A Study of the Effectiveness of Peer Collaboration in Improving College Students' English Writing Ability

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Abstract. Previous research shows that peer collaboration in English writing pedagogical practice not only helps learners to sharpen their writing skills but also provides teachers with an effective teaching method. To further investigate the impact of the peer collaboration process has on students, this study combined quantitative and qualitative methods to examine the collaborative essay-writing process of 89 non-English major sophomore students who took the same course. Meanwhile, it collected and analyzed students' personal reflections on the process of collaborative writing. The results reveal that properly supervised collaborative writing helps improve the quality of writing significantly, raise students' confidence in writing, and create an inductive environment for second language learning.

Keywords: peer collaboration · second language acquisition · English writing

1 Introduction

Peer collaboration, which emerged in the United States in the 1970s, specifically refers to the collaboration among peers or group members, who are expected to collaborate with each other to facilitate the optimal achievement of common goals while enabling the construction of individual knowledge in the process of collaboration (Slavin, 1991) [1]. Assinder [2] held the view that collaborative learning not only helps to improve the efficiency of fulfilling a learning task and the accuracy of language, but also improves learners' participation, self-confidence and learning motivation through free talk and communication; moreover, it enhances students' consciousness of responsibility for learning tasks. Vygotsky [3] also pointed out that collaborative learning can often achieve better results than individual learning when learners complete a specific learning task through collaboration. Furthermore, Swain (2000) [4] considered that collaborative learning is helpful for second language acquisition through the study of reflection and construction of learners under the collaborative program. At the same time, Cui [5] mentioned that in the process of collaborative learning, real and harmonious communication and interaction between peers have created contexts for the improvement of learners' comprehensive ability.

Writing is one of the most important parts of learning English. As the process of globalization continues to accelerate, cross-cultural communication becomes more and more important. English writing, a vital means of such communication, is increasingly valued by learners at home and abroad. In recent years, many studies on English writing teaching have been conducted and can be divided into two categories: one is quantitative research on the impact of collaborative writing on language quality, and the other is qualitative research on learners' emotional experiences and emotional gains, such as learners' sense of belonging and self-efficacy. At present, it is found that research on collaborative writing at home and abroad mostly falls into the former category, and only a handful into the latter one (Chen & Zhang, 2020) [6].

Chen [7] used a quantitative research method to explore the relationship between collaborative writing and language quality. He found that the learners who carried out communication and collaboration in the whole learning process have made progress in improving language quality. For students with a lower grade, their knowledge has been reconstructed in the process of achieving group's common goals. Therefore, no matter with lower or higher grades, students in the experimental group using the collaborative writing method performed significantly better than the control group using a traditional method.

Storch [8], Shehadeh [9], Dobao & Blum [10] adopted a qualitative research method and focused on learners' collaborative writing experience and emotional gains through interviews and questionnaires before and after learning. These studies show that most students have a positive experience with collaborative writing. They believe that collaborative writing has brought not only the improvement of language quality but also the richness of writing content. At the same time, after comparing the content of independent writing and collaborative writing, Storch [8] also found that collaborative writing had a better performance than independent writing in terms of grammatical accuracy and complexity.

The present study combines both quantitative and qualitative methods to examine the effect of collaborative writing on language quality and to explore the impact of the emotional experiences of collaborative writing on participants, so as to provide support for the extensive application of collaborative writing in college English classrooms.

2   The Theoretical Basis of Collaborative Writing

The present study is based on the Constructive Learning Theory, and it uses the Process-focused Approach to guide the teaching. The former theory mainly provides theoretical support for the process of collaborative learning, while the latter approach provides a teaching direction for teachers and a writing strategy for learners.

2.1   The Constructive Learning Theory

In the 1960s, the famous Swiss psychologist Piaget [11] took the lead in putting forward the Constructive Learning Theory, which holds that the process of knowledge acquisition does not depend on the teaching of teachers but under a certain social and cultural background, with the help of others (including teachers and peers). Learners

are expected to use learning materials to acquire knowledge and construct on their own, master problem-solving procedures and methods, optimize and improve cognitive structure. This kind of learning method promotes students to be more active in improving their personal English writing ability and hence they can access various English writing knowledge and resources more effectively. In the learning process, feedback plays a significant role and enables students to continue thinking and revision of the writing topic, so an in-depth reflection could be made.

2.2 The Process-Focused Approach

In the early 1970s, the Process-focused Approach proposed by Paltridge [12] attracted the attention of the foreign language writing teaching community for its proven practicability and efficiency. This approach is based on the Interactive Theory (Krashen, 1981) [13], and it emphasizes that writing is not an isolated behavior but a process of interaction between pairs, and such information exchange and interaction should run through the entire writing process. This approach attaches great importance to the authenticity of writing content and the accuracy of ideological expression. Since Chinese students like to use slogans rather than accurate ideological expressions in their English writing, this approach is of great importance to their English writing teaching.

