	5
21分	6	6	6	6	8	8	8	8	8	8	5	4.2	9.1	5	5	5	5	5	5	5
22分	5	5	5	5	5	5	5	5	5	2	6	6	6	6	6	6	6	8	8	8
23分	8	8	8	8	8	8	5	5	5	5	5	5	5	5	5	5	5	5	5	5
24分	5	5	5	5	5	5	5	5	12	12	5	5	5	6	6	6	6	13	13	13
25分	13	13	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
26分	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
27分	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
28分	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
29分	12	12	12	14	14	14	14	14	12	12	12	12	12	12	12	12	12	12	12	12
30分	6	5	13	13	13	13	13	5	5	5	5	5	5	5	5	5	5	5	5	5
31分	5	5	5	4.2	9.1	5	5	5	5	4.2	12	5	5	5	5	5	5	5	4.2	9.1
32分	5	5	5	5	5	4.2	9.1	5	5	4.2	9.1	5	5	5	4.2	9.1	5	5	5	5

Appendix I: Partial Coding Table for New Teacher C

	3秒	6秒	9秒	12秒	15秒	18秒	21秒	24秒	27秒	30秒	33秒	36秒	39秒	42秒	45秒	48秒	51秒	54秒	57秒	60秒
1分	11	5	5	5	5	5	5	6	5	5	5	5	5	5	5	5	5	5	5	5
2分	5	5	5	5	5	5	5	6	6	6	13	6	6	4.2	9.1	3	4.2	8	6	6
3分	4.2	13	13	6	6	13	13	13	13	4.2	9.1	4.2	9.1	14	6	14	14	12	12	12
4分	12	12	12	3	3	2	12	12	3	3	3	3	3	3	3	3	2	2	3	3
5分	3	3	1	2	3	3	3	3	3	3	2	2	9.1	13	2	3	5	5	5	4.1
6分	8	5	5	5	4.1	8	5	5	5	5	5	5	5	5	13	13	13	13	13	13
7分	13	13	6	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
8分	13	5	5	5	13	13	5	5	5	5	5	5	5	5	5	5	5	5	5	5
9分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
10分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
11分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
12分	5	5	5	5	5	5	5	5	5	5	13	5	5	5	4.1	4.1	8	3	5	5
13分	4.1	4.1	4.1	4.1	8	4.1	4.1	4.1	4.1	4.1	4.1	8	5	5	5	5	5	5	5	5
14分	5	5	6	6	6	8	5	5	8	8	8	8	2	4.2	8	4.1	8	4.1	4.1	5
15分	5	5	5	5	5	4.2	4.2	8	8	3	5	5	5	5	5	5	4.2	4.2	8	5
16分	4.1	5	4.2	8	4.2	8	4.2	4.2	4.2	4.2	8	4.1	5	5	5	5	5	5	5	5
17分	5	5	5	5	6	6	8	5	5	5	5	5	5	5	5	5	5	5	5	5
18分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
19分	5	5	5	5	5	6	5	5	5	4.2	8	4.2	4.2	4.2	4.2	8	5	5	5	5
20分	5	4.2	4.2	8	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
21分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4.1	4.1	4.1
22分	8	8	9.1	9.1	9.1	9.1	3	2	3	5	5	5	4.1	4.1	9.1	5	5	5	5	5
23分	5	5	5	5	5	4.1	9.1	5	5	5	5	4.1	9.1	5	4.1	4.1	4.1	5	5	5
24分	5	5	5	5	5	5	5	5	5	4.1	8	5	8	5	5	5	5	5	5	5
25分	5	8	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
26分	5	5	5	5	5	5	5	5	5	4.1	8	3	5	5	5	5	5	5	5	5
27分	5	5	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
28分	5	5	5	5	5	5	5	5	5	5	5	5	4.2	8	3	5	5	5	5	5
29分	5	5	5	6	5	12	12	4.2	5	4.2	4.2	8	4.2	8	5	5	5	5	5	5
30分	5	4.1	8	3	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
31分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
32分	5	4.2	8	4.2	8	5	5	5	5	4.1	4.1	4.1	8	5	5	5	5	5	5	4.1

