

# Analysis of teacher-student interaction in classroom teaching

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**Abstract**—Interaction is very important in today's society. Every teacher must be familiar with how to grasp the interaction of classroom teaching. This paper puts forward three views on how to grasp the interaction between teachers and students: first, we should encourage students to carry out inquiry learning in the classroom and give students the right to ask questions. Secondly, we should improve the classroom structure to make learning a two-way activity between teachers and students. Moreover, we should also pay attention to cultivating students' methods of independent exploration and cooperative learning. This paper also puts forward four reference methods on how to build teacher-student interaction: teachers and students jointly develop curriculum, teachers and students jointly prepare lessons, teachers and students jointly evaluate, and teachers and students jointly manage.

**Index Terms**—Classroom teaching, interaction, cooperative learning, curriculum standards, multiple evaluation.

## I. INTRODUCTION

The teacher-student interaction in classroom teaching refers to all interactions and influences between teachers and students in classroom time and space. The new curriculum standard now requires teachers to implement the interaction between teachers and students in classroom teaching [1-5]. Because only in this way can students take the initiative in classroom learning, so that they can learn to study and use their own brains, instead of blindly accepting knowledge. But nowadays, although many teachers pay more and more attention to interaction in classroom teaching, they have not realized real interaction. The real interaction should be a process in which teachers help students learn meaningfully, master new knowledge, correct wrong ideas and concepts, and actively construct interaction.

From the perspective of classroom teaching, classroom teaching is a process of communication and interaction between teachers and students, rather than a process in which teachers simply pass on knowledge and students passively accept and absorb it. The new curriculum concept places the generative nature of the classroom in a more important position. In the process of classroom teaching, students participate with their knowledge, experience, ideas and aura, and become the center of classroom teaching, so that classroom teaching shows a strong generation, richness and complexity. It is in this process of constant change and

development that teachers and students fully communicate and interact, so as to interact and influence each other in knowledge, ability and emotion, so that students can achieve knowledge growth, ability improvement and emotional gains in interaction.

As a form of learning, teacher-student interaction can not only promote students' autonomous learning and improve their ability to explore independently, but also promote the cultivation of students' sense of cooperation and spirit of cooperation, so that students can learn to communicate, learn to deal with differences, learn to accept other people's different views, and learn to share the results of cooperation. More importantly, in the process of extensive interaction between teachers and students, students' divergent thinking ability will be gradually enhanced, and their ability to dare to doubt authority and conduct research will be improved, which is conducive to the cultivation of students' innovation spirit and innovation ability, and is of great significance to the cultivation and cultivation of innovative talents and even innovative countries.

To sum up, classroom teaching interaction should be two-way, that is, there is interaction between students, teachers and students; Interaction should be diversified, including not only language and behavior communication, but also psychological interaction. Therefore, the analysis of the effectiveness of teacher-student interaction is multidimensional and multi-level. Secondly, teachers are the key to the success of teacher-student interaction in the classroom. Teachers' "teaching" should be based on students' "learning" and let students play by themselves. Don't be afraid that "letting go" will lead to "chaos". Thus, as long as teachers grasp the interaction in the classroom, the relationship between teachers and students, students and students will be readily solved.

## II. WHAT IS TEACHER-STUDENT INTERACTION IN CLASSROOM TEACHING

### A. Meaning of teacher-student interaction

Modern teaching theory points out that the teaching process is a process of communication, positive interaction and common development between teachers and students. The so-called "interaction", in a narrow sense, refers to the



interactive activities and influences between people, people and groups or between groups with the help of language, characters and other symbols under a certain social background and specific situations. There are mainly three forms of interaction in classroom teaching: teacher-student interaction, student student interaction and group interaction. Teacher-student interaction refers to all interactions and influences between teachers and students in classroom teaching; It means that both teachers and students understand each other with their own ideas, or actively express their ideas to each other, so as to have an equal and effective communication. It not only refers to the way and process of interaction and mutual influence between teachers and students, but also refers to the psychological, behavioral and emotional changes between teachers and students through information exchange and behavior exchange.

