

A Study on the Effects of CLT-Based Instructional Approach on the Writing Performance of English Majors in Vocational Colleges

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Abstract: This empirical study was conducted on 60 English major freshmen in a vocational college, aiming to reveal the relationship between cognitive load and their English writing performance as well as students' attitudes towards CLT-Based writing instruction. The findings include: (1) CLT-based approach is more effective in improving learners' writing performance than the traditional approach; (2) CLT-based approach can greatly enhance learners' confidence and motivation in writing process. This paper may contribute to previous investigations and provide new viewpoints and research perspective in the application of CLT-related research.

Introduction

As one of the four basic skills, writing plays an important and indispensable role of English learning and teaching. However, the writing level of English majors in vocational colleges is far from being satisfactory and writing has been the jumbling block for most of them. During the past two decades, Cognitive Load Theory (CLT) has become an influential theory in the fields of educational psychology and instructional design. With the guidance of CLT on language instruction, this thesis aims to do an empirical study on the effectiveness of the application of CLT into writing instruction for English majors in vocational colleges. Therefore, CLT-based method and traditional method of English writing teaching are compared to see which one is more effective in enhancing students' writing competence.

Literature Review:

Cognitive Load Theory. In the early 1980s, Van and Sweller put forward Cognitive Load Theory (CLT), which proposes that human cognitive architecture includes working memory and long-term memory. Working memory has been defined as "the temporary storage of information that is being processed in any range of cognitive tasks" (Baddeley, 1992:34). Working memory has limited capacity when dealing with information while long-term memory has an unlimited ability to store vast information. However, information must be processed through working memory before being stored in long-term memory.

Cognitive load is widely believed as a multidimensional construct that presents the load imposed on cognitive system of a particular learner when he or she was performing a special task (Pass, 1994:122-133). Learners would be cognitively overloaded when carrying out complex tasks because of the limited working memory, and their learning would be inhibited. Hence, the final objective of learning is to store new information in long-term memory with the form of schemas or to form automation of schemas (Sweller, 1998: 257-285). A schema is a mental representation of a type of object or event that describes only the general characteristics that define the type (Anderson, 1990:54).

The amount of load placed in working memory by an instructional task plays a crucial role in effective learning and affects allocation of resources. According to Sweller (2006), three types of cognitive load are intrinsic, germane and extraneous load respectively. He proposes that the instructional designer can include design elements to lessen extraneous load and free more space in working memory for germane cognitive load (Sweller, 2004). Intrinsic cognitive load is described as the load caused by the internal complexity of the learning materials and the level of learners'

expertise. Extraneous cognitive load is created by inappropriate teaching design, and it can be reduced by instructional designers by modifying instructional procedures and techniques without altering the learning goals (Sweller, 2006:165). Germane cognitive load is closely associated with the cognitive processing which is of great help to schema construction and storage in long-term memory (Sweller, van Merriënboer & Pass, 1998). Therefore, it's both necessary and beneficial for teachers to increase germane cognitive load in the instructional design, thus reduce the whole cognitive load for learners.

With the increasing development of psycholinguistic science, more and more researchers realize that instructional design in the classroom should be in accordance with students' cognitive level. The careful management of cognitive load makes learning more effective. It is essential for teachers to understand three kinds of cognitive load and how they promote or hinder writing for learners. It was not until the year of 2000 that a number of Chinese scholars began to pay attention to CLT and its application to language instruction. In accordance with the effective learning principle, CLT is introduced into instructional design of foreign languages (Liu Liandi, 2006). In addition, a few articles tend to explore task effects on EFL writing by Chinese students from a cognitive load perspective. Cai Yanling (2012) tried to explore the effects of cognitive investment in schema construction on L2 writing performance of English majors in universities and dwell on how task-related variables cause the changes of cognitive load in writing. Yuan Miaoli (2013) and Wangyi (2015) did some research into English writing in senior high schools based on CLT, while Yuan Qiao (2015) and Shu Jinping (2016) studied the effects of CLT-Based Instructional Approach on college non-English majors. This paper will focus on the influence of CLT on English majors in vocational colleges.

