Cooperative learning as a correction and grammar revision technique: Communicative exchanges, self-correction rates and scores[*]

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Abstract: This paper focuses on cooperative learning (CL) used as a correction and grammar revision technique and considers the data collected in six Italian parallel classes, three of which (sample classes) corrected mistakes and revised grammar through cooperative learning, while the other three (control classes) in a traditional way. All the classes involved in this study were in their first year of secondary school, and although most students had a level of English which was A2, they made a certain number of mistakes also in grammar topics like the present tense, which is the grammar topic under examination in this study. This paper analyses the sample students' communicative exchanges while they performed the error correction activity through CL, compares the self-correction rates reported by the two groups of students after the two types of correction and revision activities (traditional and through CL) and the students' scores in tests given to students one, four and eight weeks after the correction lessons. The aim of the study is establishing if the use of CL as a correction and grammar revision technique had a beneficial effect on the students who experienced it and in particular on the low achievers.

Key words: cooperative learning; error correction; grammar revision

1. Theoretical background

1.1 Involving and helping students through CL

Cooperative learning has been experimented and used in a variety of contexts and activities, both in order to enhance students' knowledge and skills, and to foster their interpersonal relationships, two goals which are however intertwined within CL groups. A great number of research studies (Johnson & Johnson, 1981; Slavin, 1987) show the effectiveness of cooperative learning in many contexts and from many points of view. First of all, this way of working together influences positively both the learners' achievement (Ream, 1990), they obtain higher achievement scores in comparison with individualistic groups (Sherman & Thomas, 1986) and they can learn material better than individual students (Yager, et al., 1985), and their interpersonal relationships, they build both interpersonal and higher-level cognitive skills (Michaelsen, 1992); they support their peers and engage in constructive conflict resolution (Johnson & Johnson, 1994); they develop a sense of social responsibility (Vermette, 1988) and of mutual respect (Pate, 1988). The positive effects of CL activities are particularly beneficial for the low achievers, as they can receive attention from the other group mates and help from more experienced peers (Johnson, et al., 1991).

On the grounds of these benefits and the involvement in the task which characterizes CL activities,

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cooperative learning has been chosen for this study as an experimental technique for error correction and grammar revision, two moments of the language lesson which are not very involving and motivating for learners, in order to establish if this use of CL could help the students who experienced it and in particular the low proficiency ones.

1.2 Written error correction and grammar revision in the language classroom

In the language lesson, activities like written error correction and grammar revision aim at making students focus on the form of linguistic structures, and this attention to form can help language acquisition, as shown by research (DeKeyser, 1995; Van Patten & Cadierno, 1993). Through grammar revision learners focus on rules, in order both to understand how the language works and to produce accurate language. Through written error correction learners are made aware of their learning steps and their difficulties through the teacher's feedback, being guided towards improvement by a mark or a comment. Although no agreement has been found by research on the effectiveness of error correction, some researchers (Truscott, 1996) state that correction is useless, while others (Ferris & Roberts, 2001) show that it helps learners improve. It is a common practice in language classrooms, which is welcomed by learners, who want and expect to be corrected (Leki, 1991).

In this study, which was part of a larger Ph.D. project, CL was used as an experimental technique to correct the students' mistakes and to revise grammar rules, in order to involve students in these steps of the language lesson in an active way. Students in fact are usually rather passive during both activities: when they receive their tests back, they usually pay more attention to the mark than to their mistakes, and when grammar rules are revised in the classroom, students rarely ask questions for clarification.

2. The study

2.1 Sample students

Six parallel classes, made up of 14/15-year-old students of English as a Foreign Language, were chosen for the study. They were from the first year of the Italian secondary school: two parallel classes were in Istituto Superiore "G. Govone" Liceo Classico in Alba (CN), four were in Istituto Superiore "Leonardo Da Vinci" in Alba (CN), two in the Liceo Linguistico and two in the Liceo delle Scienze Sociali[1]. All the students had studied English for at least three years, followed English lessons for 3 or 4 hours a week, were at different proficiency levels (mainly A2) but made a certain number of mistakes also in simple structures, like the present tense, which is the object of this study. Three different schools were involved in this study because in each school two parallel classes were chosen (1A and 1B in Liceo Linguistico, 1D and 1F in Liceo delle Scienze Sociali and 4C and 4D in Liceo Classico), which had the same teacher, textbook and number of English lessons per week, so all the variables which could have had a biasing influence on the data collected were very similar in each couple of classes. In order to compare the results of students who received different correction and grammar revision lessons, in each school one parallel class (sample) was corrected through CL and the other (control) through traditional methods.