Based on the above two studies, the present study is designed to investigate the effectiveness of peer collaboration in improving college students' English writing ability.

3 Research Design

3.1 Participants

The participants of the present study include a total of 89s year non-English majors in two classes at Zhejiang Ocean University, aged between 19 and 21 years old, with about 7 years of continuous English learning experience. They all passed the CET-4 exam, and were taking the same course "A Survey of English-Speaking Countries" taught by the same teacher (the second author). They voluntarily signed up for this study. One class with a total of 45 participants formed the control group, in which a traditional classroom teaching method was adopted. The other class with a total of 44 participants formed the experimental group, in which the peer collaboration method was adopted.

3.2 Writing Tests and Surveys

Two writing tests were administered to assess participants' performance. Participants were first pre-tested with the essay topic "The importance of knowing English culture" at the beginning of the course (the 1st week of the class) and then post-tested with the essay topic "Write about a public figure in English-speaking countries" at the end of this course (the 16th week of the class). The essays were graded by the iWrite English Writing Evaluation System developed by the Foreign Language Teaching and Research Press. Since the system cannot judge whether an essay is off the topic or not, the teacher reviewed the essays and adjusted the scores of the off-the-topic essays. The full score is
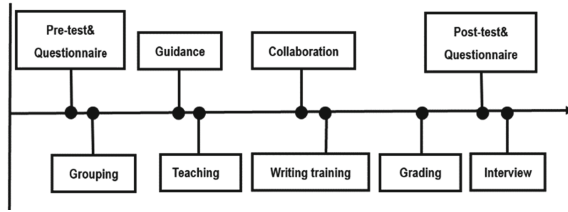
Fig. 1. Process of collaborative writing

worth 10 points. As the class proceeded, 3 essay writing tasks were arranged respectively in the 1st, 8th, and 15th week to train the participants and monitor their progress in English writing.

3.3 Methodology

The present study adopts both quantitative and qualitative methods. The teacher facilitated the study by introducing writing methods and strategies, implementing writing tasks, and conducting writing evaluations. At the same time, teaching assistants assisted in supervising each group and conducting questionnaires and interviews. Before the questionnaire survey, it was clearly explained to the participants that their responses had nothing to do with their class performance and ought to reflect their true feelings.

The following figure illustrates the whole process of collaborative writing in the present study.

As shown in Fig. 1, the specific steps of peer collaborative writing are taken as follows: Firstly, the teacher conducted the pre-test and the first questionnaire survey in class. This step aims to collect information such as major, English learning experiences, and students' willingness to learn English writing. Personal willingness combined with the results of the pre-test is the basis for grouping the participants. While carrying out normal teaching tasks, the teacher used the process-focused approach to guide participants writing and divided the writing into three basic steps: previewing, drafting, and revising. Then the participants with similar pre-test scores in the experimental group were paired up to form collaborative writing partners and the division of labor is negotiated themselves.

Next, the pair uploaded the manuscript to the iWrite system to get initial scores and comments. Then the teacher gave final grades and comments according to specific writing requirements and evaluation criteria. Finally, the teacher conducted the post-test and then the teaching assistant conducted the second questionnaire survey and a group interview to collect participants' personal attitudes towards and reflections on collaborative writing.

In the peer collaboration process, the role that each party played is determined by his or her personality, communication skills, writing level and learning ability. Therefore, to ensure that each party can clearly find his or her own role, the present study allowed paired participants to switch roles flexibly so that each party could have different experiences of learning and being learned, leading and being led. In doing so, the peers were able to maintain a high vitality and executive power.

4   Results and Discussion

The present study used both qualitative and quantitative methods to examine the influence of collaborative writing method on improving college students' English writing level from the perspective of learners' personal experiences and learning outcomes.

4.1   Questionnaire and Interview Results

The questionnaire results show that most of the participants (90.5%) hold a positive attitude towards the collaborative writing method. The main reasons they liked it are summarized as follows: (1) the teaching method of collaborative writing is significantly different from the traditional teaching mode. It has changed from relatively independent writing to collaborative writing. The learning experience is in line with their expectation for the university-level of study; (2) multiple perspectives are generated under the collaborative method, which helps provide richer ideas and overcome the shortcomings of independent English writing; (3) collaborative writing creates a safer, more pleasant and relaxed writing environment for learners, making communications between peers more natural and creative, which in turn provides good emotional experience and promotes the active exchange of ideas.

In the interview, participants had quite different opinions regarding the issue of how to pair up for collaborative writing. Fifteen participants mentioned this issue, and nine of them expressed the hope that pairing should be more random, so they can collaborate with peers with very different backgrounds. However, there are also six participants who said that they were not familiar with their collaborators and there was a gap in their writing ability, which led to a lower efficiency in the collaborative writing process. These findings are consistent with Zhang's [14] research on problems in collaborative writing in heterogeneous groups.

