

# An Empirical Study on the Application of Cooperative Learning to Comprehensive English Classes in a Chinese Independent College

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## Abstract

This research investigated a comparison between the effect of cooperative learning and lecture teaching on Comprehensive English classes in a Chinese Independent College. An empirical study for two semesters was carried out in the forms of pretest, posttest, questionnaire and interviews. While control class was taught in the conventional way, experiment class was instructed based on cooperative base groups with positive interdependence structured on purpose. Compared with traditional instructions, cooperative learning as pedagogy can improve students' performance on course exams, but not necessarily their language competence as shown in national English competency tests taken before and after the experiment. Test results also indicate students from experiment class who excelled in competency test outnumbered those from control class, revealing that cooperative learning has positive impacts especially on students at a relatively higher academic level. Questionnaire results show that students are most inclined to agree they have more chances to practice the language in a cooperative environment.

**Keywords:** cooperative learning, cooperative base group, positive interdependence, personal support task

## 1. Introduction

Chinese independent colleges differ from public universities mainly in that they are more affected by market forces and funding enterprises hence featuring a more pragmatic way of teaching (Liu, 2007). However, English teaching in independent colleges calls for attention. According to a survey on student ratings on English classes among Chinese independent colleges, 31.8% agree they feel bored in their English classes. While they are generally content with teachers' attitude and competence, they rate teaching instructions unfavorably. And it's widely agreed their interests were not enhanced through classroom teaching (Chen, 2014). Although cooperative learning has long been popular at the primary and secondary level, empirical evidence of its impact at the university level is still limited, with ambiguous and contradictory findings (Herrmann, 2013). The aim of this paper is to contribute to the effectiveness study of cooperative learning in higher education and in particular the rarely researched independent colleges.

## 2. Literature Review

Being one of the most extensively researched educational innovations of all time, and one of the evidence-based instructional practices, cooperative learning has proved to have a positive influence on student learning and has gained in popularity and is now occupying an increasingly prominent position in the higher education classroom (Davidson, Major, & Michaelsen, 2014). Definition of cooperative learning varies as different scholars have different versions (Cohen, 1994; Y. Sharan & S. Sharan, 1987; D. W. Johnson, R. T. Johnson, & Holubec, 1993). But in general, it involves having students work in small groups or teams to help one another learn academic material (Slavin, 1989). It's a teaching strategy which aims at learning through group activities so that members at different levels can maximize their learning.

According to D. W. Johnson and R. T. Johnson (2009, 2014), cooperative learning has its theoretical roots in social interdependence theory, which can be traced from Kurt Koffka, through Kurt Lewin, to Morton Deutsch and then modified and extended by David Johnson and Roger Johnson, with the basic premise being "the type of interdependence structured in a situation determines how individual interact with each other, and this in turn largely determines outcomes". Other scholars have also made their contributions to cooperative learning (Sharan

& Sharan, 1989; Kagan, 1989, 2014; Slavin, 2010). Superiority of cooperative learning compared to traditional instruction is revealed in meta-analyses presented by many researchers (D. W. Johnson, R. T. Johnson, & Stanne, 2000; Kagan, 2014).

Cooperative learning can be implemented by structuring teaching assignments cooperatively, but a prerequisite to that is the existence of cooperative groups. As learning activities are conducted in the form of cooperative groups, how to set up cooperative groups effectively, what types of groups to choose are crucial to a dynamic cooperative environment. There are basically three types of cooperative learning groups which can be used interchangeably or together in practice, namely informal cooperative learning groups, formal cooperative learning groups and cooperative base groups. While the former two types highlight temporary groups lasting for only a short period from a few minutes to one class session to several weeks, cooperative base groups however are long-term heterogeneous cooperative learning groups with stable membership, which last from one to several years and provide the long-term, caring peer relationships necessary to make academic progress (Johnson & Johnson, 2014).

Some may take base groups as dividing the class into heterogeneous groups, but not all groups are cooperative. There is evidence that group membership in and of itself is not sufficient to produce higher achievement and productivity, positive interdependence is also required (D. W. Johnson & R. T. Johnson, 2014). Positive interdependence exists when there is a positive correlation among individuals' goal attainments. Individuals perceive that they can attain their goals if and only if the other individuals with whom they are cooperatively linked attain their goals (Johnson, 2009). Positive interdependence can be fostered through a combination of goals, tasks, resources, roles and rewards.

### 3. Research Design

This research is designed to answer three questions: 1) how to apply cooperative learning to comprehensive English classes? 2) Can cooperative learning improve student achievement and their English competency? Achievement here was defined as an outcome measure for teacher-made tests. English competency was validated by two national English tests taken before and after the experiment, which are college entrance examination and the Test for English Majors Band 4 respectively. 3) How do students evaluate such learning?