The total number of students involved in this study was 150. However, only the tests of students who were present during all the tests and during the error correction activities were taken into account: Two experiments were carried out in this study and data were collected from 128 students in the first experiment, and from 135 in the second.

2.2 Methodology

This study focuses on two experiments, the first on simple present and the second on the difference simple present vs. progressive, and the same methodology was used. After all the classes revised a grammar topic with their teacher, they were given a grammar test on the grammar topic taught (pre-test), made up of both formal exercises and a text to write. All the tests were checked and students' errors underlined but not corrected.

The following lesson all the students corrected their pre-test and they received an anonymous list of the most common mistakes (chosen by frequency and typology) found in their pre-test. In the control groups they had to correct it individually, and in sample classes within mixed-ability CL groups (4-5 people), the type of CL used was the groups of four (Burns, 1981), in which students had also to motivate their corrections. During this activity all the CL groups were tape recorded, and their communicative exchanges analysed. After that, all the students corrected the wrong sentences in plenary giving reasons for each correction, therefore grammar rules were revised. Students had time for questions in the end of the lesson, which lasted one hour, they received their pre-test back and they had to self-correct it individually.

Although using different techniques, both the groups spent the same time focusing on error correction and grammar revision, that is, one hour lesson on the grammar topic of each experiment. One hour was dedicated to this activity because in language lessons, the time given to such activities is not very long and then because it is focusing too much on errors can demotivate students (Ur, 1996). Post tests on the same grammar topic were given to all the students one, four and eight weeks after the correction lessons, in order to test long term results and to establish if the CL activity had any influence on the students' accuracy. Both experiments (the first on simple present and the second on simple present versus progressive) were carried out following the same methodology and the whole study lasted four months.

This study had one main goal, that is establishing if the CL activities performed had any positive effect for the students who experienced it (and in particular for the low proficiency students) in any of the three aspects taken into account—amount of wrong sentences corrected (within CL groups vs. individually), self-correction rates and test scores over time.

3. Analysis

3.1 Communicative exchanges within groups

The students in sample classes were tape recorded while performing the CL activities, in order to establish to what extent students were able to correct together the wrong sentences properly and motivated corrections referring to grammar. The tape recordings lasted around 10 hours, as in each sample class 5-6 groups were formed, each correction task lasted 15-20 minutes, and two error correction and grammar revision activities were performed.

3.1.1 Successful corrections within CL groups versus individual correction

As one of the aspects under examination in this study was to establish if students within CL groups were able to correct more mistakes than students working on their own, the percentages of successful corrections made by sample and control students were compared: In every CL group tape scripts were analyzed, and in control classes the list of wrong sentences that students had to correct individually was collected after the task, so the percentage of successful corrections was determined. In all the classes the number of the successfully corrected sentences was divided by the total number of sentences in the list, percentages were made for every group (in the sample classes)

and every student (in control classes) for both experiments, and finally mean percentages were calculated.

Table 1   Successful corrections in experiment 1 and 2

Item	Group	Experiment 1		Experiment 2	
L. Scienze Sociali	Sample	96.03% (sd=4.96)	p=0	95.43% (sd=5.36)	p=0
	Control	76.09% (sd=20.77)		78.88% (sd=18.93)	
L. Linguistico	Sample	94.6% (sd=5.75)	p=0	93.77% (sd=5.55)	p=0
	Control	79.94% (sd=17.2)		80.68% (sd=14.32)	
L. Classico	Sample	94.07% (sd=5.25)	p=0	93.9% (sd=5.41)	p=0.04
	Control	85.76% (sd=10.41)		89.53% (sd=10.07)	

As reported in Table 1, the percentages of successful corrections were much higher in sample than in control groups: CL groups were able to find the appropriate solution for nearly every sentence, with percentages of successful corrections ranging from 87% to 100%, while in control groups individual students showed more varied percentages (from 23% to 100%), as standard deviation shows. The statistical analysis of variance applied to these data shows that the difference between the two groups is statistically significant ($p<0.05$) in every case, so students within CL groups are able to correct sentences more successfully than individual students.

3.1.2 Grammar explanation within CL groups

CL groups were invited to correct the wrong sentences and motivate their corrections, so that all the members could understand the reasons for correction and, in case, ask for explanation. Tape scripts show that students referred to grammar in most cases (75% of the sentences on average), not only to decide among different possibilities but also to justify a correction on which everyone agreed, and sometimes they explained each other how some rules worked. Therefore, the objective of making students work together and help each other was reached, as students talked about grammar and revised rules together within CL groups, motivated their corrections and explained each other grammar rules.

