

Cooperative Learning Theory and Its Positive Effect in Classroom Teaching

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Abstract. Since the 1960s, the cooperative learning theory has been developed rapidly. Cooperative learning is a reform of the traditional teaching mode. It differs from the traditional mode in knowledge construction, essence of study and learning process, etc. It includes five essential elements, namely, group goals, individual accountability, face-to-face (promotive) interaction, social skills, and group processing. This paper introduces the theory and practice of cooperative learning abroad, and analyzes the essential elements and positive effects of cooperative learning, which shows that cooperative learning has positive effects in improving learning efficiency and interpersonal relationships, as well as developing social skills, hoping to provide some references for the reform of teaching mode in China.

Introduction

As an educational approach, cooperative learning is a reform of the traditional teaching mode. Robert Slavin (1999) regarded it as “one of the most successful stories in the history of educational innovation” [10]. Cooperative learning emerged in the United States in the 1970s and has been promoted in many countries around the world. Through the unremitting efforts of many educational experts, the application of cooperative learning has been gradually expanded, showing a wide range of applicability. In addition to the ages ranging from kindergarteners to college students, it covers all fields such as reading, writing, mathematics, music, engineering, mechanics, accounting, management, marketing, and economics, etc. David Johnson (2001) held that cooperative learning was an important means to change the passive learning and non-interpersonal learning in many college classrooms, and to realize the reform of the teaching mode [1].

Meanwhile, cooperative learning as a way of education is a feasible choice of traditional teaching mode. According to Johnson & Johnson’s (1999) definition, “Cooperative learning is the instructional use of small groups so that students work together to maximize their own and each other’s learning.” [6] Ravertscroft et al. (1999) argued that “a course becomes more cooperative when students consider the group, classmates and themselves as an important source of authority and knowledge rather than teachers and textbooks”. [9]

Cooperative learning has been introduced into China in the late 1990s. However, this kind of teaching mode has not attracted enough attention from the society. On the one hand, Chinese teaching mode has been deeply rooted in tradition. It would be a risk to explore the new teaching mode. On the other hand, in the reform of teaching mode, teachers did not know much about cooperative learning. The paper aims to introduce the theory and practice of cooperative learning abroad, hoping to provide some references for the reform of teaching mode in China.

A Revolutionary Change of Traditional Teaching Mode: Cooperative Learning

The first difference between cooperative learning and traditional teaching method lies in the different understanding of students’ knowledge construction. The traditional teaching mode is theoretically based on Locke’s epistemological idea. According to Locke’s theory of Tabula rasa, “blank slate” in English, the untrained student’s mind is like a blank sheet of paper waiting for the instructor to write on it. Students’ acquiring knowledge is a one-way process. Teachers only impart knowledge to students who then mechanically memorize for the examination, which is, “cramming

method of teaching”. This type of teaching method focuses on the transmission of the existed information, ignoring the need for students to make more efforts for their continuous learning.

In the process of cooperative learning, students actively construct their own knowledge. They can transform the knowledge passed by teachers from mechanical memory to understanding, and inspire each other to make an expansion and discover new knowledge through the discussions within the learning group. In the cooperative learning environment created by teachers, students not only retain the learning contents in memory for a long time through reconstruction, but also keep their knowledge structure in an open state, which becomes the basis for further acquiring new knowledge.

Secondly, the difference between the two teaching modes is the different understanding of the essence of study. For the traditional mode, learning is an individual thing. Outside pressures are imposed on students to promote them to work harder. This mode has relatively simple requirements for students that test scores, and whether they can graduate or find a good job have become their goals and teachers’ evaluation standards for them, thus students are classified into “good ones” and “poor (backward) ones”. While for cooperative learning, learning is a social thing which requires a favorable environment to stimulate its internal motivation. In a collaborative learning class, students help each other and make an argument. The communication between them narrows the gap in their understanding of concepts. Cooperative learning places more stress on the flexible use and application of knowledge. Its purpose is to develop students’ abilities and talents with an emphasis on the comprehensive development. In addition to the scores, students are evaluated for their teamwork and problem-solving abilities, etc.

Thirdly, the interpersonal relationship formed in the teaching process is different in the two modes. David Johnson et al. divided the learning in college classrooms into three types according to the interactions among students: competitive learning, individualistic learning and cooperative learning [1]. In competitive learning, the competitive organizational structure can improve efficiency to some extent, but it also inevitable has a huge negative effect. Competition can both lead to greater disparity among students and interpersonal tensions.

