

Cooperative Learning and Vocabulary Retention

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Johnson, Johnson, & Holubec (1992) define cooperative learning (CL) as the instructional use of small groups so that students work together to maximize their own and each other's learning. Cooperative learning is definitely not the act of bringing a number of students together haphazardly to learn a subject matter merely through discussion. Teachers who use CL actively organize students into groups and provide them with opportunities and motivation to be responsible for each other's learning.

Benefits of Cooperative Learning

Cooperative learning offers many benefits for both teachers and students when it is carefully planned and structured.

Academic Achievement

Research on cooperative learning shows that, when used appropriately, the effects of CL on achievement are consistently positive (Slavin, 1995). In their analysis of 122 achievement related studies, Johnson, Johnson, Maruyama, Nelson, & Skon (1981) reported that cooperative learning resulted in higher achievement than competitive or individualistic learning across all age levels, subject areas, and tasks.

Kessler (1992) notes that a number of studies show the greatest gains of CL among minority students (Aronson, Blaney, Stephan, Sikes, & Snapp, 1978; Klein and Eshel, 1980; Slavin and Oickle, 1981) and among special needs students

(Nevin, Johnson, & Johnson, 1982). High-achieving students also generally perform well with CL. The stronger students have opportunities for explaining, organizing thoughts, and being certain about specific concepts, which in turn increases their own understanding (Dansereau, 1985; Webb, 1985).

Social and personal development

Various studies report positive results of cooperative learning on different aspects of social skills, such as reduced racial stereotyping and discrimination (Cohen, 1980), increased self-direction (Johnson, Johnson, Johnson, & Anderson, 1976), increased sense of intellectual competence (Kagan, 1989), and increased liking for class (Slavin, 1983).

Finally, according to Kagan & Kagan (1994), research reveals that even if there is no social skills instruction at all, students in cooperative learning classes turn out to be more caring, helpful, and understanding of each other.

Language learning

Kessler (1992) points out that there are close relations between CL and language development. Students who are taught through CL are exposed to increased amounts of active communication (both comprehension and production) and use of language for academic and social functions. Goodlad (1984) reports that in traditional teacher-centered classes, less than 20% of class time is spared for student language production. Moreover, each student typically

gets the chance to speak for only fractions of a minute during a fifty-minute class time in a class of thirty students.

In contrast, CL classrooms devote 80% of their time to activities that include talking. Since this talk is simultaneous, “half of the students may be engaged in language production while the others are engaged in language comprehension” (Kessler, 1992: 5). As a result, CL provides an abundance of opportunity for increased active communication. This in turn has the potential for more intake for the English language learners.

Management

Kagan & Kagan (1994) report that many teachers have fewer classroom management problems after they alter their methods from traditional to CL. Cangelosi (2000) states that CL activities help classroom management in that they foster student engagement in lessons, help students develop intrinsic motivation, equip students with better conflict solution skills, and decrease the number of discipline problems among students.

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Student Teams Achievement Division (STAD)

This CL technique, developed by Slavin (1994), is designed to raise students’ motivation to learn. It focuses on cooperation among group members within each team, which is followed by competition among the teams in the class. Jacobs, Power, & Inn (2002) describe this technique in four steps. First, the teacher instructs or presents the topic to the students who are arranged in heterogeneous groups of four. Second, students are asked to study the subject in their groups and make sure that each group member learns the material and is ready for a quiz. Then, students take the quiz individually. Finally, the teacher scores the quizzes.

Each student’s score is compared to his or her past averages and points are added to the

group according to the level of improvement each student shows. Thus, students compete with their own previous average instead of competing with their peers. According to Bejarano (1987) this provides each student with an equal opportunity to contribute to the team score.

Vocabulary Retention

Thornbury (2002) states that knowing the meaning of a word is not just knowing its dictionary meaning. Rather, the learner has to know the words commonly associated with it, namely, its collocations as well as its connotations, register, and cultural accretions. Another description for what it means to know a word is the type of word knowledge; that is, the distinction between receptive and productive word knowledge. According to Nation (2002), receptive vocabulary use involves perceiving the form of a word while

listening or reading and retrieving its meaning. Productive vocabulary use involves wanting to express a meaning through speaking or writing and retrieving and producing

the appropriate spoken or written word form.