3.2 Self-correction rates

The pre-tests corrected by students were collected and analyzed, and the self-correction rates were calculated taking into account only the grammar mistakes on simple present (in experiment 1) and on simple present and progressive (in experiment 2), because both correction activities focused only on the present tense and no other grammar structure. The number of successfully corrected mistakes on the present tense was divided by the total number of mistakes on the present tense each student made in the pre-test, percentages were made for every learner in each class, then the mean percentage for every group was calculated. The following Tables 2 and 3 report two different self-correction rates (one for formal exercises and the other for texts): If percentages in parallel classes are compared, it can be remarked that every sample class self-corrected more than its respective control class. The percentages underwent the analysis of variance (ANOVA) and, as the numbers in bold highlight, in four cases out of twelve this difference is statistically significant ($p<0.05$), so in these cases the higher rates in favour of the sample classes show an actual better ability in self-correcting.

Also low proficiency students' self-correction rates were compared and, as shown in Tables 4 and 5, in most cases (eleven out of twelve cases) the students in sample classes self-corrected more than the ones in control classes. Data underwent the non-parametrical analysis of variance, and in three cases out of twelve, the difference was statistically significant ($p<0.05$).

Table 2 Self-correction rates in experiment 1

Simple present		Formal exercises		Texts	
L. Linguistico	Sample	89.7% (sd=11.78)	p=0.3	82.96%(sd=19.71)	p=0.22
	Control	80% (sd=38.19)		75.5%(sd=22.39)	
L. Scienze Sociali	Sample	88.54% (sd=11.42)	p=0.58	85.21%(sd=14.17)	p=0
	Control	86.31% (sd=17.04)		61.96% (sd=27.59)	
L. Classico	Sample	97.64% (sd=5.03)	p=0.4	95.96% (sd=7.04)	p=0
	Control	93.75% (sd=13.98)		67.82%(sd=30.76)	

Table 3 Self-correction rates in experiment 2

Present simple vs. progressive		Formal exercises		Texts	
L. Linguistico	Sample	92.77% (sd=11.11)	p=0.09	85.92%(sd=29.11)	p=0.13
	Control	81.05% (sd=28.26)		65%(sd=30.59)	
L. Scienze Sociali	Sample	96.39% (sd=8.83)	p=0.01	61%(sd=37.13)	p=0
	Control	82.44% (sd=23)		24% (sd=28.42)	
L. Classico	Sample	97.73% (sd=7.58)	p=0.74	81.7%(sd=32)	p=0.72
	Control	96.74% (sd=11.19)		75.5%(sd=38.76)	

Table 4 Low proficiency students' self-correction rates in experiment 1

Simple present		Formal exercises		Texts	
L. Linguistico	Sample	76.75%(sd=11.37)	p=0.12	79.83%(sd=5.52)	p=0.72
	Control	80%(sd=40)		80%(sd=7.76)	
L. Scienze Sociali	Sample	78.17%(sd=4.74)	p=0.58	77.14%(sd=13.42)	p=0.01
	Control	73%(sd=12.84)		39% (sd=23.6)	
L. Classico	Sample	95.33% (sd=6.6)	p=0.04	91.25% (sd=8.76)	p=0.14
	Control	66.67%(sd=11.79)		72.25%(sd=18.31)	

Table 5 Low proficiency students' self-correction rates in experiment 2

Present simple vs. progressive		Formal exercises		Texts	
L. Linguistico	Sample	85.4%(sd=12.6)	p=0.19	91.75%(sd=14.29)	p=0.1
	Control	61.67%(sd=27.34)		64%(sd=10.42)	
L. Scienze Sociali	Sample	87.67%(sd=17.44)	p=0.63	83.5%(sd=16.5)	p=0.05
	Control	78.6%(sd=19.73)		18.2%(sd=15.14)	
L. Classico	Sample	100%(sd=0)	p=0.27	83.5%(sd=16.5)	p=0.37
	Control	94.5%(sd=5.55)		67.33%(sd=6.13)	

3.3 Test scores

As all the four tests in both experiments included formal exercises and a text to write, the students' scores will be examined separately for both types of exercises, as the abilities involved in performing them are different: In formal exercises students had to focus mainly on producing correct grammar structures, while in texts they had to express ideas through correct grammar forms. Test scores will be examined separately for the three schools, so the difference between parallel classes will be highlighted.

3.3.1 Formal exercises

Formal exercises were very similar—the same number and type of items, and consisted of exercises for

which only one correct answer was possible. All the students' scores were calculated dividing the number of the correctly completed gaps by the total number of gaps. Tables 6 (first experiment) and 7 (second experiment) report both the mean scores calculated for each class in the four tests, the students' improvement as well as standard deviation and the results of the statistical analysis of variance. A quick glance at the tables below shows that although most test scores in formal exercises are rather similar in all the couples of classes, in some cases, some sample classes had better results than their respective control classes.