Research Design

Research Questions. This research will try to answer the following two questions:

Is CLT-Based instruction more effective than traditional method on writing performance of English majors in vocational colleges?

Does CLT have any demonstrable effects on learners' attitude and motivation in English writing?

In order to answer the two research questions above, an experiment was carried out to explore the effects of two different instructional approaches on students' writing performance.

Data Collection and Analysis. In the present study, the participants are 60 English majors in a private vocational college of Shanghai, China. Their age range is 18-20 years old. To conduct the study, two parallel classes were chosen to be experimental and control groups, with five male students in each class respectively. The education background of these two classes had no obvious differences at school.

Instruments. Instruments used in this study are 1) two writing essays from CET4, which is a standard language proficiency test for college students in China; 2) appropriate pre-post and post-test which were used in this study. The pre-test, aiming to determine whether there were any significant differences between experimental group (EG) and control group (CG), was conducted before the experiment in order to test the validity of the experiment. Then after one semester, a post-test was adopted to test the outcomes of these two groups; 3) an interview which includes 4 open-ended items was carried on to explore participants' attitude and motivation towards CLT-Oriented approach. It seems necessary to mention that the independent variable in this study was CLT-Based instruction and the dependent variable was the learners' English writing achievements.

This experiment starts from Sept. 26, 2016 to Dec. 23, 2016, which lasts for about four months. Both groups were taught by the same teacher with the same teaching materials. The students in EG and CG have the same number of sessions and the same time in each session. The only difference lies in different teaching approaches. For the whole semester, two different instructional approaches were adopted in EG and CG. EG was instructed with the CLT-based instructional approach while CG was taught with the traditional approach.

In the experimental group, three steps are taken to handle learners' cognitive load. The first step is to provide students with some reading samples related with their composition, the aim of which is to increase students' germane cognitive load. The teacher guided students to pay attention to the content and organization of the sample. Reading some authentic materials can provide students with a proper volume of new words and expressions. Through guided reading, students can activate their schemas in long-term memory or construct new schemas. In the next step students are asked to do a writing practice, and they feel free to discuss and draft with their group members. With the help of group discussion, they can learn from their peers instead of fighting alone. At last they are given 30 minutes to complete the composition individually. In the writing process, they are guided to focus on ideas and organization in the first draft, then they will polish their language expression in the second draft. After collecting students' composition, the teacher will select one composition randomly to display it on the overhead projector and demonstrate how to evaluate a composition, preparing for the following peer evaluation. In the third step, students are encouraged to assess their peers' product writing and write down some practical and constructive comments about peers' composition.

While in the control group teacher-centered approach was adopted on the other hand. The usual instruction also follows three steps: teacher's presentation of basic writing knowledge and good writing examples, students' writing practice and teacher's evaluation and feedback.

In the pre-test, all the students were required to finish a composition entitled *How should parents help children to be independent* in 30 minutes, which was chosen from the writing part of CET4 in December 2010. Then their essays were rated by two experienced English teachers according to the specified scoring criteria. Each student's final score was the average scores of the two raters.

In the post-test, both groups were asked to complete another essay entitled *Create a Green Campus*, a CET writing composition in December 2009. For both essays are related to students' daily lives, they wouldn't be lack of ideas to express themselves. The gained scores of pre-test and post-test were analyzed through independent sample T-tests. The pre-test and post-test share the same raters and scoring criteria.

After the post-test, six students are interviewed about their attitude towards the CLT-based instruction. The data are taped and transcribed into the texts for further analysis.

Results and Discussion

Both quantitative research and qualitative research are applied in the current paper. The one-semester experiment shows that CLT-Based approach is very conducive in teaching writing of English majors in vocational colleges.

Improving Students' Writing Performance. To examine if there is a significant difference between both groups' initial writing level assessed in the pre-test stage, an independent sample T-test was employed. As shown in the following table, there is not any significant difference between the groups' pre-test scores, and they are almost in an equal level of English writing before the experiment.