Appendix J: Partial Coding Table for New Teacher D

	3秒	6秒	9秒	12秒	15秒	18秒	21秒	24秒	27秒	30秒	33秒	36秒	39秒	42秒	45秒	48秒	51秒	54秒	57秒	60秒
1分	5	5	5	5	5	5	9.1	9.1	5	5	5	5	4.2	4.2	12	12	12	12	12	12
2分	5	5	5	5	5	5	5	5	5	5	4.2	9.1	2	4.2	9.1	5	5	5	5	5
3分	5	5	5	5	5	5	5	5	5	9.1	5	5	5	5	5	5	5	5	5	5
4分	5	5	9.1	5	5	5	5	5	5	5	5	9.1	5	5	5	5	5	5	5	5
5分	5	5	5	5	5	5	9.1	5	5	5	5	5	5	5	4.2	9.1	9.1	5	5	5
6分	5	5	5	6	9.1	9.1	9.1	5	5	5	5	5	5	5	4.1	9.1	5	5	4.1	9.1
7分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	9.1	5	6
8分	6	12	12	12	12	12	5	5	5	5	5	9.1	4.2	9.1	9.1	5	5	9.1	5	4.1
9分	9.1	5	5	5	5	9.1	5	5	5	5	5	5	4.2	9.1	4.2	9.1	5	5	5	5
10分	6	5	5	5	5	5	5	5	4.2	12	12	4.1	9.1	5	5	5	5	5	5	5
11分	5	5	5	5	4.2	9.1	5	5	5	5	5	5	5	5	5	5	5	5	5	5
12分	4.1	9.1	5	5	5	5	5	5	5	5	5	5	6	9.1	5	5	5	5	5	5
13分	5	5	5	5	5	5	5	5	5	5	5	5	6	9.1	9.1	9.1	9.1	9.1	9.1	9.1
14分	5	9.1	9.1	5	5	5	5	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	2	5	5	5	5
15分	5	4.2	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
16分	5	5	5	5	5	5	5	4.2	12	5	5	5	5	5	5	5	5	5	5	5
17分	5	4.2	12	12	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
18分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
19分	5	5	5	9.1	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	9.1
20分	5	5	5	5	5	5	5	5	5	4.1	12	5	4.1	12	12	5	5	5	5	5
21分	5	5	5	5	5	5	5	5	5	5	5	5	5	4.1	9.1	5	5	5	5	5
22分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
23分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
24分	5	5	5	5	5	5	5	5	5	4.2	9.1	5	5	5	5	5	5	5	5	5
25分	5	5	4.1	12	9.1	9.1	5	5	5	5	5	5	5	5	5	5	5	5	5	5
26分	9.1	4.1	9.1	5	5	5	9.1	5	5	5	5	5	5	5	5	5	5	5	5	5
27分	5	5	5	4.1	12	9.1	9.1	9.1	9.1	5	5	5	5	5	5	5	5	5	5	5
28分	5	5	4.2	9.1	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
29分	5	5	5	5	5	9.1	5	5	5	5	9.1	9.1	5	5	9.1	5	5	5	9.1	5
30分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
31分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4.1	9.1	5	5
32分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4.2	4.2	12	12	12	6