Table 6   Test scores in formal exercises in experiment 1

		Test				Improvement			
		1	2	3	4	Test 1-2	Test 2-3	Test 3-4	Test 1-4
L. Linguistico	Sample (23)	82 sd=16.25	83.09 sd=11.88	80.96 sd=15.38	89.09 sd=8.88	+1.13 sd=12.82	-2.17 sd=8.23	+8.13 sd=9.17	+7.09 sd=11.87
	Control (22)	83.86 sd=13.46 *p*=0.68	84.27 sd=10.95 *p*=0.74	84.59 sd=13.17 *p*=0.41	91.14 sd=7.89 *p*=0.43	+0.55 sd=14.11 *p*=0.89	+0.09 sd=12.92 *p*=0.49	+6.55 sd=9.07 *p*=0.57	+7.18 sd=11.87 *p*=0.98
L. Scienze Sociali	Sample (23)	73.83 sd=16.05	79.22 sd=13.92	85 sd=11.71	89.48 sd=7.33	+5.52 sd=12.32	+5.91 sd=9.45	+4.3 sd=8.99	+15.7 sd=14.01
	Control (23)	74.61 sd=18.87 *p*=0.88	80.09 sd=12.91 *p*=0.83	79.83 sd=15.28 *p*=0.21	85.83 sd=11.87 *p*=0.23	+5.48 sd=12.13 *p*=0.99	-0.17 sd=9.59 *p*=0.04	+5.96 sd=10.03 *p*=0.57	+11.26 sd=11.42 *p*=0.26
L. Classico	Sample (17)	89.06 sd=12.97	88.41 sd=8.18	87.71 sd=10.5	94.94 sd=6.65	-0.71 sd=10.92	-0.71 sd=9.11	+7.29 sd=7.71	+5.82 sd=10.79
	Control (20)	88.95 sd=10.26 *p*=0.98	88.7 sd=8.78 *p*=0.92	88.35 sd=9.24 *p*=0.85	93.45 sd=6.39 *p*=0.5	-0.15 sd=7.41 *p*=0.86	-0.35 sd=10.95 *p*=0.92	+5.2 sd=8.99 *p*=0.47	+4.6 sd=7.47 *p*=0.7

Table 7   Test scores in formal exercises in experiment 2

		Test				Improvement			
		1	2	3	4	Test 1-2	Test 2-3	Test 3-4	Test 1-4
L. Linguistico	Sample (22)	69.55 sd=23.99	74.95 sd=13.25	76.36 sd=16.79	80.05 sd =18.06	+5.41 sd=17.94	+1.5 sd=15.61	+3.48 sd=13.9	+8.48 sd=13.25
	Control (21)	79.76 sd=10.98 *p*=0.09	71.95 sd=12.3 *p*=0.46	73.9 sd=10 *p*=0.57	79.24 sd=10.94 *p*=0.86	-7.33 sd=14.07 *p*=0.02	+1.9 sd=12.1 *p*=0.91	+5.43 sd=11.25 *p*=0.63	+1.38 sd=10.49 *p*=0.07
L. Scienze Sociali	Sample (23)	70.4 sd=13.61	78.6 sd=16.8	80.4 sd=11.85	80.2 sd=9.52	+8.35 sd=13.38	+1.85 sd=14.06	-0.25 sd=12.54	+10.15 sd=13.6
	Control (25)	63.72 sd=12.84 *p*=0.11	72.2 sd=12.52 *p*=0.16	69.8 sd=18.32 *p*=0.03	77.38 sd=16.23 *p*=0.58	+8.48 sd=15.85 *p*=0.98	-2.28 sd=16.76 *p*=0.39	+6.75 sd=15.76 *p*=0.12	+14 sd=17.17 *p*=0.43
L. Classico	Sample (21)	81.14 sd=11.72	87.4 sd=8.52	87.2 sd=10.1	91.05 sd=8.26	+6.05 sd=8.03	-0.05 sd=6.12	+3.9 sd=10.78	+9.8 sd=11.57
	Control (23)	80.43 sd=25.69 *p*=0.91	79.05 sd=17.8 *p*=0.05	81.91 sd=15.3 *p*=0.21	92.41 sd=8.56 *p*=0.61	-0.91 sd=16.14 *p*=0.1	+2.95 sd=6.14 *p*=0.13	+10.59 sd=11.8 *p*=0.07	+12.59 sd=23.06 *p*=0.64

The analysis of the tables shows some common trends. First of all, the mean scores in test 1 (before the error correction and grammar revision activities) are quite similar in all the couples of classes, and this similarity could mean that the classes considered were at a similar level before the experiments. Secondly, students in sample classes never outperformed students in control classes in the fourth test, so after eight weeks from the error correction and grammar revision activities the scores in all the classes are again similar. Thirdly, some statistically significant better results in favour of sample classes can sometimes be found only in the second or in the third test, either in scores or in improvement. In all the other cases, however, no difference can be found between sample

and control classes.