When discussing the question of which factors have the greatest impact on collaborative writing learning, 82% participants believed that the attitude of the collaborators towards the collaborative writing method had the greatest impact on the writing outcome. It is found that the participants who felt a sense of or are interested in trying a new learning method and identified strongly with the collaborative writing method would achieve more. In addition, mastering some collaborative learning strategies helps participants identify with the collaborative writing method.

4.2   The Effect of Collaborative Writing on Language Quality

The statistical results of the error rates before and after collaborative writing as reflected in the pre- and post-tests are listed in Fig. 2. They indicate that the error rate for each type of grammatical errors has decreased, which to a certain extent reflects the effect of peer collaboration on improving language quality. Specifically, for simple or easy-to-correct grammatical errors such as confusion in tense (65%), subject-verb (S-V) disagreement (80%), and confusion in words (56%), their error correction rate is higher than that of the more complex grammatical errors such as redundancy and incompletion (57%) and misuse of voice (72%) (Table 1).

Table 1. Comparison of grammatical error rates in the pre- and post-tests
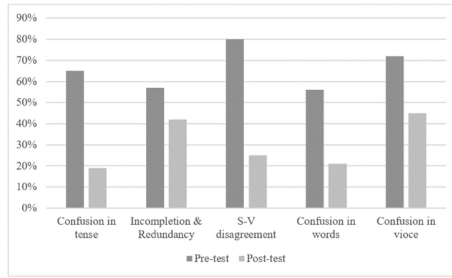
Furthermore, there is a marked difference between different groups in treating the same type of grammatical errors. In the second questionnaire survey after the post-test, most of the participants believed that the partner's attitude and second language level determined how they treat grammatical errors, which is consistent with the findings of Storch et al. [15]. For example, after completing the collaboration, a participant gave a relatively negative feedback on collaborative writing, and the same type of grammatical error remained uncorrected in his post-test writing piece: In the pre-test, this participant wrote such a sentence, "When he grew up, he did *really* fulfill his childhood wish." Here the italicized words show a redundancy error. This type of error was pointed out by his collaborator during the collaborative writing process, but in the post-test, he made this type of error again by writing the sentence, "He was *very* extremely outstanding in this area." We consider that it was this participant's negative feedback on collaborative writing (maybe as a result of an unhappy collaboration experience) that led to his unwillingness to correct the same type of error in his post-test.

4.3   The Influence of Collaborative Writing on Textural Quality

A comparison between the pre- and post-tests shows that collaborative writing helps improve textural quality. Take a participant's pre- and post-test writing pieces (T1 and T2) as an example. First, the structure of T2 is much better than that of T1. Both T1 and T2 have followed the same structure, first introducing a topic, then explaining the topic, and finally commenting on the topic. However, T1 has more words in the introduction part than in the most important middle and final parts, resulting in a head-heavy structure. T2, on the other hand, has a more balanced structure. That is to say, collaborative writing may improve students' sense of structural balance in writing. Furthermore, the logic structure of T2 is clearer than that of T1. Both T1 and T2 have clearly expressed a point of view. However, T1 shows an inappropriate sentence connection in expressions such as "I learned a lot from my own experiments. In the experiment, many instruments are very simple." Here the lexical connector "experiment" is not properly used. T2, on the other hand, has better textual cohesion and coherence. For example, the sentence, "Madame Curie, who is the discoverer of element radium, is one of the most successful women in the world" uses an attributive clause to help make the text more compact. Last, the writing style of T2 is more succinct than T1. T1 has 246 words, but T2 has only 178

Table 2. Descriptive statistics of pre- and post-test scores for the experimental group

	N	Mean	Median	SD	SE
Pre-T	44	6.90	7.04	0.668	0.101
Post-T	44	7.92	8.20	0.888	0.134

Table 3. Descriptive statistics of pre- and post-test scores for the control group

	N	Mean	Median	SD	SE
Pre-T	45	7.10	7.20	0.971	0.145
Post-T	45	7.50	7.50	1.729	0.258

Table 4. The paired sample T test of pre- and post-test scores for the experimental group

			Statistic	Df	P	Mean difference	SE difference
Post-T	Pre-T	Student's T	9.41	43.0	<0.01	1.02	0.109

Table 5. The paired sample T test of pre- and post-test scores for the control group

			Statistic	Df	P	Mean difference	SE difference
Post-T	Pre-T	Student's T	1.58	44.0	0.060	0.398	0.251

words. This is because T2 has avoided wordiness by focusing only on the most important part of the given topic and adopting more compact sentence structures. As a result, T2 is more succinct in wording than T1.

