

A Literature Review of Verbal Interaction Between Teachers and Students in High School English Listening and Speaking Classes Based on iFIAS

Liyue Zhang

School of Foreign Languages and Literatures, Chongqing Normal University, Chongqing, 401331, China

Abstract: In 2017, the curriculum nature of English Curriculum Standards for Senior High Schools (2020 Revision) emphasized that students should improve their ability of "autonomy, cooperation and inquiry", and "interaction" has become a key word in the field of educational research and practice. Flanders interaction analysis system (FIAS), proposed by American scholar Flanders, is a method to quantify the new orientation of classroom interaction. This paper reviews and collates the thesis from two aspects: "Classroom teacher-student verbal interaction" and "Flanders interactive analysis system", hoping to make some contributions to the research of teacher-student verbal interaction classroom in China.

Keywords: Classroom Teacher-Student Verbal Interaction; Flanders Interactive Analysis System; High School English Listening and Speaking Class.

1. Connotation of "IFIAS" System

"IFIAS" system, the improved Flanders interaction analysis system (full name: Improved Flanders Interaction Analysis System) is a research method based on Flanders interaction analysis system.

In the 1960s, Flanders, an American scholar, proposed the Flanders interaction analysis system (FIAS), which is a method for quantifying new aspects of classroom interaction. In this scale, Flanders classifies classroom behaviors into teacher speech, student speech, silence or confusion on a macro level, and researchers apply these categories in the classroom for quantitative analysis and record. This method has been recognized as a set of recognized, mature and operable classroom interaction measurement tools.

Based on the study of IFAS, Gu Xiaoqing and Wang Wei designed and studied a new information technology-based interaction analysis system (ITIAS). Subdivide the original 10 category scale items into 18 categories. Although this can accurately study classroom interaction, it is difficult to carry out due to the large number of items, which is a great research and memory burden for researchers. Based on the above two analysis methods, the "iFIAS" system is produced, and the "iFIAS" system combines the advantages of the above two systems to form a new system (iFIAS) innovatively. The coding system mainly consists of teacher language, student speech, silence and technology. Generally speaking, the system consists of three parts: coding system, classroom observation record and matrix analysis. iFIAS is mainly used in the video-based classroom interaction research. Through the scale analysis of the collected data, the analysis methods of coding, sequence pair, matrix, ratio and dynamic graph are used to explore classroom interactive teaching.

The advantage of iFIAS system is that it can well support the research of classroom interactive teaching in the quantitative environment, and at the same time provide certain criteria for its research. Therefore, this system is often used in some case studies of classroom teaching videos.

2. Related Research on Classroom Interaction between Teachers and Students

2.1. Study Abroad

With the continuous development of society and economy, education is also developing. Traditional classroom teaching has been unable to meet the needs of the new era. As an important part of classroom teaching, the role of teacher-student interaction is irreplaceable, and the teacher-student interaction occupies a very important position in modern classroom teaching. Through the systematic review of foreign literature on teacher-student interaction, it is found that foreign research on teacher-student interaction mainly focuses on three aspects: the type or mode of teacher-student interaction in class, the influencing factors of teacher-student interaction and the learning effect of teacher-student interaction in class.

TIMSS uses the observation video method to study the structure of classroom interaction. Based on the observation and research of a certain number of classroom videos, classroom interaction is divided into five categories: collective interaction, group interaction, optional student-subject interaction, optional teacher-subject interaction and mixed interaction. A. A. Bellack's Induced (SOL) -response (RES) -response (REA) dialogue structure is the most representative, and he found that it can be applied to 80% of classroom interactions. In 1975, J.M.Sinclair and R.M. Courthard in the UK divided discourse practice in a class into five units: lesson, interaction, communication, motion and action, and found that classroom discourse has a clear structure. This structure is named "eliciting exchange" and consists of Initiation, Response and Feedback, also known as IRF structure. In 1979, H.Meihan further defined the "IRF" structure in classroom interaction as "IRE" structure from the perspective of communicative ethnography. That is, teacher initiative - student response - teacher evaluation.

Through classroom observation, Catherine et al. concluded that the teacher's interpretation of the same student's behavior

depends on the race of the student. Jafari Sakineh et al. adopted Patrick, Kaplan and Ryan's classroom climate questionnaire, Hernandez - Lopez's student-student Scale, Valeran's Motivation Questionnaire and Pace and Kuh's Student Achievement Scale show that academic achievement has a significant positive relationship with classroom atmosphere, teacher-student interaction and learning motivation. Classroom climate has a direct and meaningful impact on students' academic achievement. Fang Yu concluded that computer-aided classroom teaching can improve the interaction ability between teachers and students. Wei Wang et al used matrix quantitative analysis of teacher and student discourse in senior high school English classroom, it is shown that in current English classroom teaching, the amount of teacher discourse is still higher than that of student discourse, the proportion of indirect influence is higher than that of direct influence, and the proportion of student-initiated is low.