As for the whole class, the scores of the low proficiency students in both groups were compared and data underwent the non-parametrical analysis of variance.

The following Tables 8 and 9 show a pattern which is quite similar to the one found in Tables 6 and 7: Again, no difference between couples of parallel classes can be found, neither in test 1 nor in test 4, but some better results for the sample students either during the second test or the third. In other cases however, no difference can be seen between the two low proficiency groups in neither experiment.

Table 8   Test scores in formal exercises in experiment 1 for low proficiency students

		Test				Improvement			
		1	2	3	4	Test 1-2	Test 2-3	Test 3-4	Test 1-4
L. Linguistico	Sample (6)	64 sd=18.1	77.17 sd=9.14	66.17 sd=12.95	77.83 sd=7.03	+13.5 sd=12.5	-11 sd=10.17	+11.83 sd=8.9	+14 sd=16.64
	Control (5)	76.2 sd=9.74 p=0.46	72.4 sd=7.36 p=0.45	71.8 sd=11.72 p=0.46	82.8 sd=10.38 p=0.41	-3.4 sd=7.99 p=0.02	-0.8 sd=10.19 p=0.23	+11 sd=4.52 p=0.64	+6.6 sd=6.31 p=0.45
L. Scienze Sociali	Sample (4)	48 sd=12.19	59.5 sd=11.15	68.75 sd=7.01	83.25 sd=5.31	+11.5 sd=18.57	+9.5 sd=8.62	+14.5 sd=10.5	+35.5 sd=16.93
	Control (5)	46.8 sd=15.5 p=1	67 sd=16.41 p=0.54	59.2 sd=14.61 p=0.39	74.4 sd=15.76 p=0.53	+20.2 sd=6.4 p=0.22	-7.6 sd=9.97 p=0.05	+15.2 sd=11.89 p=0.81	+27.6 sd=5.78 p=0.54
L. Classico	Sample (4)	76 sd=15.22	78.25 sd=7.98	72 sd=3.32	87.5 sd=9.39	+2 sd=14.09	-6.25 sd=6.26	+15.75 sd=7.53	+11.25 sd=12.87
	Control (3)	73.67 sd=6.8 p=0.86	79.33 sd=6.94 p=0.86	79.33 sd=6.13 p=0.12	86.33 sd=5.44 p=0.86	+5.67 sd=8.65 p=0.59	0 sd=12.57 p=0.59	+7.33 sd=10.96 p=0.27	+12.67 sd=6.94 p=0.59

Table 9   Test scores in formal exercises in experiment 2 for low proficiency students

		Test				Improvement			
		1	2	3	4	Test 1-2	Test 2-3	Test 3-4	Test 1-4
L. Linguistico	Sample (5)	53.2 sd=21.08	69 sd=10.14	69.4 sd=24.85	60 sd=17.71	+16 sd=17.15	+0.6 sd=17.28	-9.4 sd=18.08	+7.2 sd=11.63
	Control (5)	72.67 sd=10.93 p=0.08	63.83 sd=14.52 p=0.65	70.6 sd=4.92 p=0.52	81 sd=11.87 p=0.07	-8.67 sd=17.43 p=0.04	+2.8 sd=10.61 p=0.84	+10.8 sd=9.6 p=0.07	+10.6 sd=11.63 p=0.75
L. Scienze Sociali	Sample (3)	65 sd=8.49	70.33 sd=14.52	76 sd= 0	88 sd=4.9	+5.67 sd=6.6	+6 sd=14.35	+12 sd=4.9	+23.67 sd=9.39
	Control (5)	62.4 sd=7.79 p=0.76	58.8 sd=13.38 p=0.45	55.2 sd=12.2 p=0.05	57.25 sd=21 p=0.11	-3.4 sd=6.65 p=0.12	-3.4 sd=18.45 p=0.65	-2.75 sd=18.78 p=0.19	-6 sd=18.49 p=0.11
L. Classico	Sample (3)	50 sd=9	66.5 sd=5.5	76 sd= 0	85 sd=3	+16.5 sd=14.5	+9.5 sd=5.5	9 sd=3	+20.5 sd=8.5
	Control (4)	29.5 sd=19.91 p=0.24	52.75 sd=23.73 p=0.65	58.75 sd=20.05 p=0.35	83.75 sd=11.1 p=0.62	+23.25 sd=11.26 p=0.65	+6 sd=5.43 p=0.48	25.25 sd=20.54 p=0.34	+54.25 sd=19.64 p=0.07

3.3.2 Texts

In all the tests, students had to write a text, in which the present tense was needed, and this type of exercise aimed at establishing if students were able to use spontaneously the structures under consideration in a correct way and whether there was any difference between sample and control groups: The occurrences of simple present and progressive verbs were counted in each student's text, then the number of the correct ones was divided by the total number of occurrences. The other grammar components of the texts were not considered because the

correction lessons focused only on the revision of the present tense and no other structure.