#### *B. Long tradition of teacher-student interaction*

Today, we have carried out the new curriculum reform, which has raised the teacher-student interaction to its due height. Some people think that this is a new thing imported from western education, which is something that we have never had in our traditional teaching, or even regard it as a completely different opposition to traditional teaching, which is a misunderstanding; In fact, the interaction between teachers and students has a long tradition in the education and teaching of ancient China. Our elders have long noticed the interaction between teachers and students. For example, Confucius, as the greatest educator in Chinese history, paid great attention to the "interaction" between teachers and students when educating students. In the famous chapter Zi Lu, Zeng Xi, Ran You and Gongxi Huashi, Confucius successfully communicated and interacted with students on an equal footing. As a guiding education for students' aspirations, he did not, as we imagine today or as some of our teachers do today, put on a stiff face, put on airs, make a commanding attitude, and impart blunt indoctrination and preaching to students. On the contrary, he gave the most appropriate guidance to the students one by one, and then based on their answers and the different personality characteristics of each student. The whole process was always in a harmonious atmosphere of harmonious communication and positive interaction between teachers and students. And as mentioned in the article, Confucius tactfully expressed his educational ideal through Zeng Xi's mouth - "In late spring, there are five or six people who wear spring clothes, six or seven children who wear spring clothes, who bathe in Yi, dance in the wind and rain, and return home after singing." In his conception, education and teaching are not just rigid preaching all day long, but the perfect realm of joint

activities, exchanges, practices, entertainment and influence between teachers and students. Even the feudal education system, which has always been criticized, actually attaches great importance to the interaction between teachers and students. For example, the pairing between teachers and students is not our subjective assumption today, but a means for teachers to inspect students; In this process, teachers and students have active collisions and exchanges in knowledge, ideas, hobbies and even emotions, which is a more profound and extensive interaction.

#### *C. The interaction between teachers and students should fully respect the dominant position of students*

Only when teachers change their own ideas, get rid of the traditional classroom teaching mode that focuses on teaching, and give full play to the main role of students, can real teacher-student interaction be formed between teachers and students. In the classroom teaching aimed at exam oriented education, students are in a passive position to accept. Although the classroom also pays attention to democracy and equality between teachers and students, teachers have not played the role of students as teaching subjects in the teaching activities aimed at imparting knowledge. Due to the influence of exam oriented education, in the current classroom, students are like tapes passively receiving information. They only have one-way learning within the specified 45 minutes. Teachers often impart what they know to students without reservation, while students swallow it whole, and then understand, accept, integrate and memorize part of the content to become their own knowledge. In this way, it is difficult for teachers and students to communicate effectively and substantively in knowledge, thought and emotion. Therefore, another connotation of teacher-student interaction in the classroom is to fully respect the students' dominant position, and truly give students the initiative in the classroom.

### III. THE MANIFESTATION OF TEACHER-STUDENT INTERACTION IN CLASSROOM TEACHING

There are two main forms of teacher-student interaction in classroom teaching. One is language interaction, the other is emotional interaction. The two kinds of interaction affect each other and cross in classroom teaching. They are closely integrated in many cases.

#### *A. Language interaction*

Language is the main carrier of teacher-student communication in classroom teaching, and teacher-student teaching activities are mainly the interaction of language as a medium. Jackson wrote in "Life in the Classroom": "There is evidence that a typical primary school teacher has to engage



in 200-300 person times of communication every hour for his work purpose.". And these person to person exchanges are mainly conducted through speech, and speech acts account for about 80% of all teaching acts. Generally speaking, we can divide classroom language behaviors into four categories: teachers' active speech, including explaining knowledge, expressing opinions and opinions, giving orders, asking questions, etc. Teachers' reactions, such as accepting students' opinions, behaviors and emotions, and rejecting students' opinions, behaviors and emotions. Student reaction, including the student's reaction to what the teacher has said, and the active communication between students. Students take the initiative to speak, including asking questions to teachers and discussing with other students. In today's classroom, teachers are generally conducting direct teaching, that is, teachers are the central figure of the whole classroom. Students rarely talk to teachers actively, and students are generally learning passively.