Appendix K: Partial Coding Table for New Teacher E

	3秒	6秒	9秒	12秒	15秒	18秒	21秒	24秒	27秒	30秒	33秒	36秒	39秒	42秒	45秒	48秒	51秒	54秒	57秒	60秒
1分	10	10	10	10	10	10	10	10	10	10	10	12	12	12	12	10	10	10	10	10
2分	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
3分	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
4分	10	10	10	10	10	10	10	10	10	10	10	10	12	12	5	2	2	5	5	5
5分	5	5	5	5	5	5	4.1	4.1	8	8	8	8	8	3	8	8	8	8	9.1	9.1
6分	9.1	2	2	3	3	5	5	5	5	5	5	6	12	8	8	8	8	8	8	8
7分	8	8	9.1	9.1	9.1	9.1	9.1	3	5	5	5	5	5	5	5	5	5	2	5	5
8分	5	5	4.1	4.1	4.1	12	12	12	9.1	9.1	5	5	4.2	5	5	5	5	5	5	5
9分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
10分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
11分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	13	13	13	13	13
12分	5	5	14	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
13分	12	12	12	12	12	12	12	12	12	12	12	12	6	5	5	5	5	5	5	5
14分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	13	13	13	13
15分	13	14	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
16分	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	5	5
17分	5	5	5	9.1	3	5	5	5	5	4.2	9.1	5	5	5	5	5	5	5	5	5
18分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
19分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	13	14	12
20分	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
21分	12	12	12	12	12	4.1	12	12	5	5	9.1	5	5	5	5	5	5	4.2	4.2	9.1
22分	4.2	9.1	5	5	5	5	4.2	5	5	5	4.2	9.1	5	5	9.1	5	5	5	5	5
23分	5	5	5	5	4.2	4.2	4.2	9.1	9.1	5	5	5	5	5	5	5	5	5	5	6
24分	6	5	5	5	5	5	5	5	5	6	6	13	13	12	12	12	12	12	12	12
25分	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
26分	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
27分	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
28分	12	12	12	12	12	12	12	12	12	12	12	12	5	5	5	5	5	5	5	5
29分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
30分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
31分	5	6	6	5	5	5	6	5	5	5	5	5	5	4.2	9.1	5	4.2	9.1	5	5
32分	5	5	5	5	5	5	5	4.2	9.1	5	5	5	5	5	5	5	5	5	5	4.2

Appendix L: Partial Coding Table for New Teacher F

	3秒	6秒	9秒	12秒	15秒	18秒	21秒	24秒	27秒	30秒	33秒	36秒	39秒	42秒	45秒	48秒	51秒	54秒	57秒	60秒
1分	5	5	5	5	5	5	5	6	5	5	4.2	9.1	5	5	5	5	5	5	5	5
2分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	6	6	5	5	5
3分	5	5	5	5	5	5	5	5	5	5	6	5	5	5	5	5	5	5	5	5
4分	5	5	5	5	13	13	13	9.1	9.1	5	5	5	5	5	13	5	5	5	5	13
5分	13	13	13	13	13	13	13	13	13	5	5	5	5	5	9.1	5	5	5	5	5
6分	5	5	5	5	5	5	5	13	13	5	5	5	5	5	5	5	5	5	5	5
7分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
8分	5	12	6	6	6	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
9分	5	13	13	13	5	5	5	5	5	5	5	5	5	5	5	5	5	6	5	5
10分	5	5	5	5	5	5	5	13	13	5	13	13	13	13	13	13	13	13	13	13
11分	13	5	5	5	5	5	5	5	5	5	5	5	5	12	12	12	12	12	5	5
12分	5	5	5	5	12	12	12	12	12	5	5	5	5	5	5	5	5	5	5	5
13分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4.2	4.2	12	12	5	5
14分	5	9.1	4.2	9.1	9.1	9.1	9.1	12	12	12	4.2	9.1	10	10	10	10	10	5	5	5
15分	5	5	5	6	5	5	5	5	12	12	12	12	12	12	12	12	5	5	5	5
16分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4.1	9.1	5	5	5
17分	5	5	5	5	12	12	5	5	5	5	5	5	5	5	5	5	5	5	5	5
18分	5	5	5	5	5	5	5	5	5	5	5	5	5	4.1	9.1	4.1	9.1	6	6	6
19分	5	5	5	6	8	8	8	8	8	8	6	8	12	12	12	6	8	8	12	12
20分	12	12	12	12	12	8	8	8	8	6	8	8	8	8	6	8	8	8	8	8
21分	8	5	5	5	5	5	5	6	6	8	8	8	8	8	2	6	8	8	8	8
22分	8	8	2	6	8	8	8	8	8	8	8	8	5	5	5	6	9.1	8	8	8
23分	6	6	6	8	8	8	8	8	5	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1	9.1
24分	9.1	9.1	9.1	6	6	6	8	8	8	8	8	8	8	8	8	8	8	8	8	8
25分	8	8	5	5	5	4.2	9.1	5	5	5	5	5	5	5	5	5	5	5	5	5
26分	5	5	5	5	5	5	12	12	5	5	5	5	5	5	5	5	5	5	5	5
27分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
28分	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
29分	4.2	9.1	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
30分	4.2	9.1	2	5	5	5	5	5	5	5	5	5	5	5	4.2	12	12	12	5	5
31分	5	5	5	12	12	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
32分	5	5	5	5	5	4.2	8	5	5	5	5	5	5	5	5	5	5	5	5	5