The data in the following Tables 10 and 11 show that the percentage of correct occurrences are very similar in all the classes in both experiments: Only in two cases sample classes had better results than their respective control classes four weeks after the correction and grammar revision lesson. In the second experiment, the sample class in the Liceo delle Scienze Sociali performed significantly better than the control class in the second test, but this advantage is likely to be due to the better scores of the sample class during the first test. In all the other cases, no difference can be found between classes. Therefore, the CL activities which sample students experienced seem to have had few positive effects on the accuracy of present simple and progressive forms in texts, as only in two cases better results for sample classes were registered.

Table 10   Percentages of correct occurrences of simple present verbs in texts in experiment 1

		Test				Improvement			
		1	2	3	4	Test 1-2	Test 2-3	Test 3-4	Test 1-4
L. Linguistico	Sample (23)	82.79 sd=17.25	93.63 sd=10.56	84.16 sd=24.7	92.32 sd=12.4	+10.89 sd=13.13	-9.37 sd=19.98	+8.11 sd=14.7	+9.58 sd=11.22
	Control (22)	80.65 sd=18.25 p=0.72	92.45 sd=11.5 p=0.75	89.65 sd=14.46 p=0.41	96.95 sd=7.43 p=0.17	+11.95 sd=20.33 p=0.85	-2.8 sd=9.99 p=0.21	+7.35 sd=14 p=0.87	+16.4 sd=19.8 p=0.21
L. Scienze Sociali	Sample (23)	74.3 sd=24.79	83.78 sd=15.25	89.26 sd=10.84	91.43 sd= 9.76	+9.48 sd=12.15	+5.48 sd=9.58	+2.17 sd=8.85	+17.13 sd=20.02
	Control (23)	70.77 sd=22.16 p=0.63	81.18 sd=13.85 p=0.56	82 sd=12.76 p=0.05	89.23 sd=13.13 p=0.53	+10.41 sd=12.49 p=0.81	+0.82 sd=13.79 p=0.2	+7.23 sd=13.14 p=0.14	+18.45 sd= 24.81 p=0.85
L. Classico	Sample (17)	92.4 sd=6.46	93.93 sd=10.07	89.8 sd=15.44	94.67 sd=8.48	+1.6 sd=10.89	-4.2 sd=9.45	+4.87 sd=17.87	+2.4 sd=10.48
	Control (20)	92 sd=8.49 p=0.88	96.4 sd=5.36 p=0.37	95.6 sd=5.86 p=0.14	97 sd=6.47 p=0.38	+4.35 sd=7.53 p=0.4	-0.85 sd=6.02 p=0.22	+1.45 sd=8.91 p=0.48	+5.05 sd=10.95 p=0.49

Table 11   Percentages of correct occurrences of present simple and progressive verbs in texts in experiment 2

		Test				Improvement			
		1	2	3	4	Test 1-2	Test 2-3	Test 3-4	Test 1-4
L. Linguistico	Sample (22)	80.57 sd=23.67	92.43 sd=12.09	92 sd=8.04	94.15 sd=7.04	+11.83 sd=21.32	-1.45 sd=13.31	+2 sd=9.38	+12.8 sd=23.64
	Control (21)	79.8 sd=22.28 p=0.92	83.85 sd=22.5 p=0.13	83.79 sd=12.76 p=0.02	93.05 sd=8.36 p=0.67	+4.1 sd=29.2 p=0.34	-0.95 sd=25.58 p=0.94	+9.21 sd=12.68 p=0.06	+13.32 sd=22.27 p=0.95
L. Scienze Sociali	Sample (22)	83.29 sd=16.49	86.62 sd=14.97	84.58 sd=8.51	90.56 sd=9.9	+3.33 sd=22.04	-0.58 sd=14.87	+5.39 sd=12.24	+6.78 sd=17.04
	Control (25)	62.52 sd=20.9 p=0	71.4 sd=23,91 p=0.02	81.68 sd=13.77 p=0.43	83.86 sd=12.31 p=0.08	+8.76 sd=18.56 p=0.38	+10.2 sd=22.07 p=0.08	+1 sd=16.82 p=0.37	+17.63 sd=18.1 p=0.06
L. Classico	Sample (17)	92.1 sd=13.31	93.9 sd=12.01	88.05 sd=11.39	96.7 sd=6.36	+1.76 sd=18.13	-5.7 sd=10.87	+8.65 sd=10.82	+1.85 sd=7.72
	Control (20)	87.82 sd=18.29 p=0.4	90.45 sd=17.34 p=0.47	89.48 sd=9.38 p=0.67	94.76 sd=9.69 p=0.47	+2.73 sd=22.51 p=0.88	-1.81 sd=15.75 p=0.38	+5.29 sd=13.02 p=0.39	+4.38 sd=17.22 p=0.56