4.4 Comparison and Analysis of the Pre- and Post-test Scores

After collecting the data of pre-test and post-test scores of experimental and control classes, the authors used Jamovi (1.6.23.0 version), a new statistical analysis software, to conduct the paired sample T test for the scores of pre- and post-tests. Tables 2 and 3 below show results from descriptive statistics.

As can be seen from Tables 2 and 3, for the experimental group, the mean post-test score (7.92 points) is 1.02 points higher than the pre-test score (6.90 points). For the control group, the mean post-test score (7.5 points) is 0.4 points higher than the pre-test score (7.10 points). The mean pre-test score of the experimental group is a little lower than that of the control group ($6.90 < 7.10$), but after the experimental group completed a semester of collaborative writing training, the mean score of the experimental group surpasses the control group ($7.92 > 7.50$).

Tables 4 and 5 below show results from the paired sample T test.

Table 4 shows that the mean difference (1.02) between the post- and pre-test scores for the experimental group has reached a significant level ($p < 0.01$; assume $p \leq 0.05$

to be significant). In contrast, Table 5 shows that the mean difference (0.398) between the post- and pre-test scores for the control group has not reached a significant level ($p = 0.060 > 0.05$). Taken together, the T test results suggest that the experimental group has a much greater improvement in writing than the control group.

Last, by combining participants' questionnaire and interview results with their test scores, we find that the personal experience of and attitude towards collaborative writing have a great impact on writing quality. Participants with positive experiences and attitudes can write better and their writing abilities may have a great improvement, whereas participants who have negative experiences and attitudes may resist correction of their writing mistakes and as a result, their writing abilities may have little improvement.

5   Conclusion

By examining students' personal experiences of and attitudes towards collaborative writing and their writing test scores, the present study has provided evidence for the effectiveness of peer collaboration in improving students' English writing ability. The results show that students have improved in both language and texture of writing during the collaborative writing process, which further helps boost their confidence in English writing and create a harmonious English learning environment for them.

The present study has two implications for writing pedagogy: First, the premise of practicing collaborative writing is to help students know how to collaborate. In order to exert the maximum power of peer collaboration, teachers and teaching assistants need to work together to guide students all the way from assigning collaborative tasks to the completion of the tasks. Second, since the negative experience and attitude of collaborators may directly affect the collaborative writing process, teachers or teaching assistants should timely detect issues arising in the collaboration process and help students address them. On the whole, various measures should be taken to promote collaborative writing.

References

1. Slavin, R. S. Synthesis of research on cooperative learning [J]. *Educational Leadership,* 1991, 48 (5): 71-82.
2. Assinder, W. Peer teaching, peer learning: one model [J]. *ELT journal,* 1991, 45 (3): 218-229.
3. Vygotsky, L. S. *Mind in Society: The Development of Higher Psychological Processes* [M]. Cambridge, MA: Harvard University Press, 1978.
4. Swain, M. The output hypothesis and beyond: mediating acquisition through collaborative dialogue [A]. 97-114. In J. P. Lantolf (ed). *Sociocultural Theory and Second Language Learning* [C]. Oxford: Oxford University Press, 2000.
5. Cui, J. The application of cooperative learning in College English teaching [J]. *Overseas English,* 2015, 7: 3-4.

6. Chen Y. Q. & Zhang Q. H. Study on peer cooperation and learning experience in pair writing mode [J]. *Journal of Mudanjiang University,* 2020, 29 (9): 117-120.
7. Chen R. P. The implementation and suggestions of peer cooperation in College English writing teaching — take the College of Arts and Sciences of Yunnan Normal University as an example [J]. *Educational Modernization,* 2019, 6 (66): 208-210.
8. Storch, N. Collaborative writing: product, process, and students' reflections [J]. *Journal of Second Language Writing,* 2005, 14 (3): 153-173.
9. Shehadeh. A. Effects and student perceptions of collaborative writing in L2 [J]. *Journal of Second Language Writing,* 2011, 20 (4): 286-305.
10. Dobao, A. F. & Blum, A. Collaborative writing in pairs and small groups: learners' attitudes and perceptions. *Procedia-Social and Behavioral Sciences,* 2015, 195: 1803-1812.
11. Piaget, J. *The Principles of Genetic Epistemology* [M]. London: Routledge & Kegan Paul Ltd, 2015
12. Paltridge B. Afterword: narrative inquiry and the researching of academic and professional genres [J]. *Linguistic Insights Studies in Language and Communication,* 2001, 172: 497-501.
13. Krashen, S. D. *Writing: Research, Theory and Application* [M]. Oxford and New York: Pergamon, 1984.
14. Zhang L. T. Grouping strategies of collaborative learning group [J]. *Journal of Teaching and Management,* 2018, 4: 23- 25.
15. Storch, N. & Aldosari, A. Pairing learners in pair work activity[J]. *Language Teaching Research,* 2013, 17 (1): 31-4.