

A Study on the Application of Computer Assisted Instruction in Teaching English Writing

SHI-JER LOU

Institute of Technology and Vocational Education
National Pingtung University of Science and Technology
No.1, Shuehfu Rd., Neipu, Pingtung, 91201
TAIWAN

HSAIO-LI WU

Department of Foreign Language Instruction
Wenzao Ursuline College of Languages
900, Min-Tzu 1st Road, Sanming District Kaohsiung, 807
TAIWAN

JUI-JUNG CHEN

Institute of Technology and Vocational Education,
National Pingtung University of Science and Technology
No.1, Shuehfu Rd., Neipu, Pingtung, 91201
TAIWAN

KUO-HUNG TSENG

Department of Business Administration
Meiho Institute of Technology
No.23, Pingguang Rd., Neipu Shiang, Pingtung County 912
TAIWAN

PEI-HUANG LIN

Department Of Management and Information
Technology of Southern Taiwan University Of Technology
No.1,Nantai St,Yung-Kang City,Tainan 710
TAIWAN

Abstract:-The purpose of the study was to explore and investigate the application of Computer Assisted Instruction in teaching English writing. The sample objects were sophomore students from the Department of German. A descriptive statistics, percentage, t-test, and path analysis were used to analyze the collected data and survey questionnaire. Finally, the major research findings were concluded from the study, including (1) there is a positive influence on the effects of students' English writing when applying the Computer Assisted Instruction to English teaching class, (2)there is no significant difference on the learning achievements of different gender students when applying the Computer Assisted Instruction to teach English writing class, (3)there is significant difference on students' learning achievements between using the Computer Assisted Instruction and the traditional teaching method, (4)all students hold a positive view and attitude toward the application of the Computer Assisted Instruction to English writing class, (5)when the software interface design is better, the content of teaching material is more useful, the content of the Computer Assisted Instruction is more attractive, student's attitude toward English writing is better, and students' writing ability is higher, the students' degree of satisfaction is higher.

Key-Words: Computer Assisted Instruction Software, English Writing Teaching, Learning Achievement

1. Introduction

The 21st century is the century of electronic technology. There are more and more computer assisted instruction software used in different level of school. It has also become a necessary method in more and more teachers' teaching. Facing the challenge and impact of electronic information era, teachers are eager to find the most appropriate way and direction in order to make their teaching more effective and intriguing.

On the other hand, the English language has become one of the most important communicational tools around the world. In order to meet the requirements in the future career and be able to fit in any global working environment, a majority of students in Taiwan are very keen on leaning English. Eventually, learning English has become the most popular learning activity spreading out the whole country. The application of computer assisted instruction software (CAIS) in English language teaching is a trend for today's language education. According to the study of application of CAIS in English teaching can arouse learners' interest and inspire their motivation [1] [2] [3].

Usually in English writing classrooms, teachers are inclined to teach writing using only the blackboard and students then practice writing alone without too much interest on their seats. That is, most of the writing activities are almost done in a quiet and traditional way[4]. Up to now, very few researches have been done regarding the application of the CAIS in teaching English writing along with sentence structures and vocabulary, whereas most of the researches concern on-line writing [5]. The purpose of this study is to explore and investigate the application of the CAIS in teaching not only English writing but also sentence structures and vocabulary related to the writing topics.

2. Purpose of Study

The overall purposes of this research are:

- (1). To develop the Software of Computer Assisted Instruction in English Writing.
- (2). To test if students make significant progress after employing the Computer Assisted Instruction Software.
- (3). To find out the relationship between the students' achievement in writing and their satisfaction of writing together with their attitudes towards writing, and their writing abilities.

3. Instructional Software Design

This research contains the development, content, and organization of the CAIS.

3.1 The Development of the Computer Assisted Instruction Software Design

There are five stages in developing the Computer Assisted Instruction Software (See Figure 1)