Vocabulary teaching and learning research has long focused on the most difficult question to answer; namely, what are the best ways of committing new words to memory? For short-term memory, which is used to hold information over brief periods, constant repetition of the new information would be the best action to take. However, if this new input is to be retained for days, weeks, or even years, we need to work much harder and try different strategies. Mere repetition will not be adequate to commit information to long-term memory (Gairns & Redman, 1986). Research findings support the idea that retention of new information depends on the amount and quality of attention that individuals pay to various aspects of words (Craik & Tulving, 1975).

When students read a text together and explain the concepts to each other while evaluating each others’ explanations, they engage in a

high level of critical thinking. They form new concepts by using their own vocabulary and by basing their comments on their existing knowledge. Lockhart & Craik (1990) claim that such rich and numerous associations with previous knowledge increases the chances that the new information will be retained. Therefore, processing new lexical information more elaborately will lead to better retention than if it is processed less elaborately (Lockhart & Craik, 1990).

One of the main goals of cooperative learning is to provide learners with opportunities to use language to do things, and in particular, to engage in meaningful interactive oral language production. In a study of the acquisition of mathematical vocabulary, Hall (1992) found that the vocabulary learning of students working on interactive activities was greater than that of students working in a teacher-fronted setting. In another study, Newton (1993) reported that learners negotiated unknown vocabulary successfully, hence helping each other with the learning and use of this new vocabulary. Thus, research provides evidence for improved vocabulary recognition and use both as a result of exposure to new vocabulary in a meaningful communicative context and as a result of communicative work on targeted vocabulary.

The Study

This study examined the effects of cooperative learning activities and STAD on students' vocabulary retention.

Design of the Study

The study is a "one-group pretest-posttest," a quasi-experimental research design. In this design, a single case is observed at two time points, one before the treatment and one after the treatment. Changes in the outcome of interest are presumed to be the result of the intervention or treatment. In this study, the subjects in a vocabulary course were given a pre-test before

each treatment. The same test was given as a post-test two weeks after each treatment, and the scores were compared to see the effects of the treatment. A two-week retention period was used for this study because similar studies had used the same period of time (Carter, Hardy & Hardy, 2001; Grace, 1998).

Participants

The study was carried out in the English Language Preparatory School attached to Başkent University in Ankara in one of the 43 beginner level classes. The medium of instruction in the university overall is Turkish. The language proficiency level of students was determined by a proficiency test administered at the beginning of the school year. There were 22 students in the class, 8 of whom were female and 14 of whom were male. Their ages ranged between 18 and 20.

Instruments

The researchers made use of four beginning level texts taken from the book

Far From Home: Reading and Word Study, by William Pickett. Cooperative learning activities were implemented with two of these texts, and small group tasks were implemented with the other two.

The cooperative lessons utilized a standard structure called Student Teams Achievement Divisions (STAD), as described earlier. The teacher presented the unit. After that, worksheets were distributed on the same topic for the group members to study together. The students were responsible for ensuring that all their team members were ready for the individual quiz that followed immediately afterward.

In the cooperative activity, the students in their heterogeneous groups were asked to use the 10 newly learned words to create a reaction essay to the story they had just read. In this procedure, the group members thought of a plot together using the 10 new words. After that, each

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student in each group was assigned a part of the story and the words to use in that part, and s/he wrote his/her part individually in line with the plot they had created together. Then, they came together again and formed their essays. While doing that, they each took turns to explain their part and the vocabulary items with it. They made sure that everybody in the group mastered the use of the words in focus.

The teacher collected the essays to grade them according to such criteria as cohesion, coherence, grammatical accuracy, and the correct use of the words in focus. The essay grades were added to their total group scores. Then, they took a vocabulary quiz individually. Their quiz scores were compared with their base scores and 10 points were added to the group score for each member who exceeded his/her base score. In addition to this, if all members of a group received a grade of 90 or above, 10 more points was added to their total group scores.

With this structure, the teacher made sure that all the principles of the cooperative learning were present; namely, the activity fostered heterogeneous grouping, individual accountability, positive interdependence, equal participation, and simultaneous interaction. With these principles directly applied to the cooperative lessons, the teacher assumed that the students would develop their cooperative skills by engaging in cooperative tasks as opposed to lecturing them on what cooperative learning is.

Three tests were used for each cooperative lesson plan. First of all, a pre-test was given each time to see whether the students already knew the words we intended to teach. A quiz, which was a part of the STAD technique, was given right after instruction in order to determine the effectiveness of cooperative group work by seeing the contribution of each individual to the group

score. Finally, a post-test was given for each text after a two-week interval so as to find out the effect of cooperative tasks on vocabulary retention. The pre-test and the post-test of each lesson were the same and they aimed to test recognition of the definitions of focus words. The students were asked to match the target words arranged in threes with the correct definitions, which were arranged in sixes. An example is in Figure 1.

