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The effects of cooperative learning on second language vocabulary retention for lower-level learners

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Abstract

Often in EFL and ESL learning situations students complain that they need to increase their L2 vocabulary. However, those same students are at a loss for how to learn more words. This study attempts to exploit a well-documented method in education, cooperative learning, in an attempt to increase vocabulary retention for L2 students. Lower-level students in both a control group and an experimental group within a university setting were given a list of vocabulary words and then tested on those words two weeks later. The results of the experiment show a higher rate of retention by the experimental group, indicating that cooperative learning did have a positive effect on L2 vocabulary retention.

Keywords: cooperative learning, peer teaching, language-related episodes, vocabulary retention

1. Introduction

Cooperative learning is not by any means a new arrival in the language teaching field. Cooperative and collaborative learning have been discussed within academia for at least the past 50 years and have been in practice in some form or another for longer still. However, is cooperative learning actually useful and/or efficient in L2 classrooms? There has been research that has shown higher motivation in students when they are able to work together, either in groups or in pairs. Assinder (1991) stated that in a study he carried out; "…students appeared more motivated, and this motivation was sustained over the entire course." (Assinder, 1991, p.225) Also, due to the nature of cooperative learning, some researchers have suggested that tasks that utilize Cooperative Learning show an increase in L2 communication skills amongst learners as well as reporting increases in language-related episodes during those tasks. Therefore, this study's aim is to understand if cooperative learning can be exploited in order to enhance vocabulary retention in L2 learners.

This paper will first give accepted definitions of cooperative learning and then summarize recent literature pertaining to cooperative learning. The next section will describe the experiment and justification for it, and finally analysis of the data will be discussed.

2. Definitions of Cooperative Learning and literature review

Cooperative learning, depending on the context in which it used, has several different meanings. The following definitions will be those utilized for the purposes of this study.

2.1 Definitions of Cooperative Learning

Cooperative learning has often been associated with collaborative learning; and while both are considered sub sections of peer teaching, there are some differences. For the purposes of this paper, cooperative learning will be focused upon more than collaborative learning.

Cooperative learning is considered to be part of the method of peer teaching in which learning occurs through negotiation of meaning with other learners within the classroom (Bradford-Watts, 2011). Basically, in Cooperative Learning

learners work together to find meaning and/or solutions to challenges put forth to them. Panitz (1996) explains that: "Cooperation is a[n] … interaction designed to facilitate the accomplishment of a specific … goal through people working together in groups" (Panitz, 1996, p. 3). He further adds that the basis for cooperative learning lies in constructivist theory. Knowledge is found and gained by learners working together and then evolves into concepts they can better relate to, reconstruct, and then expand upon via new experiences (Panitz 1996).

To expound on the definitions above, Zarei and Keshavarz (2011) explain that cooperative learning refers to a set of structured psychologically and sociologically based techniques whose goals are learning. They explain that within it, students are divided into groups to learn together rather than to compete. In their paper they report that cooperative learning had a positive, if not conclusive effect on their subjects (Zarei & Keshavarz, 2011).

Cooperative learning is also an extension of Communicative Language Teaching; in language teaching settings Cooperative Learning's goals are: " … to provide opportunities for naturalistic second language acquisition through the use of interactive pair and group activities …. [and also] to enhance learner motivation and reduce learner stress and to create a positive affective classroom climate" (Richards & Rodgers, 2001, p.193).

In all of these descriptions, two concepts are common; the first being that of students working together to aid each other in learning. The second common factor is that of communication. Learners, within cooperative tasks, are required to communicate amongst themselves in order to discover and/or share answers. Learners pool their knowledge, then work together to discover new information or solve challenges put before them. For the purposes of this paper these two descriptors will be used to underscore use of cooperative learning.

2.2 Literature Review

Cooperative learning is not a recent breakthrough in education; however, it has seen much growth in the fields of ESL and EFL over the past couple of decades as a key tool for the classroom. Vygotsky (1978) proposed that cooperative learning activities are likely to promote the learning of learners in similar age groups. Vygotsky defined the "zone of proximal development" as the "distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult" i.e., peer guidance (Vygotsky, 1978, p. 86). According to Smith & MacGregor (1992) the development of interpersonal skills is just as important as learning in cooperative learning. "Many cooperative tasks are put to students with both academic objectives and social objectives" (Smith & MacGregor, 1992, p.3).