Generally, teachers' active speech takes up a large proportion in classroom teaching. Students lack the opportunity to speak actively and are in a passive acceptance state. Such a classroom lacks teacher-student interaction; But it does not mean that in classroom teaching, the greater the proportion of students taking the initiative to speak, the better. As required by some schools, teachers should not explain for more than a few minutes in a class alone. The more students say, the better. This is another extreme. It does not conform to the laws of materialistic dialectics and can only lead to rigid dogmatism in teaching. The proportion of teachers' and students' language behaviors in the classroom should be determined according to the actual situation. Generally speaking, in the primary school stage, teachers mainly organize classroom teaching with the direct teaching method, and the proportion of teachers' active speech will be relatively more. In the middle school stage, due to the accumulation of students' knowledge and the formation of their ideas, the proportion of students' active speech will be increased. In addition, the proportion of teachers and students taking the initiative to speak in the classroom depends on the class. Students can and should be guided to take the initiative to speak for the content that students have a lot of knowledge reserves and are not difficult to understand; However, it is necessary for teachers to properly explain the content that is less reserved for students and more difficult to understand. Research shows that: "In the primary school teaching stage, teachers should use the direct teaching method more than the indirect teaching method, but this does not mean that teachers can only use the direct teaching method, questions, praise, accept feelings and so on to improve the effectiveness of teaching. In the middle school teaching stage, the indirect teaching method can promote the development of students' academic ability more than the direct teaching method. Therefore, in the junior middle school teaching, the proportion of the indirect teaching method should be higher than the direct teaching method In the teaching stage of senior

high school, if the indirect teaching time is more than half, the teaching effect will be significantly improved. Of course, this does not mean that secondary schools only use the indirect teaching method. Teachers' careful guidance and explanation are also essential to remind and correct students' bad behaviors. ". Therefore, we say that the success of teacher-student language interaction in classroom teaching should not be determined by the proportion of single students' speeches in the classroom, but also should comprehensively consider the frequency of teacher-student alternating speeches, the time for teachers and students to react to each other and other factors. In general, the higher the frequency of alternating speeches between teachers and students, the shorter the time for teachers and students to react to each other, and the better the situation of teacher-student interaction; On the contrary, it indicates the lack of successful interaction between teachers and students. Therefore, in general, the higher the frequency of alternating speeches between teachers and students, the shorter the time for teachers and students to react to each other, and the better the situation of teacher-student interaction; On the contrary, it indicates the lack of successful interaction between teachers and students.

#### *B. Emotional interaction*

Emotional interaction is a more implicit form of interaction. Although its form of interaction is not obvious, as a deep interaction between teachers and students in classroom teaching, compared with language interaction, it has a more profound and lasting impact on students. Jaspers, a German existentialist philosopher, psychologist and educator, has long pointed out that "the process of education is first a process of spiritual growth, and then a part of the process of scientific knowledge." From this, we can see that emotional interaction and the spiritual gains it brings to students are more important than students' gains in acquiring knowledge, and have a more long-term and profound impact on students.

"Emotional communication is generally implicit, not as explicit as language communication, so it is necessary for us to analyze the main emotions in the classroom. The main emotions in classroom teaching are generally divided into curiosity and anxiety. Curiosity is generally a kind of physiological arousal level or cognitive conflict inquiry tendency caused by stimulation, a kind of inquiry tendency for students to acquire new knowledge and skills in the classroom, and a kind of inquiry tendency that can promote The positive emotion of entering students to fully integrate into the classroom for learning is that individual students have a "desire for discovery". Anxiety is the fear or worry about unknown things. When students feel that they cannot meet the requirements or experience the requirements and pressure of performance, anxiety will occur. Anxiety is a kind of fear or worry that students have when they are not clear about the learning task or feel that they cannot complete the learning task. Teachers' treatment of these two emotions will directly affect teachers' classroom teaching effect and students'



learning effect. Generally, those students who have excellent academic performance, strong learning initiative, and strong self-learning ability are more likely to have curiosity in the classroom. At this time, they will actively express their learning feelings, hope to be recognized by teachers, and meet their own desire to explore. At this time, the teacher should respond to his words. If his ideas are correct, he should give full affirmation and further encouragement. In this case, a heartfelt compliment or a approving smile will make him feel great pleasure and then have a stronger interest in learning. However, those students who are relatively backward in their achievements, have weak learning initiative and self-study ability are more likely to have anxiety in the classroom, which is mainly manifested in their low interest in learning, low mood, depression, and even fear because of fear that the learning task cannot be completed. They are afraid of teachers' questions and dare not express their opinions independently in public. For such students, teachers need to give them more attention and inclination emotionally, use gentle words and encouraging eyes to eliminate their anxiety, give them more opportunities to speak, and make more careful and stable evaluation of the problems in their speeches, so that they can gradually build confidence, eliminate anxiety, so as to actively integrate into the classroom, engage in learning, and develop in the direction of active exploration.

