On the Effect of Cooperative Writing

On Students’ Writing Ability, WTC, Self-efficacy, and Apprehension

Seyed Ayatollah Razmjoo
Department of Foreign Languages & Linguistics, Shiraz University
Shiraz, 71964-85115, Iran
Tel: 98-711-613-4517 Email: arazmjoo@rose.shirazu.ac.ir

Mohammad Hamed Hoomanfard (Corresponding author)
Department of Foreign Languages & Linguistics, Shiraz University
Shiraz, 71964-85115, Iran
Tel: 98-711-613-4517 Email:hamedhooman@gmail.com

Received: May 25, 2012 Accepted: June 4, 2012 Published: June 15, 2012
doi:10.5430/wjel.v2n2p19 URL: http://dx.doi.org/10.5430/wjel.v2n2p19

Abstract
Co-authoring is a type of cooperative writing which requires students to cooperate in order to write. The present study is carried out to see whether cooperative writing affects students’ levels of writing ability, writing apprehension, writing self-efficacy, and writing WTC. Two intact classes have participated in this study. A conventional group (n= 31), and a cooperative (n= 36) participated in the study. The students in the experimental group were writing essays in groups of four, helping each other during the process of writing; on the other hand, in the control group, the whole procedure was done individually. The analysis of the data revealed that the writing ability of the students in cooperative group improved significantly more than that of the students in the conventional group. The further analysis showed the superiority of cooperative writing classes in the affective domain. The results of the present study shed more light on the efficiency of cooperative writing in terms of both writing ability and affective factors. A set of pedagogical implications are also provided.

Keywords: Second language writing, Cooperative language learning, WTC, Writing apprehension, Writing self-efficacy

1. Introduction

In the third millennium, communication in English is not limited to speaking in the streets of inner circle countries; today, communication is done both written, using Email, websites, and wikis, and orally through video conferencing as well as conventional face to face. Thus in order to communicate in English, language learner should be able to write as well as speak to be able to express his ideas on different occasions. However, writing is the most complex language skill which requires the students to have appropriate cognitive strategies, verbal information, appropriate motivation, knowledge of writing conventions, and knowledge of how to put these into practice (Byrne, 1993; Harmer, 2006; Latif, 2007; MacIntyre, & Gardner, 1989; Richards & Renandya, 2002).

Different pedagogical measures are taken to reduce the cognitive and affective pressures which are imposed upon the second language writers. One of these attempts to facilitate the process of language learning is the utilization of cooperative language learning principles. Cooperative learning has been proven to be better than conventional learning which is individualistic in nature (Gaith, 2001). It is accepted that students working together gain more than those who work individually (Kagan, 1986; Slavin, 1987). Cooperative learning principles have been used in foreign language classes. In cooperative foreign language classes, the amount of interaction and communication in L2 is maximized (Deen, 1991; Doughty & Pica, 1986; Long & Porter, 1985). Kagan (1992) calls this boost in production the “simultaneity principle”. As supported by interaction hypothesis (Hatch, 1978; Long 1981), output hypothesis (Swain, 1985), and ZPD notion of Vygotsky, interaction, which is maximized in cooperative language learning classes can lead to a more efficient foreign language learning. Cooperative learning framework can be applied in foreign language writing classes. In conventional classes the interaction is limited to teacher’s lectures and presentations, and so both
learners-teacher and learner-learner interactions are minimized. Having writing classes with cooperative learning framework, students will be given the chance, and somehow forced, to communicate with their teammates for giving and getting knowledge, feedback or even motivation.

Cooperative language learning, which has manifested itself in language writing classes with different guises such as co-authoring, peer feedback, peer assessment, and etc., are used in a number of second language writing cases in order to cut down the cognitive and affective pressures. Some studies have proved the superiority of cooperative writing over conventional individualistic (e.g., Adeyemi, 2008; Almugren, 2009; Kurt & Atay, 2007; Mariam & Napisah, 2005). Cooperative procedures are intertwined with the process approach to writing. In different stages of process writing, students are provided with opportunities to help each other construct a piece of writing cooperatively. This cooperation leads to a better affective condition for language learners. As Gaith (2002) states, communication in these classes happen in a non-threatening and supportive atmosphere where the affective filter is reduced to a minimum level.