Johnson & Johnson (1998) explain that a fundamental aspect of cooperative learning is that relationships are built among the group members during the task. In fact, they go on to say that the more positive the personal relationship among the group members, the harder they will work (Johnson & Johnson, 1998). They also describe that cooperative learning may not automatically happen amongst students. There are certain conditions that need to be present; the foremost of these is that each student in the group needs to understand that they are essential to each other. Students must also communicate to the others within the group what they have learned. Thirdly, feedback is essential in supporting each other.

Donato (1994) carried out a study in which beginning level students used linguistic interaction. During this study it was found that although the subjects were all beginners in the

L2, working together they discovered forms that individually they were not sure of. Donato demonstrated that the interaction also assisted the learners in retaining the new target forms they had worked on previously together. In another paper regarding interaction amongst peers, Swain and Lapkin (1998) discuss the functions of peer collaboration and the impact of social linguistics by also defining language-related episodes (LRE) which occur during cooperative learning. They define LRE as; "… any part of a dialogue where the students talk about the language they are producing, question their language use, or correct themselves or others" (p. 326). Swain and Watanabe (2013) go on to explain that; "　…through collaborative dialogues, students form and test hypotheses about appropriate and correct use of language, as well as reflect on their language use" (Swain & Watanabe, 2013, p. 3).

Jalilifar (2010) showed how the peer relationships are used in cooperative learning. Jalilifar states that during cooperative learning tasks students receive peer encouragement from more skilled partners, and that these explanations can generate interaction among members of the group, thereby promoting deeper learning. (Jalilifar, 2010) Fulk & King (2001) similarly explain that cooperative learning has been used to improve academic, social and responsibility skills, and also motivate student to communicate with peers within the classroom. Dabao (2014) also explains that learning is a socially situated activity. She also showed in her study that the same level students can provide scaffolded help to each other because their weaknesses and strengths may be different, allowing learners to improve beyond their individual levels of competence.

Ohta (2001) also discusses the role that social interaction and assisted performance plays in language learning and talks of the benefits of peer L2 interactive tasks into five areas: general development, vocabulary, pronunciation, grammar, and interactional style. Ohta explains in her analysis that she found that, "…time and again, learners both utilize and provide developmentally appropriate assistance to their peers" (Ohta, 2001, p. 124).

There has also been evidence which shows that collaborative tasks may create more language learning opportunities, and in particular more vocabulary learning opportunities, than individual tasks (Storch & Wigglesworth, 2007; Wigglesworth & Storch, 2010). In a study conducted by Ghaith and Yaghi (1998) it was found that the students acquired the rules of a target grammar form within a cooperative task and that the results showed that cooperative learning was "… at least equal to individualistic instruction in helping learners acquire the rules and mechanics of the target language" (Ghaith & Yaghi, 1998, p. 231). They also go on to state that cooperative learning seems to be especially effective in lower-achieving students. They explain that this may be due to positive interdependence, i.e., students working together may put forth more effort to achieve group success.

In a study carried out on peer teaching, Assinder (1991) discovered that students appeared to be more motivated and more willing to contribute to the task in Cooperative Learning exercises. She found increased participation and communication/discussion amongst peers. Most importantly, there appeared to be a deeper understanding of the materials. She explained that, "… the increased opportunities for negotiation of meaning within the groups seemed to me to be an important factor regarding the amount of learning taking place" (Assinder, 1991, p. 227).

In a study done by Storch (2005) regarding the differences in writing tasks done by individuals compared to ones between pairs, it was explained that the study found pairs produced

shorter but more correct texts in terms of task fulfilment, grammatical accuracy, and complexity. Collaboration allowed students the opportunity to share and combine ideas and give each other corrective feedback. Again in another research study by Storch (2007), she showed that even though there were not great differences in actual results between individual and pair work on completed task, pair work provides learners with opportunities to use the L2 for a variety of functions, and subsequently for further language learning. In both studies Storch explains that while the final results of individual work compared to that completed by pairs is not substantially different, the opportunity for interaction in the L2 is much greater and therefore can be used for other tasks later on.

Research by Kim (2008) compared the effect of pair and individual work on the acquisition of 15 pre-selected vocabulary items included in a dictogloss task. Thirty-two Korean L2 learners participated in the task, half of them in pairs and the other half individually. Students working in pairs participated in twice as many LREs as learners thinking aloud and found a correct solution to a considerably higher percentage of their LREs. The results suggested that the students working in pairs performed better on both an immediate and a delayed vocabulary post-test. In another study done by Nassaji and Tian (2010) showed that, compared to individual work, learners working in pairs completed the tasks more accurately than learners working alone. However, the results of the vocabulary pre- and posttests did not provide clear evidence of greater knowledge gains for the collaborative condition.