#### IV. WAYS TO REALIZE TEACHER-STUDENT INTERACTION IN CLASSROOM TEACHING

To achieve teacher-student interaction in classroom teaching, we should pay attention to certain strategies and also need certain processes. Good teacher-student relationship and classroom environment can promote the interaction between teachers and students. In teaching practice, the following aspects can be used to create a good atmosphere for teacher-student interaction.

##### A. *Emotional intimacy and democratic atmosphere*

The premise of realizing the benign interaction between teachers and students is that teachers are fully close to students emotionally, eliminate students' sense of estrangement and fear of teachers, and create a democratic and equal classroom atmosphere. Generally, students will have a sense of awe towards teachers. This sense of awe will make students more likely to accept teachers' exhortations, which will greatly help teachers to organize teaching and impart knowledge. However, if teachers overemphasize their dominant position and authority in classroom teaching and even in teacher-student interaction, students' sense of awe will develop into a sense of fear and distance, leading to alienation and indifference between teachers and students. Students cannot express their opinions and opinions boldly in class because they are afraid of teachers, let alone have full and effective interaction and communication with teachers. Therefore, in the classroom and daily teaching activities,

teachers must be fully close to students emotionally, pay more attention to students in life, put aside the so-called "dignity of teachers", and communicate with students on an equal footing; They even need to participate in students' activities regularly. Older teachers also need to adjust their psychological well being and hobbies appropriately to eliminate barriers to communication with students, and strive to build a democratic, equal, harmonious and close teacher-student relationship, so that students can really accept and like themselves, can have in-depth exchanges with themselves, can be happy with themselves, and truly become friends in students' study and life. Only in this way can students actively participate and speak freely in the classroom, and teacher-student interaction is possible.

##### B. *Stimulate interest and explore independently*

Interest is the best teacher, and it is also the basis for students to actively learn, actively express their opinions and communicate with teachers in class. In classroom teaching, teachers should take appropriate teaching methods to fully stimulate students' interest in learning, mobilize their enthusiasm for independent learning, so that students are always in an excited state of knowledge seeking, so that they can devote themselves to learning, divergent thinking in all directions, and actively explore. Teachers need to adopt effective teaching methods, stimulate their interest in learning, promote the interaction between various factors of teaching methods, enable students to learn spontaneously and actively and help them to actively explore. While paying attention to the cultivation of students' thinking ability, teachers should also guide students to develop good learning methods, learn to cooperate, improve their self-awareness and self analysis ability, so as to improve their ability to communicate with others and actively participate in inquiry activities. In the whole process of inquiry, teachers should give full play to the role of organizers and guides. From raising questions to guiding exploration, they should put students in the main position, guide students to learn creatively in a more free atmosphere, and establish a new relationship of democracy, equality, cooperation and communication with students, so as to achieve good interaction between teachers and students in classroom teaching.

##### C. *Extensive participation and cooperative learning*

While fully arousing students' enthusiasm for learning and independent inquiry, we should also focus on cultivating students' habit of cooperative learning, so that every student can fully participate in learning and maximize the scope of interaction. Facts have proved that only when students widely participate and actively communicate can they generate sparks of wisdom in the collision of ideas, and the interaction between teachers and students can have a more solid foundation. Therefore, in classroom teaching, we should constantly encourage and guide students to widely participate in discussion, research, and common learning, cultivate





students' sense of cooperation and spirit of cooperation, so that students can learn to cooperate, listen, share, and work with others to complete their learning tasks. This kind of cooperation includes both the cooperation between students and between students and teachers. When this kind of cooperation widely appears in classroom teaching, the interaction between teachers and students will naturally occur.