Zheng Weizheng et al. analyzed 540 minutes of video samples of three English teachers' classroom teaching, and concluded that teacher-student interaction is the key to effective EFL classroom teaching. Maria Setyaningsih found that teachers play a leading role in managing teacher-student interaction, which is an important aspect affecting the classroom language acquisition process of young learners.

As can be seen from the above, there are more studies on teacher-student interaction in foreign countries, but few studies on teacher-student interaction in classroom, or the study of classroom behavior limited to speech is not enough in foreign countries. However, the study of teacher-student interaction in classroom also provides research methods or tools for the study of teacher-student verbal interaction in classroom.

2.2. Study at Home

Inspired by the study of teacher-student interaction in classroom by foreign researchers, the study of teacher-student interaction in classroom began to set off an upsurge in the 1990s in China.

According to the specific teaching situation of primary and secondary schools in China, Cheng Xiaoqiao et al. divided the teacher-student communication behavior into four types: question, answer, request and evaluation. Among them, the main speech acts of students are questioning and answering. Through observation and analysis of 100 class hours, Shen classified the verbal interaction between teachers and students into 8 types: feedback, types of questioning, emotional atmosphere, teacher personality, speech style, interaction process, development and rhythm. It is also pointed out that different types of teacher-student verbal interaction may occur simultaneously. Wu Kangning and the researchers in the same research group summarized three representative observation items lists including the Flanders teacher-student interaction observation category system, and on this basis designed the observation items list of "individual speech communication behaviors of teachers and students in the classroom". Among them, teachers' verbal communication behaviors include questions, replies, demands, evaluations and others, while students' verbal communication behaviors include answers, objections, questions and others.

With the advancement of curriculum reform, more and more teachers and scholars have found the problems of teacher-student verbal interaction in the actual classroom. In order to understand the problems, many domestic scholars

went deep into the classroom and observed the classroom, and then pointed out the problems in the interaction between teachers and students in the classroom. Shen Guipeng's research found that for students with different academic performance, some teachers will show different speech styles. For students with high scores, teachers tend to adopt democratic language expressions that respect students' individuality. For students with poor performance, teachers tend to use negative and controlling language expressions. Through investigation and research, CAI Xuemei pointed out some problems in teacher-student verbal interaction in reading teaching, including some teachers' insufficient attention to teacher-student verbal interaction, insufficient encouraging language for students and weak evaluation effect. Yang Yuqin and Ni Juan, in order to understand the verbal interaction between teachers and students in the real classroom, appropriately supplemented the FIAS coding categories and conducted empirical research in the classroom. The study found that teachers' teaching language is too much, and students' initiative is not strong.

In order to improve the problems in teacher-student verbal interaction, scholars have begun to study the strategies of teacher-student verbal interaction. Gao Wei combined the FIAS analysis system to analyze the national curriculum demonstration class, and came to the conclusion that we should encourage the interaction of accepting students' emotions, praising or encouraging students, accepting students' ideas and students' active questioning. Through experimental analysis, Shen Guipeng concluded that teachers should conduct verbal interaction according to their aptitude, and put forward some suggestions. On the basis of practical research, Zhao Cuilan elaborated and analyzed the misunderstandings and causes of teacher-student interaction in class, so as to conduct in-depth reflection and propose that teacher-student interaction in class is a process for teachers and students to construct meaning and enhance life value. Yang Aike put forward his personal opinion from the aspects of the mode and type of classroom verbal interaction between teachers and students, that is, strengthening the verbal interaction between teachers and students can solve problems well and promote the improvement of students' oral ability.

2.3. Summary

Scholars at home and abroad have studied teacher-student verbal interaction from the perspectives of types, models, problems and strategies, and the research shows that there are many types and models of teacher-student verbal interaction. At the same time, domestic scholars can understand the problems existing in teacher-student verbal interaction in first-line classrooms through in-depth classroom, and put forward corresponding strategies for them.