While not all research into cooperative learning has definitively positive results in terms of showing better L2 acquisition or retention of the TL amongst L2 learners, most studies have suggested that the interaction between students during cooperative learning tasks increases.

Another aspect that has been given by some researchers is that of LRE's, which also seem to be greater, thereby increasing the learners' awareness of their own L2 skills. Accuracy of the TL, as well, has been shown to be a positive effect.

3. Research Question

In an attempt to exploit cooperative learning in lower-level classes on a more frequent basis, this study will explore the following question:

Does the use of cooperative learning in vocabulary study enhance the retention of L2 words in lower-level learners?

3.1 Justification

In interviews conducted with students on an individual basis, most spoken students with (85-90%) stated that one of their weaknesses in communicating in English was the lack of or need for more vocabulary. Many explained that they felt frustrated when they could not remember enough words to carry out a conversation in English. However, when asked how they studied and learned vocabulary, the resounding response was that they remember the words out of textbooks used for a reading and writing class. When pressed for a more detailed response about how they learned, no clear answer was given.

Therefore, it is the goal of this paper to show students that there are other ways to learn vocabulary than by simply writing a new word over and over again in a notebook or using word cards to flip through before a quiz. Also, as stated above, this study is also hoping that by using a more communicative style of learning, students will be able to retain new information more effectively.

3.2 Experiment design

The experiment was conducted on first year Japanese university students, both female and male between the ages of 18-19 years old, all

Vocabulary Quiz Experiment   Word List

Please study the words below. There will be a vocabulary quiz in two weeks. Results will be used only for research purposes and no names will be used.

Abandon	Eliminate
Adjacent	Encounter
Assist	Evolve
Capable	Generate
Conform	Illustrate
Consistently	Maintain
Constant	Modify
Contribute	Presume
Decline	Prohibit
Dedicate	Utilize

Vocabulary Quiz Experiment   Name (Romani)-_____

Results will be used only for research purposes and no names will be used.
Please write the Japanese for the words listed.

English	Japanese
Abandon	
Adjacent	
Assist	
Capable	
Conform	
Consistently	
Constant	
Contribute	
Decline	
Dedicate	
Eliminate	
Encounter	
Evolve	
Generate	
Illustrate	
Maintain	
Modify	
Presume	
Prohibit	
Utilize	

native Japanese. The students had been placed in either the beginner or intermediate levels of a required English communication course (placement had been determined by a standard placement test administered during the college's freshman orientation session) at Kyushu Lutheran College. There were two groups, a control group consisting of 12 students in the intermediate level class, and an experimental group of 10 students within the beginner level.

Before the first vocabulary quiz had been given it was explained to all students in both the experimental and control groups that the quiz was for research purposes only. The students were also told that the results of the quiz would possibly be published and that no names or student numbers would be used, only the data from the results. Students were asked if using the results was acceptable to them, all students responded that they understood and accepted the conditions. The same explanation was also given to the control and experimental group again before the administration of the second quiz.

Both groups were given a vocabulary pretest of twenty words taken from an English skills textbook, *Pathways* (Macintyre, P. 2013. Pathways (pp. 220-221). After the pretest students were then given the same list of words to study. It was explained to all that another test of those same words would be given in two weeks. For both the pretest and posttest there were twenty words with a total score of twenty points. Grading for the tests was conducted by a native English speaker and a native Japanese speaker working together to ensure that the English words and the Japanese meanings were considered acceptable as correct translations. Please see the list of words and the quiz given to both groups of students below:

The control group was allowed to look up the words to find the meanings in Japanese on an individual basis. A brief amount of time had been allotted during the class for that purpose. The experimental group was told to work during class time with a partner together to find the Japanese meaning of the words, and then write an original sentence in English with each of the words as a pair. The pairs were required to communicate together in English as much as possible while thinking of sentences to write. The second test was administered two weeks later in class.

4. Pretest and posttest results

This section will give the results of both vocabulary tests from both the control group and the experimental group. One factor that needs to be extrapolated upon is how the tests were scored, as the answers were written in Japanese. Given that direct translation of certain words may have several different meanings in another language, as mentioned above both a native speaker of English and a native speaker of Japanese worked together to ensure that any translation given for an English word would be deemed correct or incorrect. Therefore, some of the words listed on the test had more than one acceptable translation. Also, any word not given a translation was automatically counted as a wrong answer.