Appendix M: Analytical Matrix for Experienced Teacher A

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	合计
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	2	0	1	11	8	0	0	0	0	0	1	0	0	23
3	0	0	0	0	13	1	0	0	0	0	0	0	0	1	15
4	0	1	2	35	15	3	0	7	54	0	0	6	0	3	126
5	0	1	2	51	5936	93	0	0	46	0	2	13	13	1	6158
6	0	2	0	10	33	130	1	31	74	0	1	16	0	5	303
7	0	0	0	0	0	1	0	1	0	0	0	0	0	0	2
8	0	12	1	8	19	3	0	122	0	0	0	0	0	0	165
9	0	5	4	17	100	50	0	0	36	0	1	0	0	0	213
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	3	1	0	0	0	1	10	0	0	0	15
12	0	0	1	3	16	8	1	2	3	0	0	139	4	2	179
13	0	0	2	1	10	3	0	0	0	0	0	2	21	1	40
14	0	0	3	0	2	2	0	2	0	0	0	2	2	29	42
合计	0	23	15	126	6158	303	2	165	213	0	15	179	40	42	7281
比例	0%	0.32%	0.21%	1.73%	84.58%	4.16%	0.03%	2.27%	2.93%	0%	0.21%	2.46%	0.55%	0.58%	

Appendix N: Analytical Matrix for Experienced Teacher B

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	合计
1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	2
2	0	1	5	0	15	4	0	0	1	0	0	0	0	0	26
3	0	0	1	0	16	0	0	0	1	0	0	0	0	0	18
4	0	0	0	95	17	14	0	2	278	0	0	55	1	1	463
5	2	7	0	291	5130	51	0	0	31	0	0	40	25	1	5578
6	0	1	1	7	24	75	0	2	30	1	0	20	7	1	169
7	0	0	0	0	1	0	2	0	0	0	0	0	0	0	3
8	0	0	0	1	3	0	0	13	0	0	0	0	0	0	17
9	0	16	10	45	276	1	1	0	562	0	0	8	2	0	921
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
12	0	0	0	20	72	21	0	0	16	0	0	1152	5	11	1297
13	0	1	1	2	17	2	0	0	0	0	0	3	79	15	120
14	0	0	0	2	6	1	0	0	1	0	0	18	1	73	102
合计	2	26	18	463	5578	169	3	17	921	0	1	1297	120	102	8717
比例	0.02%	0.3%	0.21%	5.31%	63.99%	1.94%	0.03%	0.2%	10.57%	0%	0.01%	14.88%	1.38%	1.17%	

Appendix O: Analytical Matrix for Experienced Teacher C

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	合计
1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
2	0	3	10	2	2	3	0	0	1	0	0	1	0	0	22
3	1	5	40	9	81	4	0	0	0	0	0	2	0	0	142
4	0	0	6	108	22	8	1	211	64	2	0	45	1	0	468
5	0	0	1	251	5087	64	0	9	20	0	2	24	8	0	5466
6	0	1	1	12	37	95	0	31	8	2	1	22	3	3	216
7	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
8	0	2	56	38	144	11	0	115	12	0	1	3	0	0	382
9	0	9	26	24	46	0	0	0	85	1	0	2	1	1	195
10	0	0	0	1	3	2	0	0	0	67	0	0	0	0	73
11	0	0	0	0	5	1	0	0	0	0	6	0	0	0	12
12	0	0	2	20	33	22	0	16	5	2	1	500	0	2	603
13	0	1	0	2	5	5	0	0	0	0	0	0	98	0	111
14	0	0	0	1	1	1	0	0	0	0	0	3	0	3	9
合计	1	22	142	468	5466	216	1	382	195	73	12	603	111	9	7701
比例	0.01%	0.29%	1.84%	6.08%	70.98%	2.8%	0.01%	4.96%	2.53%	0.95%	0.16%	7.83%	1.44%	0.12%	