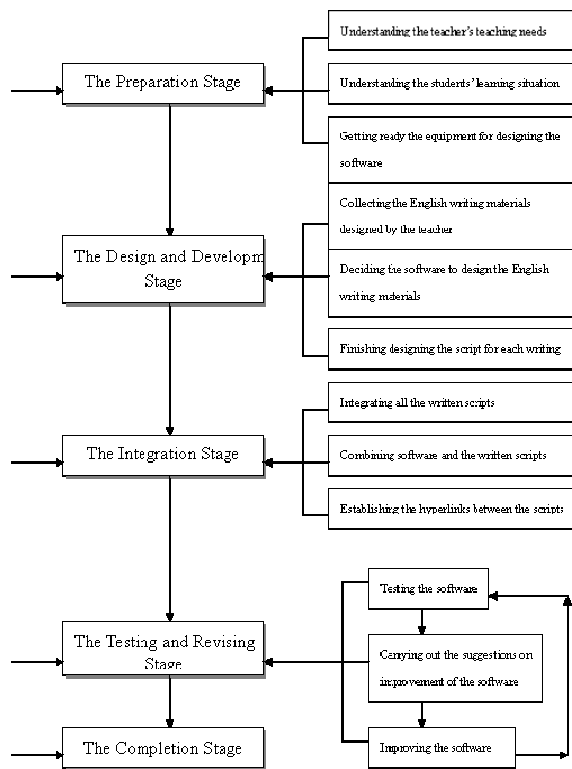


Fig. 1 The Flowchart of the Development of the Computer Assisted Instruction Software

3.2 The Introduction to the Software Content

3.2.1 The framework of five English writing lessons

This "English Writing" teaching software contains five writing lessons (see Figure 2) that were designed for the second-year students of the Five-year Junior College

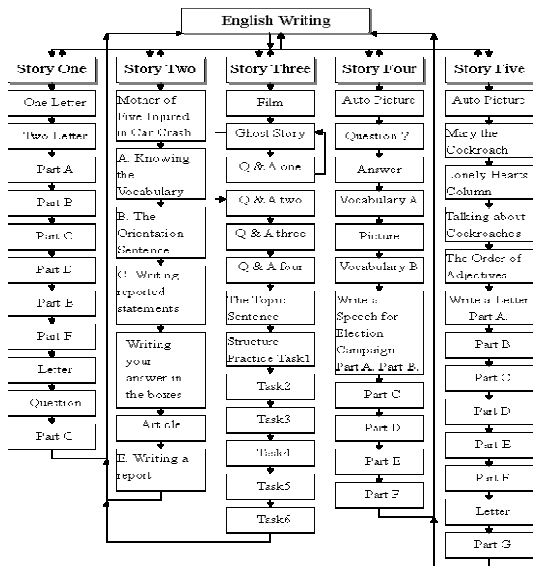


Fig. 2 The Framework of Five English Writing Lessons

3.2.2 Introduction to Five English Writing Lessons

Take Lesson Three as an example. A part of the lesson contents is shown in Figures 3-6. Figure 3 is the first page which is designed with moving words. In addition, there are the link buttons designed to link with the list of five writing lessons. In the middle of the page, the English short sentences rotate automatically to attract learners' eyes.



Fig. 3 The First Page of the "English Writing" Lesson

When going into the page with "Story", it plays automatically the film "The Chanted House." A link connected with the film is set up on the right of the page.

Additionally, the model text rolls up automatically, so the students can read the whole text without touching the mouse or keyboard. (See Figure 4)



Fig. 4 The Page of Model Text "The Ghost Story"

After reading "The Ghost Story", the comprehension questions will appear on the screen as Figure 5 shows. If the answer is correct, the right-answer-feedback comes up on the screen. When the answer is wrong, the wrong-answer feedback responds immediately on the screen.



Fig. 5 The Page with the Comprehension Question

Based on the above-mentioned model text, in series, it is followed by the various types of interesting exercises of the vocabulary, focused grammatical structures, and/or paragraph organization. For example, in Task 5, the students are asked to describe the movie scene by firstly linking with the movie and then by making up the sentences in the focused structure. Finally, in Task 6, the students are assigned to write their own ghost story after answering some pre-writing questions. (See Figure 6)

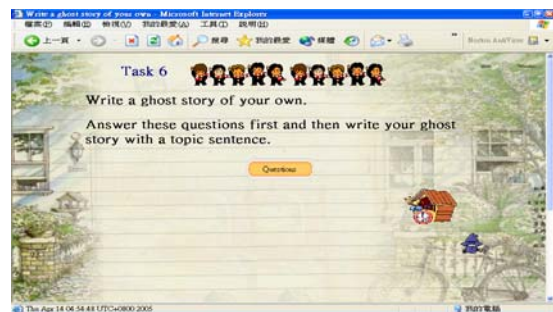


Fig. 6 Writing Assignment: Writing a Ghost Story

4. The Research Design and Conduct

This research is conducted using the quasi-experimental study.

4.1 The Framework and Variables

The framework and variables of this research are listed as follows (see Table1).

Table 1 The Framework of the Research

Independent Variables	Dependent Variables
Groups	Teacher (Interviewee)
1. Highly achieved group	1. The teacher's opinions about the teaching
2. Poorly achieved group	2. The record of classroom observation
	3. The interview with the teacher
Student Individual Variables	Students (Interviewees)
1. Boys	1. The students' achievement
2. Girls	2. The students' satisfaction
	3. The records of the students' interviews

4.2 Samples and Experimental Time

4.2.1 Samples of Study

This research is carried out to investigate the effects of employ the CAIS to teach English writing. The samples were selected from one class out of twelve second-year classes at a five-year college in the south of Taiwan. There are 50 students chosen as samples which were divided into two groups: the highly-achieved group and the poorly-achieved group.