Table 1. Groups' Comparison of Pre-test Scores

Mean		Std. Deviation		t-value	p-value
Control Group	Experimental Group	Control Group	Experimental Group		
13.28	12.56	4.92	4.26	0.28	0.77

After the experiment, a post-test was conducted. As shown in the below table, there is a significant difference between the participants' post-test scores ($P < 0.001$). The results have shown that the experimental group members have on average scored higher than the control group.

Table 2. Groups' Comparison of Post-test Scores

Mean		Std. Deviation		t-value	p-value
Control Group	Experimental Group	Control Group	Experimental Group		
15.36	17.84	4.58	4.13	-2.178	0.037

After a close look at the two tables, we can see both groups made progress in their writing after a semester, while there is a more significant improvement in the experimental group than the control group, and we can safely come to the conclusion that CLT-Based Instruction is more effective than the traditional method.

Firstly, reading samples are really effective in increasing germane cognitive load via constructing appropriate organization schemas for writing later. Moreover, students can share their thoughts and opinions with their peers. In a word, all these classroom activities contribute to the effectiveness of CLT-oriented instructional design.

Interview. After the post-test, the teacher had an interview with six students in the experimental group. The selected six students represent the upper, middle and lower level in their English writing performance so that the research can have a general understanding of all students' attitude towards the CLT-Based instructional approach.

Generally speaking, most students hold that the CLT-Based instructional approach is both helpful and beneficial in their English writing practice, in that it can help them become more relaxed and less anxious. In an interactive and harmonious atmosphere, writing tasks seem no longer as daunting as before for students. Four of them believe that they benefit a lot from peer evaluation, for they are more aware of the errors in their composition. The teacher acts as a facilitator and an organizer in the class, and the students are more willing to be involved in group discussion. Three of them think that they gradually learn how to organize their ideas in a logical way thanks to CLT-Based approach, while two of them has no idea and one of them don't think they have any improvements in their English writing. As to the shortcomings of the approach, two students think that the classroom is sometimes out of order and too noisy. Two of them point out that several group members don't contribute to the group discussion, while the teacher has no strict rules to push them. Moreover, two students hold that some students are just chatting casually not related to the composition when the teacher is not around them. Lack of self-discipline has influenced the implementation of the CLT-oriented approach.

Based on the results of two tests and interview, The CLT-oriented instructional approach has contributed to improving students' writing performance to some extent as it takes full advantage of its instructional adjustments to help reduce students' extraneous load in the writing process and increase germane cognitive load. It also effectively enhances students' confidence and reduces their pressure, and then they are more willing to be engaged in group discussion and peer evaluation. As a result, the relaxed learning atmosphere effectively promotes their English learning and writing performance.

Implications and Conclusion

English writing instruction is a difficult and time-consuming task. Therefore, using an appropriate method for teaching and learning writing is quite essential. Many researchers have been encouraged to investigate the impact of CALL on writing performance of English learners. This research explored the effectiveness of two methods of CLT-based method and traditional method on English writing of English majors. The results demonstrated that learners benefit more from CLT-based method than from the traditional one. Furthermore, Application of CLT made the students interested in using it more in writing practice and they showed positive attitude toward its application for English writing enhancement. The students in the EG gains a greater improvement in writing performance based on the CLT-based instructional approach and most students in this group keep a positive attitude towards the CLT-based instructional approach. In the traditional

writing class, product approach is widely used, which focuses on the students' writing products and emphasizes their language accuracy and quality. This teacher-centered approach neglects students' communication and cooperation.

In conclusion, the CLT-based instructional approach not only improves students' writing performance but also enhances students' confidence and reduces their pressure to some extent. It can help lead to a better understanding of the relationship between cognitive load and English writing and provide some effective teaching methods and instructional design to guide English writing. It is urgent for teachers to redesign and adjust English writing instruction under the guidance of CLT in order to explore practical and effective teaching strategies.

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