#### 3.1 Participants

The author carried out this experiment in an independent college in China. Two classes with 26 and 28 students from the English department were chosen to serve as the experiment group (EG) and the control group (CG). The experiment lasted for a school year of two semesters, during which participants took comprehensive English as a compulsory course and had six sessions each week for about 17 weeks each semester. Participants were at the second semester of their first year of study when the experiment began. To ensure the validity of the test results, the author used English scores from college entrance exams as proof of their English competency and the first semester course exam as pretest. Table 1 indicates, in college entrance exam, the mean score of the experiment class is slightly higher than that of the control class, but there exists no significant difference between the two classes ( $P=0.951 > 0.05$ ). Table 2 also indicates no obvious difference in pretest course exam between the two classes ( $P=0.166 > 0.05$ ).

Table 1. Competency test (college entrance exam) results before the experiment

College Entrance Exam	N	Mean	SD	T	P(a=0.05)
EG	26	110.115	13.542	.061	0.951
CG	28	109.893	13.093		

Table 2. Pretest (course exam) results before the experiment

Pretest	N	Mean	SD	T	P(a=0.05)
EG	26	75.846	7.928	1.403	0.166
CG	28	72.786	8.089		

#### 3.2 Research Procedures

Both the experiment class and the control class were taught by the author herself. There is no difference in

teaching materials, teaching contents, teaching hours and both classes follow the same teaching procedure, starting from pre-reading, warm-up, global reading, detailed reading to after reading. For control class, instructor mainly adopts lecture teaching method and plays a leading role in giving basic facts on the theme in warm-up, analyzing passage structures in global reading and imparting grammatical points in detailed reading, while students learn mainly by listening to lectures, responding to teacher's questions, interacting with peers and conducting activities based on temporary ad-hoc groups. Experiment class on the other hand was instructed based on cooperative base groups with positive interdependence structured on purpose. At the end of the experiment, a multiple-choice test was used to evaluate their academic achievement in both classes, in addition to separate formative assessments on their class performance. For control class, the formative assessment comprises of class attendance and individual performance on class. But for experiment class, a different assessment system was designed to facilitate cooperative learning method. At last, a 5-item questionnaire based on the 5 option scale of Likert was designed in order to learn about learners' attitude.

### 3.3 Application of Cooperative Learning to Experiment Class

There are 26 students from the experiment class. Five heterogeneous groups of 4 to 6 students were set up based on family backgrounds, academic performance, personal interests, gender and personalities. But simply putting students into mixed-ability groups and encouraging them to work together are not enough to produce learning gains (Slavin, 1987), especially in their first cooperative group task. Additional efforts were made to structure positive interdependence by ways of positive goal interdependence, positive role interdependence and positive reward-celebrate interdependence.

In order to enhance positive goal interdependence among group members, personal support tasks were designed in the first day of class. For instance, each group is required to come up with a group name, a slogan, a banner and a logo. The task was completed with creativity and productivity as each group distinguished each other with unique features. Regardless of how it was undertaken, the process helps with cultivating positive goal interdependence by strengthening the conception of "either sink or swim together".

Further assignments were given for the purpose of fostering positive role interdependence. While discussion was going on, the teacher had a chance to observe each group for further membership adjustments. The next assignment for each group was to decide on the roles of group members, choosing from roles such as group leader who is in charge of setting up base group meetings, secretariat who keeps track of scores and rewards, researcher who collects materials and spokesperson who presents on behalf of the group. In order to motivate slackers or lazy team members, roles must rotate every week so that each member can hold accountable for due contribution. In a way that each member is assigned complementary and interconnected roles, group members are bound together through positive role interdependence.

New assessment was designed to promote positive reward interdependence. Group performance on each assignment will be scored as a whole and group members receive the same score. For major cooperative activities, the best group will be rewarded and the worst group will suffer loss of rewards. As assignments are usually divided among the groups like a jigsaw puzzle, tasks for different groups are also different. Group performances are scored from three perspectives: 1) whether the assignment is completed as required? 2) to which extent do they excel as a team and is every member committed to the work? 3) how difficult is the assigned task?

A sample teaching schedule is given based on Unit 4 of *A New Comprehensive English Course*, highlighting the subject of William Shakespeare.

#### *A sample teaching schedule for experiment class*

Pre-learning	Groups carry out group investigations on Shakespeare, picking sub-topics ranging from shakespeare's life, his hometown, his plays, poems and quotes.
Warm-up	Group spokespersons give oral presentations on their topics.
Global Reading	Groups discuss on the structure, part division and summary of the text.
Detailed Reading	Assign five to seven long sentences to the groups and ask them to analyze and translate.
After Reading	Play VOA clip <i>What keeps works of Shakespeare so alive</i> and prepare three questions for groups to compete

## 4. Data Analysis and Findings

### 4.1 Data Analysis on Test Scores

Table 3 indicates mean score of experiment class in the posttest is much higher than that of control class. The significant level is 0.041, that is  $P < .05$ , which demonstrates the average scores of experiment class in the posttest are higher than the control class. It shows students in the experiment class have made greater achievements over the experiment period, and cooperative learning is comparatively more effective than lecture teaching in improving students' achievement.