The scores of the low proficiency students were compared also in texts and as shown in Tables 12 and 13, no remarkable difference was found, neither in the long nor in the short term, neither in the first nor in the second experiment. The CL activities therefore, had no positive effects on low proficiency students' accuracy in texts.

Table 12   Percentages of correct occurrences of simple present verbs in texts in experiment 1 for low proficiency students

		Test				Improvement			
		1	2	3	4	Test 1-2	Test 2-3	Test 3-4	Test 1-4
L. Linguistico	Sample (6)	79.25 sd=9.36	90.25 sd=9.91	70.75 sd=19.02	90.75 sd=6.46	+11 sd=7.65	-19.25 sd=17.8	+19.5 sd=18.61	+11.25 sd=8.17
	Control (5)	65.5 sd=21.85 *p*=0.57	79.75 sd=13.05 *p*=0.24	65 sd=13.84 *p*=0.66	90 sd=13.58 *p*=0.55	+14.5 sd=33.8 *p*=1	-14.75 sd=4.09 *p*=0.78	+25 sd=21.81 *p*=0.66	+24.75 sd=30.49 *p*=0.57
L. Scienze Sociali	Sample (4)	46.4 sd=26.44	66.4 sd=15	81 sd=12.88	87.6 sd=11.46	+20 sd=15.66	+14.6 sd=13.14	+6.6 sd=11.43	+41.2 sd=20.43
	Control (5)	56.5 sd=19.35 *p*=0.62	75.25 sd=5.31 *p*=0.14	78 sd=14.65 *p*=0.81	90 sd=8.34 *p*=0.81	+18.75 sd=15.22 *p*=1	+2.75 sd=18.98 *p*=0.62	+12 sd=8.86 *p*=0.81	+33.5 sd=27.13 *p*=0.81
L. Classico	Sample (4)	85.5 sd=12.5	76 sd=12	59 sd=17	91.5 sd=8.5	-9.5 sd=13.5	-3 sd=6	+32.5 sd=25.5	+6.5 sd=6.5
	Control (3)	82.5 sd=9.5 *p*=1	91 sd=9 *p*=0.44	88 sd=3 *p*=0.12	86.5 sd=13.5 *p*=0.68	+8.5 sd=0.5 *p*=0.12	-17 sd=6 *p*=0.12	-1.5 sd=16.5 *p*=0.44	+4.5 sd=22.5 *p*=0.94

Table 13   Percentages of correct occurrences of simple present and present progressive verbs in texts in experiment 2 for low proficiency students

		Test				Improvement			
		1	2	3	4	Test 1-2	Test 2-3	Test 3-4	Test 1-4
L. Linguistico	Sample (5)	66.2 sd=14.99	89.4 sd=13.4	93.5 sd=7.09	94.5 sd=5.89	+23.2 sd=12.53	+5.75 sd=13.94	+1 sd=9.41	+34 sd=14.58
	Control (5)	74.6 sd=24.65 *p*=0.75	74 sd=27.18 *p*=0.35	92.2 sd=10.17 *p*=1	97.6 sd=4.8 *p*=0.38	-0.6 sd=33.92 *p*=0.17	+18.2 sd=27.35 *p*=0.46	+5.4 sd=6.62 *p*=0.52	+22.8 sd=27.69 *p*=0.81
L. Scienze Sociali	Sample	54.5 sd=12.5	81.5 sd=10.5	75 sd=5	82.5 sd=7.5	+27 sd=23	-6.5 sd=15.5	+7.5 sd=2.5	+28 sd=5
	Control (25)	54.4 sd=21.13 *p*=1	59.6 sd=23.34 *p*=0.44	72.6 sd=14.58 *p*=0.84	78.25 sd=2.49 *p*=0.81	+5.2 sd=13.64 *p*=0.44	+13 sd=19.64 *p*=0.33	0 sd=10.42 *p*=0.35	+18.5 sd=22.33 *p*=1
L. Classico	Sample (3)	73.33 sd=22.48	96 sd=5.66	84 sd=7.79	100 sd=0	+22.33 sd=17.25	-8.67 sd=6.02	+16 sd=7.79	+12 sd=9.42
	Control (4)	56.75 sd=19.41 *p*=0.37	82.75 sd=25.47 *p*=0.7	93 sd=4.06 *p*=0.28	95 sd=8.66 *p*=0.39	+25.75 sd=28.57 *p*=0.72	+5.5 sd=15.11 *p*=0.48	+2 sd=8.46 *p*=0.16	+27.75 sd=13.42 *p*=0.11