The author has studied the domestic and foreign researches on teacher-student speech interaction from different dimensions, and found that there are still some shortcomings in the relevant researches: First, the pertinence of relevant researches is insufficient. In the existing researches, scholars tend to focus on the whole field of education, but the specific research to a certain section of education or education discipline is relatively scarce. Second, the relevant research focuses on the analysis of teachers' speech and neglects the study of students' speech behavior. This study focuses on the English curriculum of senior high school, and with the help of iFIAS, makes a comprehensive analysis of the teacher-student verbal interaction in the classroom, so as to

objectively and comprehensively reflect the characteristics of the teacher-student verbal interaction in the current English curriculum of senior high school.

3. Related Research on Flanders Interactive Analysis System

3.1. Study Abroad

In the 1950s and 1960s, there was widespread dissatisfaction with the quality of schooling in the United States. They believe that the quality of education is low and that schools tend to be bureaucratic. In this context, there is an urgent need for a tool that can scientifically evaluate the quality of classroom teaching, and interactive analysis comes into being. Among them, the most typical is the Flanders Interaction Analysis System (FIAS) in 1970, which marks the beginning of classroom observation in the modern sense. Flanders Interactive Analysis System (FIAS), as an interactive analysis technology for classroom teaching, was designed by Flanders through a large number of classroom observations. The content of classroom speech measured by Flanders Interactive Analysis coding system is shown in Table 1.

Table 1. Flanders Interactive Analysis Coding System (FIAS)

Table 1. Flinders Interactive Analysis Coding System (FIAS)			
Category		Encoding	Contents
Teacher language	Direct influence	1	Express emotion
		2	Encourage and praise
		3	Take advice
		4	Ask questions
	Indirect influence	5	Teach
		6	Order
		7	Criticize
Student language		8	Answer back
		9	Initiative
Silence or confusion		10	Null language

As a quantitative research tool, FIAS is scientific and objective to a certain extent, and overcomes the inevitable subjectivity in traditional classroom observation to a certain extent. Therefore, FIAS has been applied to classroom interaction research by most scholars for the purpose of objectively analyzing the classroom and finding problems. However, any kind of research tool will have some limitations or deficiencies in the early stage of development. Therefore, the research on Flanders interactive analysis system has been mainly focused on two aspects at home and abroad. One is the research on its adjustment and improvement; the other is the research on teacher-student interaction in a specific class or several classes by using FIAS.

Once FIAS was put forward, it attracted the attention of many scholars abroad. In order to enable trainee teachers to discover problems from teaching details and improve teaching quality, Amidon and Hough subdivide part of the interactive behavior of FIAS coding system and expand the total number of codes to 24, which is the modification proposal of Flanders Interactive analysis system. However, the large increase of coding categories increases the difficulty of operation for classroom observers. In addition, many scholars have applied it to the real classroom to explore the teacher-student verbal interaction. Jerome (1970), an American scholar, applied FIAS to high school classrooms in Massachusetts and published his empirical research results.

3.2. Study at Home

Domestic researchers have also carried out corresponding research and improvement on FIAS. Ning Hong and Wu Jinhong made the following improvements to the Flanders interactive analysis system: First, Flanders interactive analysis requires sampling every 3 seconds at the observation site and recording the code. They changed to a class record that first made descriptive observations on the teaching video, then divided the class record into 3-second segments, repeatedly compared the video and the class record to understand the meaning of the language behavior in each time segment, and assigned a value to the language behavior in each time segment according to the understanding of the meaning. Second, computerize the analysis process. Thirdly, Flanders interaction analysis is combined with descriptive observation, interview and other qualitative research methods to obtain the original research data by various methods, and the conclusion is obtained through in-depth analysis of the original data. Scholars Gu Xiaoqing and Wang Wei divided "teacher questioning" into "open questions asked by teachers" and "closed questions asked by teachers", added two categories of "students' active questioning" and "discussion with peers", and added three categories of technology, including "teacher manipulation technology", "student manipulation technology" and "technology effect students". The qualitative evaluation method is combined with the quantitative evaluation method. FIAS was improved to ITAS (information technology-based interaction analysis system).

Subsequently, many domestic scholars began to apply the improved Flanders interactive analysis system in real classrooms. Shi Lili introduced the application of Flanders interactive analysis system in practical classroom teaching in detail, and said that it is an innovation in the field of education and provides a new research perspective for people to conduct classroom language interaction analysis. Xue Xiaoming made a quantitative analysis of the video materials of a teacher's class "American Civil War" in the history class of Modern and modern World History (I) in the second grade of senior high school. The quantitative analysis methods mainly included time series analysis and Flanders interaction analysis in the classroom teaching process, and on the basis of the analysis, he put forward suggestions for the class. Wang Lizhen et al., starting with two demonstration classes integrating information technology with curriculum, adopted time series analysis and Flanders interactive analysis methods to conduct quantitative analysis on the teaching process, teacher behavior, student activities, and application of information technology in classroom teaching, and found out the successful teaching experience and teaching inspiration of the demonstration class. Based on FIAS and ITIAS, many scholars have improved Flanders Interaction Analysis System to iFIAS (iFIAS). For example, the iFIAS assistant analysis tool developed by Fang Haiguang et al contains the iFIAS coding assistant program (Figure 1) and the iFIAS analysis program (Figure 2).