As explained previously, the highest possible score on both tests was 20 points. If two answers were given for one English word, only one point was allotted for that answer. For example; 'encounter' can mean either 出会い, 遭遇, or 逢着. Any of those translations can mean 'encounter' therefore only one point would be given regardless of how many a student may have written in the space provided.

4.1 Pretest results

The pretest was given to both groups without any prior notification. Students were given a total of ten minutes to write down the Japanese translation for the English words given. All students in the control group finished the test within 5-7 minutes, less than the allotted time. Most of the experimental group took between 8-9 minutes, also less than the given time of ten minutes.

As shown in Table 1 the average score of the control group was 4.8 points, or 24%, with the highest score being 15 /75% and the lowest being 1. The experimental group average was slightly below the control at 3.1 points 15.5%; the

Table 1 Pretest results

Control Group: 20 possible points

Student	Pretest score
101	2
102	1
103	3
104	9
105	15
106	6
107	1
108	1
109	5
110	2
111	11
112	2
Average score	4.8

Experimental Group: 20 possible points

Student	Pretest score
201	1
202	5
203	3
204	1
205	10
206	2
207	2
208	1
209	3
210	3
Average score	3.1

top score was 10 and, as with the control group, the lowest was one point. These results were not unexpected. The students had been given

no prior notification of the first vocabulary test and had not studied beforehand for it.

As is shown in the tables above, the control group performed at a higher percentage than did the experimental group, with an average of 1.7 points higher. This was also predictable as the control group performed at a higher level during the placement exam at the beginning of the school year.

4.2 Posttest results

The posttest was given to both groups two weeks after the pretest. Again, the posttest consisted of the same format and words as the pretest. Also, the same amount of time, 10 minutes, was allotted to take the test. All students within the control group finished within 7 minutes of the starting time, roughly the amount of time taken during the pretest. Most in the experimental group used the entire allotted time, the earliest finishing time was 8 minutes.

To grade the results of the posttest, as with the pretest a native speaker of English and a Japanese speaker work in conjunction to determine acceptable translations of the words. All correct answers were given one point, for a total of 20 points possible.

Table 2a shows that the results from the control group show an increase in scores by 21.5%, or an average increase of 4.3 points. Of those that scored higher on the posttest two students scored the same as on the pretest and one student scored one less point than on the pretest. The average score of the control group was 9.16 points, or 45.8% of 20.

On the other hand, as seen in Table 2b the experimental group's average score increased from an average score of 3.1 in the pretest to one of 16.4 on the posttest scores. This was an increase in scores of from 15.5% on the pretest to a posttest average of 82%. Even though the experimental group had placed lower than the

Table 2a: Posttest results compared to pretest results: Control group

Control Group: Scores out of 20 possible points

Student	Pretest score	Post test score	Score difference
101	2	2	0
102	1	6	+5
103	3	7	+4
104	9	11	+2
105	15	16	+1
106	6	20	+14
107	1	5	+4
108	1	4	+3
109	5	4	-1
110	2	18	+16
111	11	15	+4
112	2	2	0
Average score	4.8/24%	9.16/45.8%	+4.3/+21.5%

Table 2b: Posttest results compared to pretest results: Experimental group

Experimental Group: scores out of 20 possible points

Student	Pretest score	Post test score	Change in score
201	1	19	+18
202	5	18	+13
203	3	19	+16
204	1	19	+18
205	10	19	+9
206	2	18	+16
207	2	19	+17
208	1	12	+11
209	3	10	+7
210	3	11	+8
Average score	3.1/15.5%	16.4/82%	+13.3/+66.5%

control group during the pretest, they seemed to have performed higher than the control group on the posttest.

5. Discussion

The present study investigated if any relationship between cooperative learning and short-term vocabulary retention among lower level EFL students could be found. The raw data shows that there was, at least at first glance, a demonstrable difference in the posttest scores between the control and experimental groups. Both groups were given the same words to study and had both been allotted time during class to find the appropriate translations. The control group worked separately while the experimental group worked in pairs or groups of three to first find the translations and then work together to use those English words in proper contexts in sentences.

