

# Can CALL Really Help Advanced CFL Learners?

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## Introduction

Researchers have strongly claimed that technology aids students in studying languages (Porter, 2000; Wegerif, 2004; Jiménez & Pérez, 2002). For example, it gives students a greater degree of control as far as the time, place, and learning pace, so students feel more autonomous about their own learning. Often, technology-based resources are integrated into a course of study and used to complement classroom interactions and library resources.

Furthermore, Lange (1999) stresses that language can't be taught without cultural context. To provide rich cultural contexts for language learning, video clips have always been touted as fruitful sources for teaching culture and target language (Tschirner, 2001; Martinez-Gibson, 1998; Herron, Dubriel, Cole, & Corrie, 2000; Vogely, 1998). Therefore, a popular Chinese talk-show video “实话实说” discussing various sensitive social issues is used in an advanced Chinese conversation course at Brigham Young University.

This study investigates the effects of using CALL as a teaching assistant tool for an advanced Chinese conversation course, emphasizing the understanding of Chinese native speakers' experience and relevant social issues via extensive listening and speaking opportunities. Specifically, the study measures students' mastery of their advanced Chinese verbal skills as a result of taking this course.

## The Chinese CALL Application

The Chinese talk-show video “实话实说” (“Tell It Like It Is”) was part of a CALL environment, a multimedia CD ROM application given to each student with several instructional objectives in mind. The students were expected to preview and review a segment, also known as a stage, and related materials using the CD before they came to the class. According to Merlet (2000), using CALL software for lexical and semantic previews leads to a significant increase in the amount of correct information recalled by second-language learners. Moreover, the effect of semantic preview is stronger.

The Chinese CALL application features two “实话实说” episodes, and each (30 minutes long) is divided into smaller video segments (aka stages). Each stage provides important features like a summary of a stage (see Figure 1), play/replay of a stage, and vocabulary/idioms used in that stage.

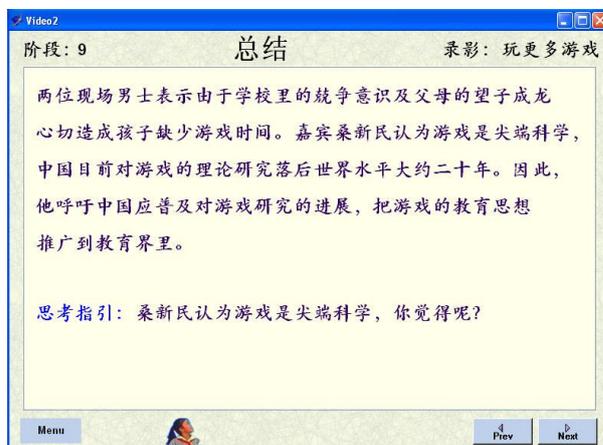


Figure 1. Stage summary and guided question

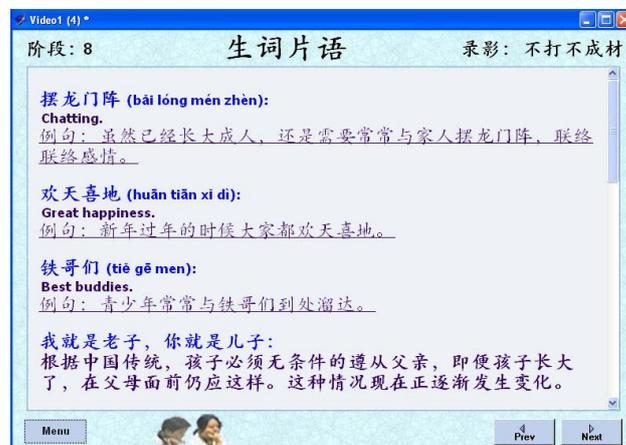


Figure 2. Vocabulary and idiom screen

The guided questions are open ended and thought provoking, designed to foster students' critical and evaluative thinking skills prior to their viewing of any stage. The vocabulary and idiom screen provides the pronunciation, definition, and cultural and historical use, as well as a sample sentence for each entry (Figure 2).

Mayer and Sims (1994) and Faraday and Sutcliffe (1997) all validate the supposition that students learn more effectively from movies accompanied by commentaries. On the right pane of the video screen, a cultural corner simultaneously displays context-sensitive cultural commentaries in Chinese as the user plays a video stage and listens to the discussions (see Figure 3). The purpose of the commentaries is to explain in depth the cultural contexts and to help students understand the subtlety, differences, or significance of cultural meaning in various sociocultural contexts. Users have complete control when viewing the video; they can start, stop, or replay the video at any time.