The complexity of second language writing which is discussed above has led to some affective consequences which are usually detrimental. One of these factors is anxiety which usually makes students demotivated (Erkan & Saban, 2011). Abu Shawish and Abdelraheem (2010) state that this anxiety which is aroused due to the difficulty of writing may lead to “difficulties in producing effective and coherent written pieces”. Writing apprehension is defined as “a general avoidance of writing and of situations perceived by the individuals to potentially require some amount of writing accompanied by the potential for the evaluation of that writing” (Daly & Miller, 1975). Writing anxiety is also defined by Thompson (1980, p. 121) as “fear of the writing process that outweighs the projected gain from the ability to write”. Holladay (1981) enumerates some variables which cause writing apprehension; these variables are poor skill development, difficulty in understanding of the composing process, and authoritative, teacher-fronted teaching, and product-based mode of teaching. Those students who are apprehensive usually find writing unrewarding, even punishing, thus they avoid situations where writing is required (Daly & Wilson, 1983). Several studies have investigated the way students’ writing apprehension have affected their writing ability, most of these studies are conducted in classes with conventional, individualistic writing classes (Boening, Anderson & Miller, 1997; Erkan & Saban, 2011; Masny & Foxall, 1992). Another affective factor which is reported to be related to writing apprehension is writing self-efficacy (Erkan & Saban, 2011; Pajares, 2003).

Self efficacy, which is a cognitive construct (in contrast to the social nature of self-confidence), is defined as “one’s beliefs in one’s capabilities to carry out certain specific tasks” (Dörnyei, 2005, p. 213). Pajares (2003) asserts that the success or failure of a student is highly related to “students’ self beliefs”, which are created, developed, and held by them. Bandura (1986) states that this self-belief is a mediating factor which is affected by prior events and affects the subsequent behavior. Some studies which have investigated the effect of students’ self efficacy on their writing ability show a positive relationship in a way that self efficacy plays a meditational role which affects students’ writing performance (Pajares et al., 1999; Pajares & Johnson, 1996; Pajares & Valiante, 1999; Wachholz & Etheridge, 1996; Zimmerman & Bandura, 1994). Another affective factor which is of a mediational type is “willingness to communicate”.

Willingness to communicate (WTC) as a state ability is conceptualized by MacIntyre, Clement, Dörnyei and Noels (1998). They define WTC as “a readiness to enter into discourse at a particular time with a specific person or persons, using a second language”. Based on their model, this readiness changes from context to context due to the psychological, social and linguistic factors. Writing WTC is a subcomponent of this general ability which can be defined as students’ willingness to write in English when they are not forced to. Two major predictive factors of WTC are communication apprehension and self-perceived competence (MacIntyre et al., 1998).

A series of studies are conducted to investigate the role of writing apprehension, writing self-efficacy and WTC in both first language and second language. For example, in Pajares (2003), the mention is made of a wide range of studies on self efficacy and pertaining variables. Some of them studied the relationship between self efficacy and writing ability (e.g., McCarthy et al., 1985; Shell et al., 1989; Wachholz & Etheridge, 1996; Zimmerman & Bandura, 1994); some studied the relationship between self efficacy and other affective variables such as writing apprehension, motivation, etc. (e.g., Pintrich & De Groot, 1990; Zimmerman & Schunk, 1989), and others examined the way gender affects students’ writing self efficacy (e.g., Pajares & Valiante, 2001; Pajares, Miller, & Johnson, 1999). Some other studies have investigated the writing apprehension (e.g., Erkan & Saban, 2011; Lee & Krashen, 1997; Masny & Foxall, 1992). All of these studies have been conducted in classes which did not follow cooperative principles. None of these studies has investigated the effect of cooperative writing on the students’ writing apprehension or writing self-efficacy. This gap in the literature is accompanied by the absence of investigations on students’ writing WTC. Although some studies have been conducted to investigate students’ WTC and its relationship with other variables (Cao & Philip, 2006; Freierrmethand Jarrell, 2006; De Saint Léger & Storch, 2009; Peng, 2007), the way writing WTC is affected by cooperative writing courses is untouched.
1.1. Objectives and Research Questions of the Study

The present study tries to occupy this niche in the literature and study the way cooperative writing affects not only student’ writing ability but also their affective mechanisms. The effect of cooperative writing on students’ writing apprehension, writing self efficacy and writing WTC is going to be studied. The present study tries to answer the following research questions:

1. Do students studied in a cooperative writing class outperform those who studied in a conventional writing class in terms of their writing ability?
2. Does cooperative writing affect students' level of writing WTC, writing efficacy and writing apprehension?
3. Is there any difference between male and female students in terms of their level of writing WTC and writing apprehension?
4. Are students of high and low levels of writing ability affected in the same manner?