The pretests showed a higher level of knowledge regarding the vocabulary on the test amongst the control group, albeit only a slightly higher average score. However, the scores did not increase individually nor as a group as much as those of the experimental group. Looking at Table 2a the largest difference between the pretest and posttest scores among the control group was for student 106, whose pretest score was 6 and posttest score was 20. An increase of 70%. Also, student 109 actually had a decrease in the number of correct translations, from 5 correct to only four. Two students, 101 and 112, showed no improvement at all. Both students 101 and 112 scored 2 points on the pre and posttests, and for each, one of the correct responses on the pretest was for a different word on the posttest.

For the experimental group, looking at Table 2b the largest difference between the pretest and posttest was 18 points, for students 201 and 204. This difference is the highest increase for either group. The average score for the experimental group on the pretest was 3.1 points, however the posttest scores averaged 16.4 points. The average difference of all the scores from the experimental group shows an increase across the board of 13.3 points, or an increase of 66.5% on average, compared to an average difference between the tests for the control group at only 21.5%. The difference in the improvements seen from both groups indicates a relationship between the cooperative learning task that the experimental group (the lower-level group) participated in. For the experimental group, the pretest scores were on average lower, and the posttests scores showed a higher percentage on average of improvement in retention of vocabulary on the posttests.

These results seem to be consistent with research done by Zarei & Keshavarz (2011) in which it was found that, "… that in cooperative learning classes, students learn more vocabulary than traditional one" (Zarei & Keshavarz, 2011, p. 51). The effects on lower-level students show a more positive effect on vocabulary learning, especially when compared to more advanced groups of students. This was also stated by Ghaith & Yaghi (1998) in which it was suggested that Cooperative Learning could be beneficial to lower-level students; "One possible explanation of such results is that positive interdependence among all group mates encourages them to help each other and exert more effort to achieve group success" (Ghaith & Yaghi, 1998, p. 231).

One aspect that was not directly researched during this study, but had been mentioned briefly, was that of LRE's that may occur during cooperative learning tasks. It was mentioned earlier that LRE's are language-related episodes that occur during communicative tasks during which learners correct their own L2 usage and/or questions the L2 which they are producing. LRE was observed on at least four different occasions among the experimental group while the students were working together on writing

sentences using the vocabulary they were translating. The conversations of the students were not recorded, therefore the instances of LRE had only been noticed while they teacher was walking around the classroom during the task.

On one of these occasions a student was overheard saying, "I think 'abandon' is for verb. Maybe it same with throw away's mean" (overheard conversation between students). Also, during another conversation one student stated that, "I think we are wrong. That is noun, but maybe we need it first before 'decline' maybe?" In these examples, learners were consciously thinking of their L2 usage and how to correct it so that it sounded more grammatically appropriate. This type of socio-linguistic interaction can aide deeper learning among peers as discussed by Jalilifar (2010) and Swain& Watanabe (2013). Donato (1994) also showed that interactions among students during tasks can enhance retention of the target language.

Dabao (2014) also showed in a study regarding L2 vocabulary retention and cooperative learning tasks that, "The lexical LREs thus generated resulted in L2 vocabulary learning, understood as both the acquisition of new lexical knowledge and the consolidation of previously existing knowledge" (Dabao, 2014, p. 514). Through interaction and discussion of their own L2 grammar and vocabulary the learners' retention was increased. This would also appear to be the case in this study. Students were required to discuss the new vocabulary with their partners and create uses for the new information. Also, LREs among the students were noticed several times during the task, showing that students were consciously thinking about their own existing knowledge of English and working together to understand better how the newer information works with previously gained knowledge.

Conclusion

This study asked if the use of cooperative learning could enhance the retention of new L2 vocabulary in lower-level learners. A cooperative learning task was utilized with the experimental group to encourage small groups to communicate together while finding the appropriate Japanese translation(s) for English words and then using the English words in sentences, focusing on meaning and grammatical structures of the sentences. During the task it was observed that LREs occurred several times amongst the students.

The results of the posttests that were administered to both the control and the experimental groups showed that those students in the experimental group increased the number of correct answers at a rate that was higher than those in the control group. The higher percentage of increases in correct answers among the lower-level class would indicate that the cooperative learning task did effect have a positive effect on the retention of L2 vocabulary.

Past research in the area has shown that cooperative learning can enhance L2 learning, especially among lower-level students. As this study was conducted on a relatively small scale (a total of 22 subjects) it is suggested that the experiment be conducted again on a larger scale. The results do suggest a relation between cooperative tasks and vocabulary learning; however, further research is recommended to clarify the validity of the experiment.

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