#### *D. Multiple evaluation, support and guidance*

In order to fully understand the learning situation of students, teachers have adopted a method, which is evaluation. Teachers reflect on themselves through the evaluation results, and improve their teaching methods to stimulate students' enthusiasm for learning and promote their all-round development. In the process of implementing the new curriculum standards, teachers' education and evaluation of students should not only pay attention to the students' understanding and mastery of knowledge and skills, but also pay attention to the formation and development of their emotions and attitudes, as well as the changes and development in the learning process. In addition to changing the previous single performance centered evaluation model and evaluating students in many ways, teachers should also encourage students to conduct self-evaluation, find their own progress and shortcomings through self comparison, and take corresponding improvement measures to gradually cultivate the habit and ability of self-evaluation. At the same time, the evaluation of parents, schools and other aspects should also make corresponding changes, pay attention to the improvement of students' comprehensive quality, respect and encourage students' outstanding performance in every aspect, so as to build up students' confidence in learning, enable them to have the courage to better participate in classroom teaching, and better participate in the communication with teachers and other students.

### **V. HOW TO BUILD TEACHER-STUDENT INTERACTION**

How should teachers build teacher-student interaction? I believe that a good teacher-student interactive teaching relationship is based on a democratic, harmonious and equal teacher-student relationship. In classroom teaching, teachers should fully respect the autonomy of students. You can refer to the following points.

#### *A. Teachers and students jointly develop courses*

All factors conducive to the healthy growth of students can be used as courses, and students can also participate in the development of courses. This makes more room for the development and use of the curriculum. Let students participate in the development of courses with this energetic force, so that students have the right to choose some courses, forming a situation where teachers and students jointly develop courses. That not only makes the curriculum rich and

colorful, vivid, and liked by students, but also helps students develop comprehensively and actively.

#### *B. Teachers and students prepare lessons together*

Long term traditional classroom teaching makes teachers accustomed to teaching with their own design ideas. How do teachers teach in class? How do students learn? This kind of teaching is very dull, and the classroom atmosphere makes students feel depressed and boring. Therefore, in classroom teaching, we must break the traditional teaching mode and let students participate in the "teaching" activities. Let teaching activities "move" and teachers and students complement each other.

#### *C. Joint evaluation of teachers and students*

In the past, teachers often ignored students' evaluation and used one-way evaluation. This often makes teachers one-sided understanding of students, unable to adjust their education methods in time to improve the educational effect, and even more likely to give them wrong instructions, thus misleading students, but also let students lose a chance to know themselves and learn from each other. In order to avoid this situation, teachers should let students participate in the evaluation equally, let students conduct self-evaluation and mutual evaluation, and combine their evaluation results with their own teacher evaluation, so as to fully understand the students being evaluated. At the same time, self-evaluation can also enable students to objectively understand themselves, understand their own advantages, and better establish self-confidence. It can also enable students to reflect on what they say, do, say, and do, find deficiencies, and strive to improve. The mutual evaluation between group students can make up for the deficiencies in self-evaluation, thus effectively improving students' self-awareness. At the same time, mutual evaluation is also an opportunity to learn from each other. Through mutual evaluation, students will learn to objectively evaluate others, appreciate their advantages, and learn to learn from each other. The self-evaluation and mutual evaluation are taken as the reference for teachers to compete. This three combination evaluation method is more objective and comprehensive, and students are willing to participate and accept.

#### *D. Joint management of teachers and students*

Class management is an important job for teachers. Teachers should guide each student to participate in class management, give full play to the students' initiative, and encourage them to use their brains actively and practice boldly. The work of the group leader is the most specific and trivial in the daily work of the class, but it is the work that can most stimulate the students' sense of collectivism. During my internship, I asked a senior Chinese teacher about classroom management. During his class, he took the group leader apart and asked several students in the group to serve as study leader, labor leader, discipline leader, etc. In this way,



students perform their own duties, both as managers and being managed, which not only strengthens cooperation and communication between students, but also strengthens everyone's team awareness. He also carried out the activity of "opening the chatterbox" in a democratic, equal and independent class atmosphere, encouraging students to pay attention to the collective, build the collective together, and boldly express their views and requirements on class construction. Students can put forward their opinions and requirements to teachers and cadres in the form of letters, or make speeches directly during class meetings and morning meetings. Through the activity of "opening the chatterbox", the students' sense of class ownership was effectively improved and a good class atmosphere was promoted.