After viewing the summary, the video segment, and the vocabulary/idiom screen in each stage, students can take a quiz where they speak Mandarin Chinese into a microphone to record or re-record their answers to the questions. At the end of each episode, a unit test is given, serving as a review of the key concepts learned in the episode.



Figure 3. Video screen and commentaries

## Methodology

This study lasted for one semester (14 weeks), from the end of August to mid-December, 2004. The concern about treatment diffusion was greater than the concern about sampling error. Thus, instead of randomly assigning CFL students to control or treatment groups, a pretest/posttest control-group design with intact classes was employed in the study. The following sections will discuss in detail the participants, instruments, testing procedures, and instructional procedures.

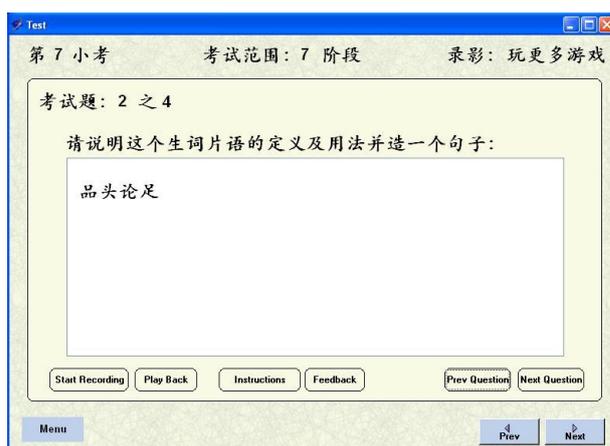
### ***Participants***

Initially 17 third-year undergraduate students at Brigham Young University participated in this study. All of them were CFL learners. They elected to take the Advanced Chinese Conversation course (aka CHIN311R) in two different sections. Students in Section One (n=9) were designated to be the control group; students in the other section served as the treatment group (n=8). One student in the control group dropped out of the class, thus only eight students remained as the control group.

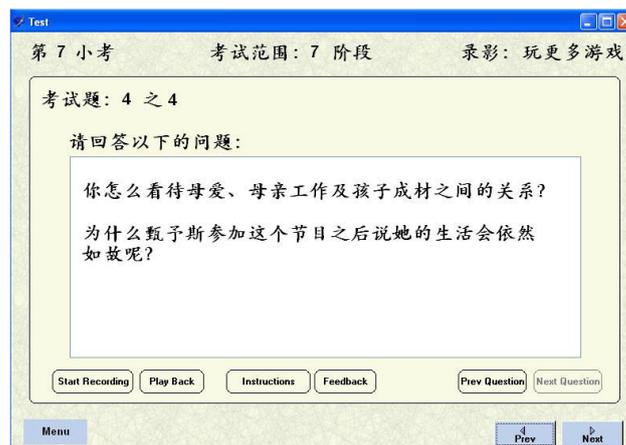
The participants in the control group had a different instructor from that of the treatment group. They also used different textbooks (see Instructional Procedures for more details). Moreover, the participants in the control group received ten points extra credit from their instructor as an incentive to participate in the study. No incentive was offered to the treatment group.

### ***Instruments***

The assessment instrument of Chinese-speaking used in this study was designed to measure advanced CFL learners' expressive verbal skills. It consisted of 19 quizzes and two unit tests. Each quiz contained three Chinese idioms asking the students to define and make a sentence using them (Fig. 4).



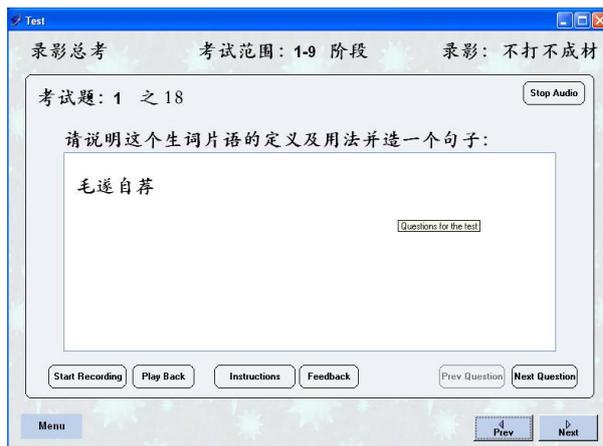
**Figure 4. Quiz 7 idiom question for episode two**