4.2.2 Experimental Time

The experimental research took 11 weeks: starting from April to June, 2004. There are total two hours each week working on the experiment during the research.

4.3 The Research Instrument

The instrument includes:

- (1). The Computer Assisted Instruction Software
- (2). The observation logs
- (3). The questionnaire of the satisfaction with the CAIS
- (4). The pre-test and post-test writing assignments
- (5). Semi-constructive interview questionnaire

4.4 The Research Methods

Several methods are employed to accomplish this research:

- (1). Literature review
- (2). Questionnaire
- (3). The experimental method
- (4). Observation
- (5). In-depth interview

5. Data Processing and Statistic Analysis

5.1 The statistic analysis of the learning efficiency

5.1.1 The analysis of the results of four English writing assignments

The information summarized in Table 2 shows that there is a remarkable difference between the highly-achieved group and the poorly-achieved group.

Table 2 The Summary of Difference Analysis of Learning Efficiency

	Mean		SD		t-value	P
	Highly achieved group	Poorly achieved group	Highly achieved group	Poorly achieved group		
Formal Letter	70.28	63.08	6.45	8.41	3.397*	.01
Car Crash	70.40	61.44	7.80	11.38	3.247*	.02
Ghost Story	75.16	68.56	5.37	5.79	4.178**	.00
Election	72.84	67.88	5.69	5.89	3.028*	.04

* p<.05 ** p<.01

5.1.2 The analysis of the evaluation results

The analysis in Figure 7 reveals that both highly-achieved group and the poorly-achieved group have made progress in all five parts: content, organization, vocabulary, structure, and mechanic. However, the students in the poorly achieved group have made more progress, especially in the parts of content and organization. There is only little difference in vocabulary and no difference in structures and mechanic between them. It is probably because the poorly-achieved group is motivated by the lively computer assisted instruction software.

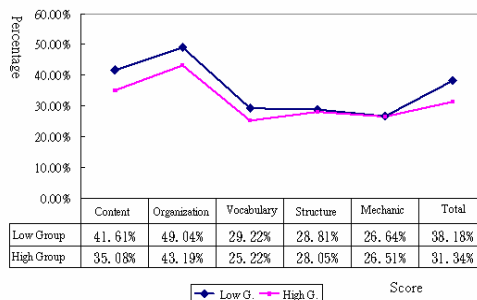


Fig. 7 The Changes of Scores Within Two Groups

5.1.3 The analysis of learning achievement between the female students and male students

According to the results of four writing assignments, the girls generally achieved better than the boys, but there is not much difference in the writing results about "Ghost Story" and "Election". The possible reason for this is that the boys may be more interested in these two topics.

5.2 The analysis of the satisfaction questionnaire

This analysis of the satisfaction questionnaire describes the following two parts:

- (1). The interface design of teaching software: 88% students assent that the written texts marked in different colors are more noticeably shown on the screen.
- (2). The design of materials and contents: 86% students agree that the design of software contents and materials have all achieved to reach the aim of the writing lessons

5.3 Semi-constructive interview result

The related teacher and her students get involved in the interviews and the experimental teaching results in as follows:

- (1). The feedback given by the students:
 - Most of the students greatly appreciate the fascinating effect of the animation, background music, and film; however, some of them think the design of the written texts should be improved.
 - Most of the students recognize the good qualities of the writing materials including the framework and contents.
 - Most of them agree that the writing lesson materials are designed using the computer assisted instructions software are much more attractive, interesting and relaxing than the traditional writing lesson materials.
 - The students have more earnest attitudes towards English writing.
 - The students have made great progress in using writing skills.
- (2). The feedback given by the teacher:
 - The teacher can save the teaching time by using the CAIS instead of writing the materials on the board repeatedly.
 - The teacher can explain the lessons more systematically because the materials have been

designed and organized electronically in advance.

- The teacher can replay the materials to reinforce the important parts if necessary.

5.4 Path analysis of learning achievements and related factors

The path analysis of students' English writing learning achievements (post-test) and learning attitude factors are shown in Fig. 8 and Table 3.