#### VI. HOW TO GRASP THE INTERACTION BETWEEN TEACHERS AND STUDENTS IN CLASSROOM TEACHING

How to grasp the interaction between teachers and students in classroom teaching? This article talks about my views from the following points.

##### *A. Give students the opportunity to ask questions in class and encourage them to explore and learn by themselves*

Today's classroom teaching mainly focuses on cultivating students' ability of independent learning and active inquiry. Just imagine that if a class is only taught by the teacher, and the students don't talk much and only listen quietly, this ability will obviously not be exercised, and even make some students lose interest completely. Therefore, there is no need to be eager to impose the learning objectives of the whole class on students in the classroom, which will often restrict students' thinking. Some simple questions can be set to arouse students' questions, promote students' thinking, provide students with equal and free communication opportunities, and let them speak freely.

##### *B. Improve the classroom structure to make learning a two-way activity between teachers and students.*

Teaching is an activity of communication and cooperation between teachers and students, and teacher-student interaction plays a very important role in teaching. In the teaching process, teachers should give full play to their leading role, and take students as the main body of communication and activities, so that students can truly become the main body of classroom activities. When a teacher really takes students as the main body of teaching, teaching activities can be called teacher led teaching activities. Therefore, in the classroom, teachers should first respect the dignity of students, treat each student equally, and cultivate a democratic good teacher-student relationship. The teaching process should enable students to experience facts, problems, processes and conclusions.

##### *C. Pay attention to cultivating students' methods of independent exploration and cooperative learning.*

For example, in senior Chinese teaching, teachers can design more open questions that are convenient for students to cooperate with. Ensure that each student has the opportunity to propose their own methods to solve the problem, and then let the students discuss the advantages and disadvantages of different methods to choose the better one. At the same time, the underachievers with poor learning are encouraged to participate in the discussion, so that they can speak out their ideas boldly and make the underachievers' thinking active. In this way, the thinking of top students has been broadened, and the self-confidence of backward students has also been enhanced. [6] discussed that according to the observations in this paper, an existing mathematical model of banking capital dynamics should be tweaked. First-order ordinary differential equations with a "predator-pray" structure make up the model, and the indicators are competitive. Numerical realisations of the model are required to account for three distinct sets of initial parameter values. It is demonstrated that a wide range of banking capital dynamics can be produced by altering the starting parameters. One of the three options is selected, and the other two are eliminated. The model is generalized taking into account fractional derivatives of the bank indicators for time, reflecting the rate of their change. Based on numerical calculations, it is established that reduction of the order of derivatives from units leads to a delay of banking capital dynamics. It is shown, that the less the order of derivatives from the unit, the more delay of dynamics of indicators. In all analyzed variants indicators at large times reach their equilibrium values. [7] examined the development and refinement of possible mathematical models for the intellectual system of career guidance. Mathematical modeling of knowledge expression in the career guidance system, Combined method of eliminating uncertainties, Chris-Naylor method in the expert information system of career guidance, Shortliff and Buchanan model in the expert information system of career guidance and Dempster-Schafer in the expert information system of career guidance method has been studied. The algorithms of the above methods have been developed. The set of hypotheses in the expert system is the basic structure of the system that determines the set of possible decisions of the expert system. This set, which is crucial in decision-making, should be sufficiently complete to describe all the possible consequences of situations that arise in the subject area. Therefore, it is important to improve the mathematical models of the intellectual system of career guidance.

At present, as the main position of education, classroom teaching is becoming more and more important with the deepening of curriculum reform. While reviewing and reflecting on the traditional classroom teaching model in the past, more and more educators are committed to the exploration and construction of new classroom teaching models, which makes classroom teaching a pleasant scene of



"letting a hundred flowers blossom". Some new classroom teaching theories such as "situational teaching" and "equal communication" have emerged one after another. However, due to the long-term impact of traditional classroom teaching and the huge pressure of exam oriented education, many classrooms are still in a distorted and rigid state, and students' dominant position is not respected, let alone the cultivation of innovation awareness and spirit. With the acceleration of the new internationalization and modernization process, the demand for innovative talents is becoming more and more urgent. Therefore, it is particularly important to break the current classroom deadlock and comprehensively strengthen teacher-student interaction.

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