1.2. Significance of the study

This study holds significance in that no study has investigated these affective variables at the same time in a cooperative writing course. Furthermore, writing is one of four basic language skills which the students have reported to be so challenging, thus more research is needed to find ways to make this skill easier for language learners. As the literature review suggests, a few studies on WTC (and its subcomponents such as writing) are conducted in Iran, and a large number of issues related to this variable has remained uninvestigated. The present study tries to fill this gap in the literature.

2. Methods

2.1. Participants

Participants of this study were 67 junior students studying TEFL and Translation at Azad University of Marvdasht, Iran. Two intact classes had accommodated the participants of the present study. These classes were held once a week. One of these classes was held in conventional form with 31 students and the other with a cooperative language learning framework with 36 students.

All the students were native speakers of Persian who had studied English for 7 years in junior and senior high school and three years in the university. In total, 24 male and 43 female students participated in this study. These students’ age average was 23.59 years old. These two classes were selected based on a nonrandom, availability procedure. In order to compensate for this nonrandom procedure, random assignment was used to decide which class should be taught in conventional form, and which class in the cooperative one.

2.2. Instruments

2.2.1. Questionnaires:

Three questionnaires were used in this study to collect needed data quantitatively:

1. The questionnaire developed by MacIntyre et al. (2001) was used to find out how willing the students were in foreign language classrooms. This questionnaire was used because it was the best questionnaire for EFL settings where outside-class interaction is either too limited or nonexistent at all. This questionnaire had four subparts which are speaking, comprehension, reading, and writing with the reported reliability of .81, .83, .83, and .88. Just the writing section of this questionnaire (8 items) was used in the present study in order to find out the students’ level of writing WTC in English.
2. For assessing writing apprehension a questionnaire developed by Cornwell and Mckay (1999) which was a modified version of Daly and Miller’s (1975) writing apprehension was used. This questionnaire which had 26 items was reported to have a reliability index of .88. Four subcomponents of this questionnaire were negative perceptions about writing ability, enjoyment of writing, fear of evaluation and showing one’s writing to others.
3. The third questionnaire was the writing self efficacy scale developed by Erkan and Saban (2011). They reported the reliability of different subsections (.92 for Content, .94 for Design-Unity, .74 for Accuracy and .72 for Punctuation). This questionnaire had 28 questions.
2.2. Interview:
A set of semi-structured interviews were conducted to collect more in-depth data. Among participants of the study, 14 students were selected randomly and interviewed. Interviews were conducted in students’ mother tongue, Persian, so that they could express themselves easily. Interviews lasted from 10 to 15 minutes and the interviewees talked about their experiences during the semester.

2.3. Rating scale:
In order to rate the students’ papers and quantify their performance a rating scale provided by Jacobs, Zinkgraf, Wormuth, Hartfiel, and Hughey(1981) was used. This scale assessed writing ability on 5 dimensions or traits: content, organization, vocabulary, language use and mechanics. Weighting or scores for the traits were Content = 4 (max.), Organization = 4 (max.), Vocabulary = 6 (max.), language use = 8 (max.) and Mechanics = 3 (max.). The total marks were 25 points.

2.4. Procedure:
In the second session of the course, a pre-test was taken by both control and experimental groups. They also answered the questions of two questionnaires. In the third session, the students of experimental groups were given a handout which introduced some basic cooperative skills such as tolerating others’ objections, how to provide constructive suggestions, etc.

Based on the pre-test, the students were grouped in 10 groups of 4. The students were categorized in 2 levels, and from each level two persons were selected randomly for each group. Thus in each group there were two high and two low students which are grouped randomly.

In cooperative group, the students were sitting near each other. Each pair wrote an essay at the end of the session. The students gave each other feedback before starting to write, and while writing. They also revised each others’ paper and submitted two papers. The class time was divided into 4 sections, which were teaching some points on writing, brainstorming, writing, and giving final feedback. The textbook used in both classes was “Refining composition skills: rhetoric and grammar” written by Smalley, Ruetten, and Kozyrev (2001). The treatment lasted for 8 weeks, excluding the pre, post-test and grouping sessions.

For data analysis of the present study descriptive statistics and inferential procedures such as paired sample and independent T-test and Pearson correlation were used.