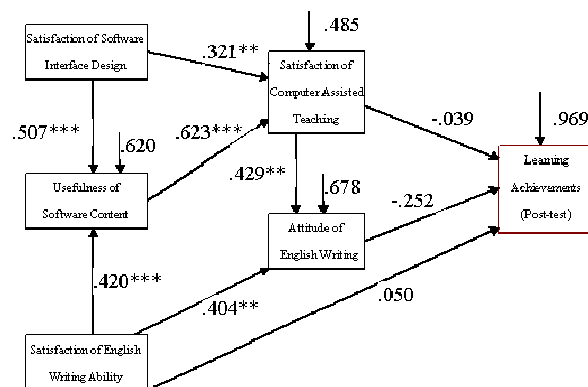


Fig.8 Path analysis of students' English writing learning achievements (post-test) and learning attitude factors

Table 3 The effect analysis of students' English writing learning achievements and learning attitude factors

Path	Type of Effect	Coefficient of Path
Satisfaction of Software Interface Design → Satisfaction of Computer Assisted Teaching	Direct Effect	.321**
Satisfaction of Software Interface Design → Usefulness of Software Content	Direct Effect	.507***
Usefulness of Software Content → Satisfaction of Computer Assisted Teaching	Direct Effect	.623***
Satisfaction of Computer Assisted Teaching → Attitude of English Writing	Direct Effect	.429**
Satisfaction of English Writing Ability → Usefulness of Software Content	Direct Effect	.420***
Satisfaction of English Writing Ability → Attitude of English Writing	Direct Effect	.404**
Satisfaction of Software Interface Design → Satisfaction of Computer Assisted Teaching → Attitude of English Writing → Learning Achievements (Post-test)	Indirect Effect	.035
Satisfaction of Software Interface Design → Usefulness of Software Content → Satisfaction of Computer Assisted Teaching → Attitude of English Writing → Learning Achievements (Post-test)	Indirect Effect	.034

6. Conclusion and Suggestion

Based on what have been discovered above, the conclusion and suggestions can be made as in the following.

6.1 Conclusion

- (1). The CAIS can raise the efficiency in the teaching of English writing.

- (2). Using CAIS in the writing class does not cause any significant difference in the learning efficiency between the students of opposite sex.
- (3). The analysis of the achievement results of students' writing assignments and the degree of students' satisfaction shows:
 - a. The more useful the material software is, the more satisfied the highly-achieved students are.
 - b. The more the students are pleased about the progress in the writing ability, the better achievement in writing they can make, especially the highly-achieved students.
 - c. The more the students are delighted with the computer assisted instruction, the better attitudes towards writing they have, especially the highly-achieved students.
- (4). The path analysis reveals that the better software interface design, the greater satisfaction of computer assisted instruction and the usefulness of software content can be approached. The better usefulness of software content, the higher satisfaction of computer assisted instruction and learning attitude would have. In addition, the better the English writing ability, the higher the usefulness of software content and learning attitude would have. In summary, software interface design not only can enhance software content and satisfaction of computer assisted instruction, but also increase students' learning attitudes and learning achievements indirectly.
- (5). The CAIS is the marvelous supplementary writing materials. According to the classroom observations and in-depth interviews, the teacher and students all admit that the computer assisted instruction software used in this research is the wonderful supplementary materials in the English writing class. The music, animation, photos, illustrations, films, , etc. in the CAIS can assist the teacher in setting up the lively teaching situations, arouse the students' interest, .motivate them well and help them have a good understanding of the lessons. Therefore, The teacher and students all hope they can continue to use this computer assisted instruction software and related similar software as well.

6.2 Suggestions

- (1). The design of teaching software:
 - a. Cooperating with teachers to develop computer assisted instruction software teaching materials
 - b. Understanding students' competence and material contents; providing various resources of computerized materials.
 - c. Increasing the interaction between the learners and CAIS materials
- (2). The teacher's teaching:
 - a. Exploring new teaching methods and techniques
 - b. Creating good teaching atmosphere and environment
 - c. Making a good choice and use of computer assisted teaching softwares
- (3). The school's administration:
 - a. Improving classroom environment and equipment
 - b. Using multi-media classrooms

References:

- [1] Lim, J., *College ESL writers' journeys through the process approach to writing: Eight case studies*. Unpublished doctoral dissertation, Columbia University Teachers College, NY, 2002.
- [2] Whithaus, C, The development of early computer-assisted writing instruction (1960–1978): The double logic of media and tools, *Computers & the Humanities*, Vol. 38, No.2, 2004, pp. 149-162.
- [3] Goodfellow, R. & Lea, M.R., Supporting writing for assessment in online learning, *Assessment & Evaluation in Higher Education*, Vol.30, No.3, 2005, pp. 261-271.
- [4] Lamb, H., *Writing performance in New Zealand school*. New Zealand: Department of Education, Wellington Press,1987.
- [5] Nicosia, G., Developing an online writing intensive course: Will it work for public speaking? *International Journal of Instructional Media*, Vol. 32, No.2, 2005, pp.163-170.