Appendix P: Analytical Matrix for Experienced Teacher D

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	合计
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	3	10	0	0	0	0	0	0	0	0	0	13
3	0	0	0	2	6	0	0	0	0	0	0	0	0	0	8
4	0	0	0	21	15	3	0	9	182	0	0	55	0	0	285
5	0	1	0	192	5275	80	0	4	50	0	2	83	35	2	5724
6	0	1	0	6	31	92	0	44	21	0	3	41	5	3	247
7	0	0	0	0	1	0	0	2	0	0	0	0	0	0	3
8	0	1	1	2	27	29	2	120	0	0	0	1	0	0	183
9	0	8	7	29	209	4	0	2	187	0	0	4	3	0	453
10	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
11	0	0	0	0	4	0	1	0	0	1	25	0	1	0	32
12	0	1	0	25	120	32	0	2	13	1	1	1149	6	11	1361
13	0	1	0	1	21	3	0	0	0	0	0	7	128	18	179
14	0	0	0	4	5	3	0	0	0	0	0	21	1	36	70
合计	0	13	8	285	5724	247	3	183	453	1	32	1361	179	70	8559
比例	0%	0.15%	0.09%	3.33%	66.88%	2.89%	0.04%	2.14%	5.29%	0.01%	0.37%	15.9%	2.09%	0.82%	

Appendix Q: Analytical Matrix for Experienced Teacher E

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	合计
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	2	2	0	11	0	0	0	0	0	0	0	0	0	15
3	0	0	1	0	22	0	0	1	0	0	0	0	0	0	24
4	0	0	1	82	24	9	0	6	170	0	0	34	1	1	328
5	0	6	2	187	5152	48	0	11	25	1	2	25	12	3	5474
6	0	0	0	12	13	160	0	7	10	1	1	36	8	3	251
7	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
8	0	2	1	0	18	1	0	84	2	0	0	4	0	0	112
9	0	5	17	29	157	3	1	1	106	0	1	3	0	0	323
10	0	0	0	0	1	1	0	0	0	211	0	4	0	0	217
11	0	0	0	0	3	1	0	0	0	1	26	0	0	0	31
12	0	0	0	16	60	23	0	2	10	3	0	1382	6	5	1507
13	0	0	0	2	11	5	0	0	0	0	0	3	34	6	61
14	0	0	0	0	1	0	0	0	0	1	0	16	0	14	32
合计	0	15	24	328	5474	251	1	112	323	217	31	1507	61	32	8376
比例	0%	0.18%	0.29%	3.92%	65.35%	3%	0.01%	1.34%	3.86%	2.59%	0.37%	17.99%	0.73%	0.38%	

Appendix R: Analytical Matrix for Experienced Teacher F

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	合计
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	3	2	0	0	0	0	0	1	0	0	6
3	0	0	0	0	8	0	0	0	1	0	0	0	0	0	9
4	0	0	0	16	2	1	0	8	149	0	1	34	0	0	211
5	0	2	1	137	5271	37	1	3	18	1	2	29	19	0	5521
6	0	0	0	3	22	65	0	14	3	0	5	13	0	0	125
7	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1
8	0	2	0	1	19	5	0	141	0	0	0	2	0	0	170
9	0	2	8	38	116	5	0	2	119	2	0	14	0	0	306
10	0	0	0	0	3	0	0	0	0	8	0	0	0	0	11
11	0	0	0	1	5	4	0	0	1	0	92	0	1	0	104
12	0	0	0	15	53	6	0	2	13	1	2	915	2	0	1009
13	0	0	0	0	17	0	0	0	2	0	1	1	769	1	791
14	0	0	0	0	1	0	0	0	0	0	0	0	0	1	2
合计	0	6	9	211	5521	125	1	170	306	11	104	1009	791	2	8266
比例	0%	0.07%	0.11%	2.55%	66.79%	1.51%	0.01%	2.06%	3.7%	0.13%	1.26%	12.21%	9.57%	0.02%	

VITA

NAME	XIAOYU YANG
DATE OF BIRTH	9 June 1986
PLACE OF BIRTH	China
HOME ADDRESS	No. 2 Xuezhi Rd, Mazhang District, Zhanjiang, China