3. Results and Discussion

In order to examine the effect of cooperative writing on the students’ linguistic and affective factors, two groups were selected. They took three questionnaires and a pre test writing exam in order to see whether they were homogenous or not. The results indicated that both groups were similar in all aspects and none of the comparisons were statistically significant. On the basis of this homogeneity, changes in their performance and affective factors can be attributed to the treatment they receive. Here research questions are going to be answered based on the data collected through questionnaires and interviews:

**Research question 1:** Do students studied in a cooperative writing class outperform those who studied in a conventional writing class in terms of their writing ability?

In order to compare the performance of the students before and after the treatment, the students of both groups took a pretest and a posttest writing exam. The results of paired sample t-tests show that both groups have improved in terms of their writing ability and there is a significance difference between the mean score of their pre-test and post-test ( t_{control} = 11.485, t_{experimental} = 19.412, p<.05). In order to examine which group has improved more, an independent sample t-test is run and its result is shown in the table 1.

| Table 1 about here |

As table 1 indicates, the mean score of the students’ writing improvement in conventional group is 2.354 and the mean score of improvement in cooperative group is 3.694. It also shows that the difference between these two mean scores is statistically significant (t=4.788, p<.001). This result is in line with previous studies (Adeyemi, 2008; Almugren, 2009; Elola & Eskoz, 2010; Legenhausen& Wolff, 1990; Mariam & Napisah, 2005).

The students of both classes were asked, in the interviews, to talk about the most difficult part of writing. The students of both groups argued that the content and the way to start writing is the most challenging part. One of the students in control group stated “sometimes I think for minutes, but I cannot make up my mind. I’m not sure what to write and what not to write”. Another student talked about her doubts when writing, she said “when I’m writing I’m not sure whether I’m writing a good piece or not”. On the other hand, the students in cooperative group explained how cooperative procedure helped them overcome the difficulties in writing. One of the boys stated “writing outline was the most difficult part of writing, but we helped each other with giving ideas”. Another student stated “I’m not good at grammar,
when I wrote a few sentence, my teammate corrected my mistakes and explained them to me, and I think I have learned them”. A girl talked about reciprocal peer tutoring and said “we taught each other; For example I was good at giving ideas to my friends for starting their essays, and I helped my friends find new ideas, but a boy in our team helped us learn grammar and punctuation”. This shows that cooperative nature of the experimental class helped students learn more, but what are the effects of cooperative writing on affective factors? Are the results of the affective domain are as promising as that of writing ability? The answer of research question 2 can enlighten us.

Research question 2: Does cooperative writing affect students’ level of writing apprehension, writing efficacy and writing WTC?

The students took writing apprehension questionnaire before and after the treatment. As the table 3 indicates, the difference between the mean score of the writing apprehension of the students of two groups was not significant (t = 15.91, p < .05). Paired sample t-test is conducted to see whether the students’ level of writing apprehension is different from their apprehension at the beginning of the course. Both groups showed a decrease in the level of writing apprehension (t_{conventional}= 2.843 and t_{cooperative} = 5.684, p < .05) but, using independent sample t-test, a comparison is made to examine whether the apprehension of the students of both groups has decreased with the same level or not. Table 2 shows the result of this comparison.

As table 2 shows, the mean difference between conventional group and cooperative group is statistically significant (t = 2.342, p < .05). This index shows that the students of cooperative group have experienced less writing apprehension in comparison to their counterparts in the conventional group. Almost all of interviewees mentioned their writing apprehension when they were asked about the most annoying factors about writing in English.

The most recurring factor that student mentioned was the fear of evaluation. One of the interviewees from conventional group said “It scares me when my teacher looks at my paper and says she is so stupid”. Another girl from the same group supported her classmate and said “at the end of the semester, I may have a very bad score which is embarrassing ... I hate writing and I will never be a good writer and we are wasting our time... just imagine what would happen if he read one of my disastrous essays aloud in front of my friends!!!” Similarly, a male participant mentioned his fear when the teacher was reading his paper aloud in class as follows “everyone in class was listening to my essay, it was full of mistakes, I was blushed and I could feel my feet shaking... some students were laughing at me”. However, the attitude of the students in cooperative class was less gloomy. None of them talked about being afraid of showing their paper to others or fear of having their essays read aloud in class. One of the students in cooperative class said “writing in this class was fun, I enjoyed writing, and I think everyone did”. Another student expressed his attitude as follows “when others are reading your essay, you feel they are looking at something that you have created out of nothing and this feeling is awesome!” A female participant talked about how her attitude towards second language writing changed, she stated “at first I hated writing because I thought I had nothing to say, but gradually I learned how to write and I think, now, I don’t hate it anymore, although I don’t love it yet!” An interesting point that two interviewees mentioned is that in the first sessions they didn’t like when their teammates talked about their mistakes. One of them stated “I hated it when one of my teammates was talking about my mistakes in the beginning of the course, and sometimes I was ashamed, but little by little I found that they are helping me, and there are some occasions that I teach them, so now I think this is not a bad idea”. These assertions which support the findings of the questionnaire indicates that the students of the conventional group are more apprehensive than their counterparts in the cooperative class.