3.4 Questionnaires

Anonymous questionnaires were given to students who experienced the CL activities in order to collect their opinions. All the students liked the activities, most students (88%) found them useful for their learning and wrote positive comments, appreciating different aspects, in particular the grammar revision within groups, the discussion and comparison of different people's opinions, and the awareness of a higher self-correcting ability after the CL activities. Some students (12%) however did not find the activities very useful for their learning, because they wrote that the sentences they had to examine were too easy for them.

4. Discussion

The data analyzed above show that the CL activities on correction and grammar revision had some positive effects on some of the aspects taken into consideration in this study.

First of all, the students who worked within CL groups corrected successfully many more mistakes than

individual students, and this could be due to the composition of the CL groups: Mixed ability students had more chances to correct mistakes properly than students who worked on their own. The analysis of the tape scripts also show that students discussed about grammar rules in the greatest majority of the sentences, motivated and compared the different corrections, and in some cases explained each other some grammar rules, and this means that the atmosphere within groups was truly cooperative.

Secondly, the comparison of the self-correction rates between sample and control classes shows better results for the students who worked within CL groups, being able to correct successfully more mistakes than control students. Every sample class in fact had higher self-correction rates than its respective control class and the difference was statistically relevant ($p<0.05$) in four cases out of twelve, a result shared also by low proficiency students. This advantage could be the result either of a higher level of attention during the CL activities or during plenary, or of a higher motivation in performing the self-correction task.

In test scores, however, the difference between sample and control classes does not seem to be so clearly defined: In formal exercises better results were scored by sample students in both experiments, in some cases in tests 2 and 3, as well as by the low proficiency ones. In texts the difference between groups is fuzzier: only in few cases sample students outperformed control students and no difference can be found in low proficiency students' scores.

Therefore, it can be hypothesized that the CL activities performed might have had quite a positive influence on students' accuracy in formal exercises, in which the students' attention is focused on form, in some cases in the short term (1 week), in others in the medium (4 weeks) term, for both the sample classes and the low proficiency students in them. In texts, instead, in which students have to convey meaning and probably pay less attention to form than in formal exercises, this type of CL activity does not seem to have a particularly positive effect on sample students, neither for the sample classes nor for the low proficiency learners in them.

This study adds further data to the study by Servetti (2009), in which four parallel classes (83 students) from the first year of the Italian secondary school were involved in the same project using the same methodology, although other English structures (Saxon genitive, possessives, personal pronouns) were under examination.

Some similar results can be highlighted, in particular for the self-correction rates: also in Servetti (2009), sample classes self-corrected more than control classes and the advantage was statistically relevant in half of the cases. However, although in the study by Servetti (2009), all the sample classes performed significantly better than control students during test 3 (4 weeks after the CL activity) in formal exercises, no such a sharp difference in results can be found in this study, because some advantages are shown by some sample students in formal exercises, either in test 2 or 3, but not by all. Moreover, in the study by Servetti (2009), most sample students produced more accurate texts than control students (and the difference was statistically significant) in text 2 (1 week after the CL activity), but in this study no such difference was found between groups.

It can be however hypothesized that CL activities on correction and grammar revision may influence students' accuracy in a positive way, with an impact which is deeper for some linguistic structures (Saxon genitive, possessives, personal pronouns) than for others (present tense).

5. Conclusion

The data reported in this study show some better results for the students who experienced the CL activities and, although in many cases sample and control groups had similar results, no cases were found in which the

control classes outperformed the sample classes. Even though it is not sure that the results in favour of sample students are the direct consequence of the correction and grammar revision activities through CL, which were appreciated by the greatest majority of students, it can however be assumed that it helped students, allowing them to talk about and revise grammar rules in an active way, increasing their level of attention and probably reinforcing their knowledge of some structures.

The students' involvement in the CL activities could justify the higher self-correction rates and some higher levels of accuracy in formal exercises, which have been found also for the low proficiency students in sample classes. Therefore, CL as an error correction and grammar revision technique could be used as an alternative to traditional correction. Further research on the matter should be however conducted, in order to add further data to this study.

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