Table 3. Posttest results after the experiment

Posttest	N	Mean	SD	T	P(a=0.05)
EG	26	77.192	6.284	2.092	0.041
CG	28	73.679	6.040		

Based on the findings of Table 3, the significant level is 0.206, which indicates no significant difference between the two classes in the national English competency test. The English competency tests are scored both with points and by the four categories of fail, pass, good (high pass) and great (honors). It's found in Table 4 that students from the experiment class who passed (57%) and performed well (15.4%) in the competency test largely outnumbered those from the control class (42.9% and 3.6% respectively). Even though cooperative learning may not necessarily improve students' English competency, it seems effective on students at a higher academic level. Its effectiveness on better students requires further investigation.

Table 4. Competency test results after the experiment

Test for English Majors Band 4	N	Mean	SD	T	P(a=0.05)
EG	26	59.039	9.310	1.281	0.206
CG	28	56.179	7.014		

Table 5. Competency test results by fail/pass/good/great

	Fail	Pass	Good	Great
EG	11(42.3%)	11(42.3%)	4(15.4%)	0
CG	16(57.1%)	11(39.3%)	1(3.6%)	0

### 4.2 Data Analysis on Questionnaire and Interviews

At the end of the research, a questionnaire composed of five scaling statements and one open question was designed and handed out to learn about students' attitude towards cooperative learning. Students from the experiment class were asked to rate the following statements with 5 scales (strongly agree=5, agree=4, neutral=3, disagree=2, strongly disagree=1). The statements are 1) group activities can improve my English competency; 2) group activities can improve my learning efficiency; 3) group activities can boost my interest in English learning; 4) group activities provide me with more opportunities to practice English; 5) I'm content with the current grouping; and the open question is 6) what is your suggestion regarding the current teaching?

Table 6 indicates students are more willing to agree with the positive impacts of cooperative learning on creating opportunities for practice (80%) and boosting their interests in English (56%) than its effectiveness on English competency (40%) and learning efficiency (44%). Based on the findings, English competency was least affected by cooperative learning method, which is also shown in Table 4. Effects on learning efficiency are not significant as well. But attitude towards the current grouping was somehow divided. 56% of the students agreed with the current grouping while 28% of the students did not, among which 12% strongly disagreed. Judging by answers to the last question, some student preferred not to work by group because he/she "needs more time of his/her own". Another student suggests group activities can be condensed and the teacher should lecture more on grammar points because he/she feels "the top priority is to pass exams".

Table 6. Learners' attitude towards cooperative learning

Total Number(25)	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree	Mean
1	4(16%)	6(24%)	8(32%)	5(20%)	2(8%)	3.20
2	3(12%)	8(32%)	7(28%)	6(24%)	1(4%)	3.24
3	6(24%)	8(32%)	6(24%)	5(20%)	0(0%)	3.60
4	11(44%)	9(36%)	4(16%)	1(4%)	0(0%)	4.20
5	5(20%)	9(36%)	4(16%)	4(16%)	3(12%)	3.36

## 5. Conclusion

By comparing cooperative learning with lecture teaching method, this research has further proved the effectiveness of cooperative learning on students' achievement at college level. As it creates more chances for students to speak and boosts their interest in English learning, cooperative learning can help with the lack of student engagement and add to the vibes on class. However, the effectiveness of cooperative learning on improving learning efficiency and language competency is not significant compared with conventional teaching, when students who are under the pressure of passing exams actually expect individual learning and more instructions on language points from the teacher. In practice, a mixture of different teaching methods can be used to meet the objectives of the course and students' needs.

With regard to the implementation of cooperative learning, this research mainly adopts cooperative base groups and applies them to comprehensive English classes for English majors. Instead of laying emphasis on forming heterogeneous groups, this research hopes to draw the attention to the cultivation of positive interdependence in setting up cooperative base groups. In practice, it's quite challenging for cooperative base groups to do their first group assignment because back then there was little emotional bond or individual accountability among group members. Even if standard heterogeneous groups are formed, they can perform differently, some being very productive and creative while others the other way round. Groups with strong positive interdependence are more likely to prevail in cooperative environment. Positive interdependence can be cultivated through goal interdependence, role interdependence and reward interdependence. Interesting personal support tasks as icebreak activities are very helpful in the first day of class.

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