Cooperative learning provides an alternative to change the passive, non-humanized teaching mode in the college classroom. In cooperative learning environment, students rely on each other for progress. If only a student makes a great contribution to the group and his progress in acquiring professional knowledge will be recognized by other students and teachers. Cooperative learning can penetrate into the world of students as quickly as possible by establishing an equal relationship.

Essential Elements of Cooperative Learning

Cooperative learning is based on group learning. Therefore, there is a misunderstanding that it is cooperative learning that as long as students are put into learning groups and conduct a regular study together. In fact, they have no need and desire to learn together, and teachers rarely provide group tasks to create more opportunities for them. Even if students study in a group, they also do not study in a group as a whole. Simply dividing the students into small groups to study together cannot produce cooperative efforts. In essence, it is still the competitive or individualistic learning. Johnson & Johnson (1999) called such learning group a “pseudo-learning group” [6]. Students are arranged to study together, but the evaluation is still based on test scores.

The efficiency of cooperative learning depends on the understanding of the concept of cooperative learning. The core elements of cooperative learning are group goals and individual accountability. Through the observation of teachers who organize teaching by cooperative learning, it is found that most of them conduct a nonstandard use, typically the lack of group goals and individual accountability. According to a sample survey by Anti and Jenkins (1998) et al. [2], in six primary schools in two regions of the United States, only one of the twenty-one teachers have applied the five elements of cooperative learning proposed by Johnson et al. Only 24% of teachers who employ cooperative learning combine group goals with individual accountability. This research has also selected 11 middle and senior (grade 5-9) teachers from five states in the United States, who rarely use forms of group goals and individual accountability or teach students the

communication and problem-solving skills required in the cooperation. Thus it will reduce the effectiveness of cooperative learning. Jonson & Johnson (1999) believed that, in teachers' use of cooperative learning to carry out teaching, five elements must be included, namely, positive interdependence, individual accountability, face-to-face (promotive) interaction, social skills, and group processing, which are also the key elements for a successful cooperative learning [6].

Positive interdependence means that group members form a community with a common goal. Each student perceives that they "sink or swim together" and help each other to achieve success. Positive interdependence is manifested in four aspects. The first is goal interdependence. In the process of cooperative learning, each member shares the same goal and individual goals depend on the realization of group and other members' goals. The second is reward interdependence. After achieving the goals, group members receive the same reward. The third is resource interdependence. Each group member is given parts of resources or materials for completing the task. They must share resources in order to finish the task assigned by the teacher. The fourth is role interdependence. In a group, members are assigned complementary and interconnected roles with clear responsibilities. For example, a group can be divided into recorders, readers, inspirers, examiners, and reporters, etc. A clear division of labor enables students to be aware of individual responsibilities for the group and the work they should do.

The second element of cooperative learning is the individual accountability. To ensure that students can integrate into group learning, each student must be assigned appropriate tasks with clear accountability, which requires individual accountability. Specifically, the group size has to be small which can strengthen students' sense of responsibility and no one can "hitch-hike" on the work of others; teachers should be good at finding the one who just makes up a number without active work in the learning group, so the simplest way is to test students one by one; it is necessary to conduct random checks, requiring a member to introduce his or her work in the group; each member's contribution to the group should be recorded; each group is assigned an examiner who partially replaces the teacher and discovers the inadequacies of classmates in mastering knowledge; one student is randomly selected from each group to express the group's opinions, or to explain what he has learned from classmates through random oral tests, etc.

The third element is face-to-face (promotive) interaction. In order to achieve the goals of the group, the group must be small with 2-4 members (In fact, in many colleges and universities in China, some basic courses are often taught in big classes. A class contains more than 100 or even more than 200 students, which makes it more difficult for cooperative learning. It is unrealistic to have only 2-4 members in a cooperative group, but it is feasible to keep members around 10 if it is well organized). In group learning, members support and encourage each other, which not only enables them work together to reach common goals, but also helps improve their social skills. Because each student takes personal responsibility, their face-to-face interaction will affect others' thinking and problem-solving abilities which are far more important than an answer. The promotive interaction is reflected in that group members offer useful and efficient assistance to each other and exchange the required resources and information more effectively; they question the conclusion and reasoning process of other members to improve the quality of decision-making and depth of thinking.