Results

Data from the pre-test and post-test scores were analyzed through t-tests to determine if there were any statistically significant differences in the vocabulary retention results of cooperative learning activities and small group tasks. Then, regression analysis was used to determine the relation between students' course achievement and their retention levels for each of the methods.

Comparison of group work and cooperative learning activities

To be able to compare the group work scores and the cooperative learning scores, the difference in each participant's pre-test score was calculated. Afterwards, measures of central tendency presented in Table 1 were calculated using these scores.

As seen in Table 1, the mean values of student results from the cooperative learning lessons were higher than those from the lessons that adopted the group work technique. However, the variance and the standard deviation values of the group work lessons are slightly lower than those of the cooperative learning lessons. This finding can be interpreted as more equal distribution

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| 1. the need to do things quickly | |
| 2. someone who drives a vehicle | _____ passenger |
| 3. a person travelling in a vehicle but not driving it | _____ hurry |
| 4. the central part of a city | _____ bill |
| 5. the amount of vehicles moving along roads | |
| 6. a piece of paper used as a request for payment; check | |

Figure 1. Matching exercise

Table 1: Measures of central tendency values for cooperative learning and group work

Texts	Participants	Mean	Variance	Standard Deviation
Group work 1	22	1.8	1.6	1.2
Group work 2	22	2.6	3.4	1.7
Cooperative 1	22	3.3	5.4	2.3
Cooperative 2	22	3.6	5.0	2.1

of scores around the average score, and fewer gaps between the learning and retention levels of the words among individual participants for the group work lessons. Cooperative learning lessons, which yielded bigger variance and standard deviation values, created individual retention scores which deviated a bit more from the average. This means that there are bigger gaps among the scores of participants, which is not a very favorable result for a cooperative learning lesson even though it created better retention results than the group work technique.

Table 2 presents the results of the t-test. Since *p-value* is smaller than 0.05, we can say that the difference between the *mean values* of cooperative learning and group work techniques is statistically significant. As a result, it can be concluded that cooperative learning lessons produced better vocabulary retention results than those implementing the group work technique.

Discussion and Conclusion

In the analysis of the data, it was found that there was a statistically significant difference in the participants' vocabulary retention scores

between the words learned through cooperative learning activities and the ones learned through group work technique in favour of cooperative learning activities. It can be concluded that cooperative learning lessons created better vocabulary retention results than those lessons which implemented the group work technique. The

findings of this study were consistent with the literature, highlighting the fact that cooperative learning settings can create longer retention periods since students constantly engage in the elaboration of new concepts and interaction with their group mates (Gairns & Redman, 1986).

Results of previous research studies support the idea that retention of new information depends on the amount and quality of attention that individuals pay to various aspects of words (Craik & Tulving, 1975). This study also reinforced the concept that cooperative learning activities increased the amount and the quality of attention that the participants paid to various aspects of words, therefore encouraging longer retention periods.

Slavin (1995) asserts that when students work together to achieve a mutual goal - as in classes structured with a cooperative reward system - their efforts to learn help their group mates succeed. This study demonstrated that cooperative learning lessons yielded individual retention scores which were diverse from each other to a great extent. This finding showed that, although

participants who internalized the basic principles of cooperative learning helped their group mates succeed, this effort was not enough to prevent them from getting diverse retention scores. Despite the better retention results in the cooperative learning

Table 2: Comparison of cooperative learning and group work

Paired T-test for Cooperative – Group Work				
	N	Mean	StDev	SE Mean
Cooperative	44	3.432	2.266	0.342
Group Work	44	2.227	1.612	0.243
Difference	44	1.205	2.520	0.380

95% CI for mean difference: (0.438; 1.971)
T-Test of mean difference = 0 (vs not = 0): T-Value = 3.17 P-Value = 0.003

lessons, the students' retention scores were not gathered around the mean, but scattered widely. This basically means that each student could not benefit equally from the cooperative learning lessons with respect to their retention levels.

This study also demonstrated the utility of the STAD technique, where high achieving students helped their less skilled teammates and increased their group's total score. The teaching activity provided high achieving students with more opportunities for sophisticated explanations or cognitive elaboration work. Activities such as organizing thoughts and being certain about specific concepts increased the vocabulary skills of high achieving students while at the same time benefiting the low achieving students, resulting in better retention for all.

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