In recent years, many researchers have used the iFIAS interactive analysis system improved by Fang Haiguang and others to analyze lessons. For example, Chen Zhenguo et al. adopted the improved Flanders interaction analysis method to objectively present the differences in the types, structures and characteristics of teacher-student interaction between "flipped classroom" and general classroom in middle school physics, providing references for classroom research in other disciplines. Zhang Xiaojia et al. took the elementary school

mathematics interactive classroom as an example and used iFIAS to analyze and study teaching behaviors to understand the impact of events in classroom interactive situations, so as to help teachers understand and then improve their teaching behaviors. Luo Gang et al. used the "Improved Flanders Interactive analysis system" to conduct a comparative study on eight aspects, including the interaction mode in some informationized high school English classes in Guangxi, and analyzed the characteristics of teacher-student interaction in informationized classes and the shortcomings in normal classes.

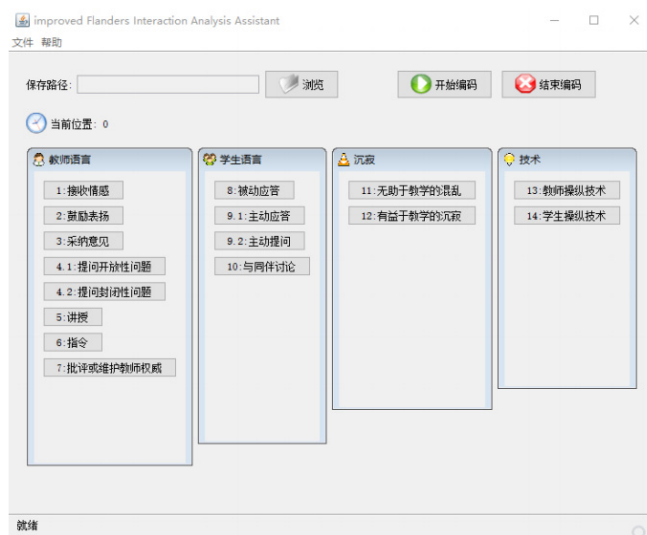


Figure 1. iFIAS Coding Assistant



Figure 2. iFIAS Analyzer

3.3. Summary

Based on the research results of domestic and foreign scholars on FIAS, it can be found that the development of FIAS is a process of continuous adjustment and optimization along with the reform of education and the progress of educational technology. Compared with traditional FIAS and ITIAS, iFIAS proposed by Fang Haiguang et al. has certain advantages. First, iFIAS coding system has strong operability. iFIAS not only reduced the number of codes to 16, but also developed iFIAS coding assistants, reducing the burden on researchers and improving work efficiency. Secondly, the advantages of traditional FIAS coding system and ITIAS

coding system are integrated. It can not only encode the application of information technology, but also judge the teaching mode by analyzing the matrix. Therefore, iFIAS was adopted as a research tool in this study.