Another part of the research question examines the students’ writing self efficacy and the effect of cooperative writing on it. Table 3 indicates that the students’ self efficacy levels of both groups were similar at the beginning of the semester (t_{(65)}= .992, p < .05). In order to check whether the students’ self efficacy has been improved or not paired sample t-test was utilized. Both groups have shown to have improved levels of writing self efficacy (t_{conventional} = 8.835, and t_{cooperative} = 10.571, p < .001). In order to see whether the difference in the increase of self efficacy of both groups is significant or not an independent t-test is run. Table 3 shows the result of this comparison.

As table 3 shows, the amount of self efficacy increase of cooperative group is not significantly higher than that of conventional group (t=1.381, p < .05). In the interviews, the students in the cooperative class talked more about their increase in their writing ability. One of the girls stated “I could not even write a paragraph, but I can now write an essay by myself”. Another interviewee who seemed to be a proficient one also stated an increase in his writing ability, he mentioned “I was good at writing, but I had problems in punctuation and writing systematically and now I think I’m good at them”. The results of the questionnaire showed that the difference is not significance, but the students of
cooperative group expressed their increased ability. This increase can be attributed to the students’ increased self efficacy, which is a mediational factor (Pajares et al., 1999; Pajares & Johnson, 1996), influenced by the decrease in the students’ writing anxiety (Pajares et al., 1999; Pajares & Valiante, 1999; Shell et al., 1989). A negative correlation is also found, in this study, between the students’ writing apprehension and their writing self efficacy at the end of the semester (r= .933, p<.01). This correlation, along with the results of interviews shows the effect of self efficacy on the students’ writing ability.

The last part of this question deals with the students’ writing WTC level and the effect of cooperative learning on it. The result indicates that the students of both classes had the same level of writing WTC (t= .684, p< .05). Paired sample t-test is run to examine whether the students’ levels of WTC has improved or not. The result of this inferential procedure shows that the WTC levels of both groups have improved significantly (t (conventional) = 7.66, and t (cooperative) = 16.80, p< .05). In order to see which group’s willingness to write in English has improved more an independent t-test is run, the result of which is presented in table 4.

As table 4 shows, the students in cooperative group have shown to have significantly higher levels of writing WTC (t= 11.00, p< .001). It is worth-mentioning that two students in cooperative group stated that from the middle of the semester, they have started to send their text messages and emails in English. One of the interviewees said “I used to write my text in Finglish” (Finglish is a type of writing Farsi with the English alphabet) “but these days I send my text messages in English and I think this help me learn more because I have to pay attention to the words and structures”. Another one stated that not only he was not afraid of writing, but also he spends hours and write to pen-palls that he has found in the internet; he stated “It is four weeks that I have started writing letters and messages to my cyber-friends in Canada and Australia. I’m not afraid of writing because I think I can write. The most important thing is that I have learned lots of structures and words from their letters”. This quotation is a portrait of the relationship between writing apprehension, writing self efficacy and writing WTC and the way high self-efficacy results in more willing students to write.

Research question 3: Is there any difference between male and female students of cooperative class in terms of their level of writing WTC and writing apprehension, and writing self efficacy?

The students in cooperative class were studied in terms of their writing improvement and change in writing in WTC, writing apprehension, and writing self efficacy. This question tries to investigate whether gender is an effective variable or not. In order to answer this question, independent sample t-test is run, the results show that there is no difference in the students’levels of writing ability, apprehension, efficacy and WTC in terms of their gender (t= .594, t= 1.583, t= 1.345, t= 1.21, respectively). Next question investigates the effect of cooperative writing on the students of two high and low bands, categorized based on their writing abilities.

Research question 4: Are students in these two classes with high and low levels of writing ability affected in the same manner?

In order to answer this question a series of independent sample t-tests are run. The difference between the mean scores of two lower and upper groups (based on pre-test) are significant in two comparisons, writing and writing self efficacy (t=2.101, and t=2.124, p< .05, respectively). With regard to writing ability, the students of lower band have improved more than their counterparts in the upper band. A few students received very high scores in pretest and their improvements was not that much, because the course didn’t have new things for them to learn. The instructor of the class stated that these students were somehow reluctant to the procedure of the class because they believed that what was taught was not that informative for them, which, in fact, was true. Similarly, the lower band students have shown to have more writing self-efficacy improvement than the students in the upper band group.