The fourth element is the proper use of interpersonal and small group skills. Students must be taught high-quality cooperative social skills. But in practical teaching, more emphasis is placed on knowledge impartment rather than on social skills which includes leadership, decision-making, trust-building, communication, and conflict management. These abilities are seriously lacking in students' knowledge structure. In cooperative learning, teachers must teach students to trust and support each other, so that they can correctly communicate with other members and constructively resolve conflicts.

The fifth element is group processing. As an educational philosopher, John Dewey held that learning should focus on the process rather than the content. In the traditional teaching mode, students are often organized as the "audience" in classroom learning, and it is hard for them to participate in group activities. Group processing occurs when group members make progress in

achieving the group's common goals and establish efficient working relationships among students in cooperative learning. Group processing is manifested in the group meeting where members make useful suggestions for solving problems and completing tasks, and analyze, judge and select various solutions to the problems. Besides, it also includes how students manage the conflicts between group members and ultimately solve the problem effectively.

Positive Effects of Cooperative Learning

The key reason why cooperative learning is regarded as an alternative to the traditional teaching mode is that it can better achieve the teaching objectives and effectively promote the overall development of students. Laverie (2006) proposed that cooperative learning had positive effects in the following aspects: cultivating students' higher degree of confidence with strong learning motivation; improving their problem-solving ability, independent learning skills and knowledge application ability; deepening the understanding of the concepts and enhancing the logical ability, appreciation ability and memory [7]. Springer et al. conducted 39 studies and found that "various forms of group learning are very effective in promoting students' academic performance, positive learning attitudes and learning perseverance" [13].

First of all, cooperative learning helps improve students' learning efficiency. Steven Yamarik, an American economics teacher, used the method of cooperative learning to teach Intermediate Macroeconomics in the spring of 2002 and the autumn of 2004. He found that students' test scores were increased by 4.4 to 5.5 points through cooperative learning, with an average improvement of 5.5 to 7.0 percent. He explored three main reasons. Firstly, cooperative learning improved teacher-student interaction, and students felt less constrained when asking questions in groups. In the experiment, it is found that even if teachers ask questions in a heuristic manner, students still have much less questions than in cooperative learning class. In cooperative learning, students often come to the office for questions in small groups, while others prefer to ask questions individually. Secondly, cooperative learning improved group research for exams. Students are more likely to form research groups, which are based on classroom learning groups. They define the possible examination contents and carefully review them to avoid the omission of the main points. Thirdly, students' interest was stimulated in group learning. In the students' view, "cooperative learning is a great attempt because it allows me not only to learn from my teacher but also from other students". "Very valuable and helpful... it deepens my understanding of learning contents through discussions with my classmates in the group" [12].

Besides, cooperative learning improves students' social skills. Learning is not only a cognitive process, but also the social and emotional factors. Cooperative learning strengthens creativity and social skills. Laverie (2006) argued that teaching evaluation should have multiple dimensions, including social skills in addition to academic achievement [7]. Cooperative learning has positive effects in harmonious interpersonal relationships, mental health, altruistic and democratic values, and good conflict-solving ability. Today, teachers are facing with unprecedented challenges than before. In the increasingly fierce competition, they not only require students to master the knowledge in books, but also create opportunities for them to learn particularly special knowledge and develop their practical skills that can be applied in the work. In modern business, the skills required by employers, such as critical thinking, communication skills, leadership, creativity, and teamwork, are often difficult to develop under traditional teaching modes. Cooperative learning provides a platform for the cultivation of students' social skills.

Moreover, cooperative learning helps establish the positive interpersonal relationships. It promotes mutual concern between people. Even if individuals do not initially like each other or have many differences, cooperation promotes interpersonal attraction between them. Collaborative groups are conducive to building and maintaining friendships among students. Therefore, cooperative learning has positive effects in aspects of efficiency, morality, individual responsibility for work, and subjective willingness to accomplish difficult tasks. Through cooperative groups in the learning process, it is helpful to form good interpersonal and professional relationships and to develop students' adaptability to the working environment in the future.

In cooperative learning, the cooperative efforts tend to improve the individual's self-power and make them become more confident, thus developing the independence of the students. As students share problem solutions, the higher is the level of participation, the more personal value can be found. In the process of cooperation, almost all students have experienced social support with a strong sense of belonging. And there are almost no isolated students, so violence and destructive behavior are reduced correspondingly.

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