References

- [1] Flanders N.(1970) Analyzing teaching behavior. MA: Addison-Wesley.
- [2] Gu Xiaoping, Wang Wei. New exploration of classroom analysis technology to support teacher Professional development [J]. China Audio-Visual Education,2004(07):18-21.
- [3] Stigler, J.W., Gonzales, P., and Kwanaka, T. et al. The TIMSS Videotape Classroom Study: Methods and Findings from an Exploratory Research Project on Eighth-Grade Mathematics Instruction in Germany, Japan, and the United States [EB/OL].1999. <https://files.eric.ed.gov/fulltext/ED431621.pdf>.
- [4] Lyle S. Dialogic teaching: Discussing theoretical contexts and reviewing evidence from classroom practice[J]. Language and education, 2008, 22(3): 222-240.
- [5] Liu Y. Teacher-student talk in Singapore Chinese language classrooms: a case study of initiation/response/follow-up (IRF) [J]. Asia Pacific Journal of Education,2008,28(1):87-102.
- [6] Afari Sakineh;Asgari Ali. Predicting Students' Academic Achievement Based on the Classroom Climate, Mediating Role of Teacher-Student Interaction and Academic Motivation. [J] Integration of Education. Volume 24 , Issue 1 . 2020. PP 62-74.
- [7] Fang Yu. Analysis on Teacher-student Interaction with Computer Aid in College English Language Teaching Class. [J] Journal of Physics: Conference Series. Volume 1744 , Issue 4 . 2021. PP 042089-.
- [8] Wei Wang;Meizhu Han. Quantitative Analysis of the Speech of the Teachers and Students in High School English Classroom--Based on Information Technology-based Interaction Analysis System. [J] Theory and Practice in Language Studies. Volume 5 , Issue 10 . 2015. PP 2107-2111.
- [9] Zheng Weizheng. Teacher-Student Interaction in EFL Classroom in China: Communication Accommodation Theory Perspective. [J] English Language Teaching. Volume 12 , Issue 12 . 2019. P 99.
- [10] Maria Setyaningsih Nernere. TEACHERS' BELIEFS ON TEACHER-STUDENTS INTERACTION IN YOUNG LEARNERS' ENGLISH CLASS. [J] Indonesian EFL Journal. Volume 5 , Issue 2 . 2019. PP 113-120.
- [11] Cheng Xiaoqiao, Wu Kangning, Wu Yongjun, Liu Yunshan, "A Study on the Subjective Difference of Students' Classroom Communication Behavior", Journal of Nanjing Normal University (Social Science Edition), 1995 (3), pp. 74-79.
- [12] Shen Guipeng, A Study on Classroom Verbal interaction between teachers and Students, Educational Science, 1997 (1), 23-25.
- [13] Wu Kangning, "Field Observation in Sociology Research of Classroom Teaching", Educational Research and Experiment, Vol. 1, 1998, pp. 27-71.
- [14] CAI Xuemei, "Study on Teacher-Student Verbal Interaction in Reading Class", Primary Education Research Forum, Vol. 1, 2004, pp. 25-26.
- [15] Yang Yuqin, Ni Juan, "A case study on Speech behavior of teachers and students in Chemistry Classroom based on FIAS", Chemistry Education, 2013 (5), pp. 31-35.

- [16] Gao Wei. A study on teacher-student Speech Behavior Interaction in Classroom teaching [J]. Educational Research and Experiment,2009(05):43-49.
- [17] Shen Guipeng. A study on classroom verbal interaction between teachers and students [J]. Educational Science, 1997 (01):23-25. (in Chinese)
- [18] Zhao Cuilan. Misunderstanding and Reflection on teacher-student Interaction in primary and secondary schools [J]. Contemporary Educational Science,2007(21):26-28.
- [19] Yang Aike. The influence of teacher-Student Verbal Interaction on Students' Oral English Ability [J]. Teaching and Management, 2011(18):117-118. (in Chinese)
- [20] Amidon E. J. , Hough J. B. Interaction Analysis: Theory, Research and Application. Massachusetts: AddisonWesley Publishing Company, 1967.
- [21] Ning Hong, Wu Jinhong. Establishing the relationship between quantitative structure and meaning understanding: An improved application of Flanders Interaction Analysis Technique [J]. Educational Research,2003(05):23-27.
- [22] Shi Lili. Application of Flanders Interactive Analysis System in Classroom Teaching [J]. Journal of Capital Normal University (Social Science Edition),2004(S2):163-165.
- [23] Xue Xiaoming. Analysis of a high school history lesson [J]. Educational Science Research,2006(02):35-38.
- [24] Wang Lizhen, LIU Zhihua, XU Weilin. Quantitative analysis and Enlightenment of Information Technology and Curriculum Integration in classroom Teaching [J]. China Audio-Visual Education,2010(09):87-90.
- [25] Fang Haiguang, GAO Chenzhu, Chen Jia. Improved Flanders Interactive Analysis System and its application [J]. China Audio-Visual Education,2012(10):109-113.
- [26] Chen Zhenguo, Deng Zhiwen, Yu Guangying et al. Research on teacher-student interaction in flipped classroom based on FIAS analysis model: A case study of middle school physics classroom [J]. Global Education Perspectives,2014,43(09):21-33.
- [27] Zhang Xiaojia, Zhang Kaili, Yan Lei. A case study of an interactive primary school mathematics classroom supported by electronic schoolbags: Based on the Improved Flanders Interactive Analysis System (IFIAS)[J]. Modern Educational Technology,2015,25(03):29-35.
- [28] Luo Gang, Lin Sixing, HE Wentao et al. Study on teacher-student Interaction in Information-based classroom based on iFIAS analysis: A case study of English Information-based classroom in senior high schools in Guangxi [J]. Modern Educational Technology,2017,27(12):75-81.