The results of the comparisons between higher and lower groups in cooperative class show that the mean scores of lower and higher band students are significantly different in three cases. The first one is the writing; the students of lower band have improved more than their counterparts in the higher band (t= 3.187, p<.01). The increase in the writing ability of these students corresponds with the statements of the students in interviews (provided under question 1). Lower band students, taking advantage of their peers’ tutoring, being in less apprehensive atmosphere, have improved their writing ability. In order to examine whether the mean scores of lower band students in both groups in writing are significantly different or not, an independent sample t-test is utilized. The results show that lower band students in cooperative class have improved more than those in the conventional class and the difference is statistically significant (t= 4.049, p< .001).

Writing apprehension which is one of the most debilitating factors in writing courses have decreased too (Erkan & Saban, 2011; Masny & Foxall, 1992; Boening, Anderson & Miller, 1997). The writing apprehension of the students in
lower band has decreased more. This difference between the mean score of decrease in writing apprehension of two groups is found to be significantly different (t=2.640, \( p < .05 \)). Writing WTC, in a negative correlation with writing apprehension, has increased in both groups. The result shows that the willingness to write of the students in lower band have increased more than that of those students in higher band (t = 3.712, \( p < .01 \)). The only comparison which is not significant is the self efficacy. The self-efficacy of both groups have improved and the difference is not significant (t=.406, \( p < .05 \)). In the next section, a brief conclusion of this study will be provided.

4. Conclusion

The present study aimed at finding the effect of cooperative writing on the students writing ability and some affective factors which are reported to be influential. The results of the study showed that the students in cooperative writing class improved more in terms of their writing ability and writing WTC. It was also found that the students in cooperative classes were more apprehensive after the course. It was also revealed that lower band students gained more in cooperative class.

Product-oriented writing which requires individual work leads to a feeling of helplessness, insecurity, and discouragement (Tsui, 1996; Daly & Wilson, 1983). In cooperative classes these two factors are eliminated and students don’t suffer from a threatening atmosphere; the findings of this study with regard to writing apprehension is in line with Gaith’s (2002) statement which asserts that cooperative classes provide students with a non-threatening environment. This decrease in the students’ levels of writing apprehension encourages them to write more willingly. The result of writing WTC level confirms this claim which is improved more in cooperative writing classes.

Regarding pedagogical implications of the present study, the findings suggest that cooperative writing helps both lower and higher band students. The students with less writing abilities take advantage of peer tutoring provided by more capable students in their groups. Thus in order to help less developed writers, cooperative writing can be utilized to give them opportunity to learn from their peers in a nonthreatening atmosphere. This stress-free situation provided in class let the students communicate more easily; exchange ideas on different aspects of writing ranging from mechanics to grammatical structures and content. Cooperative writing also helped upper band students because most of higher band students worked as tutors and editors which increased their own writing ability. In sum, classes with cooperative framework, although bring some difficulties in the implementation, are beneficial for second language learners.

References


Table 1. Independent t-test of writing improvements of two groups

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>t</th>
<th>Sig.</th>
<th>Mean difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional</td>
<td>2.354</td>
<td>4.788</td>
<td>.000</td>
<td>-1.339</td>
</tr>
<tr>
<td>Cooperative</td>
<td>3.694</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 2. Independent t-test of writing apprehension decrease of two groups

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>t</th>
<th>Sig.</th>
<th>Mean difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional</td>
<td>-1.387</td>
<td>2.342</td>
<td>.022</td>
<td>1.751</td>
</tr>
<tr>
<td>Cooperative</td>
<td>-3.138</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 3. Independent t-test of writing self efficacy increase of two groups

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>t</th>
<th>Sig.</th>
<th>Mean difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional</td>
<td>6.709</td>
<td>1.381</td>
<td>.172</td>
<td>1.512</td>
</tr>
<tr>
<td>Cooperative</td>
<td>8.222</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 4. The result of t-test of writing WTC improvement of two groups

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>t</th>
<th>Sig.</th>
<th>Mean difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional</td>
<td>1.29</td>
<td>11.00</td>
<td>.000</td>
<td>4.32</td>
</tr>
<tr>
<td>Cooperative</td>
<td>5.61</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>