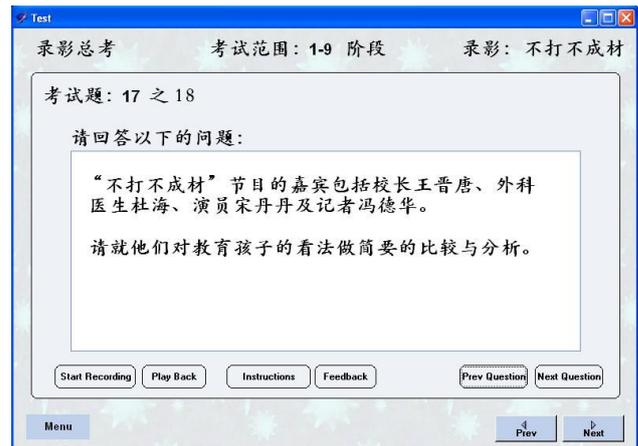
**Figure 5. Quiz 7 open-ended question for episode two**

The last question of a quiz, an open-ended question addressing sensitive social issues discussed in a video stage (Fig. 5), allowed the students to express their perspectives in Chinese. Each unit test contained fifteen idioms and three open-ended questions (Fig. 6 and Fig. 7). Both the control and treatment groups took the nineteen quizzes and two unit tests at the beginning (pretesting) to establish a baseline of language competence and again at the end of the study (posttesting) to measure the language gains in both groups.

Following the posttest, both control and treatment groups filled out the Chinese Language Experience Survey which asked about participants' Chinese language experiences and their views of the difficulty levels of quizzes and tests (see Appendix A).



**Figure 6. Unit test idiom question for episode two**



**Figure 7. Unit test open-ended question for episode two**

### ***Testing Procedures***

Both the treatment and control groups took the pretests at the beginning of this study. The pretests consisted of nine quizzes and one unit test for Episode A and ten quizzes and one unit test for Episode B. The quizzes and tests were available at a language computer lab, and were self-administered; students could take them at their own pace with no time constraint. The treatment group took interim quizzes and tests (same as the pretests) throughout the semester as the course schedule progressed. At the end of the semester, the control group retook the same quizzes and tests given in the beginning of the study. The treatment group was allowed to retake any quizzes or tests that they chose at the end of the semester; only one participant retook two quizzes. The posttest scores came from participants' latest tests.

The deliverables of the quizzes/tests were individual audio files for each question, automatically created as a student recorded his or her verbal responses via an external microphone attached to a lab computer. Initially, the audio files were saved onto the lab computer's desktop in a folder with a student's login name on it. The student then moved the folder containing his or her audio files to a network directory at the end of a test session for easy pickup. To ensure grading consistency, one Chinese native, a graduate student was instructed to grade all tests fairly. The grader listened to all the audio files and graded both the pre- and posttests of the control and treatment groups. Pre- and posttest comparisons between the control and treatment groups and within each group were conducted to measure participants' mastery of their Chinese verbal skills.

### ***Instructional Procedures***

The control group used the text "Short Chinese TV Plays: An Intermediate Course" (Teng & Liu, 1992) and received traditional teaching without any aid from the Chinese CALL application used by the treatment group. In other words, the control group did not have any exposure to the CALL software other than the quizzes and tests taken. The participants in the treatment group were each given a CALL CD (with the programmed 实话实说 video) and a beta version of the text "Tell It Like It Is" (Wang, 2004) after the pretests. The students were encouraged, at the beginning of the semester, to use the CD and text for preview prior to coming to the class and also review during and after class. Typical classroom activities involved class discussions about the materials in the CALL CD by first reviewing the summary and the leading

question, then viewing the video segment and commentary notes, and last going through the vocabulary and idiom section. If time permitted, the class would go through the quiz pertaining to the stage discussed. Other class activities and interactions included sharing oral reports on personal experiences and perspectives related to the topics discussed, giving instructions on playing games and making things like origami and paper toys. Among other activities, each student would teach the class a Chinese song, and perform heated debates on sensitive social issues.

### **Data Analysis**

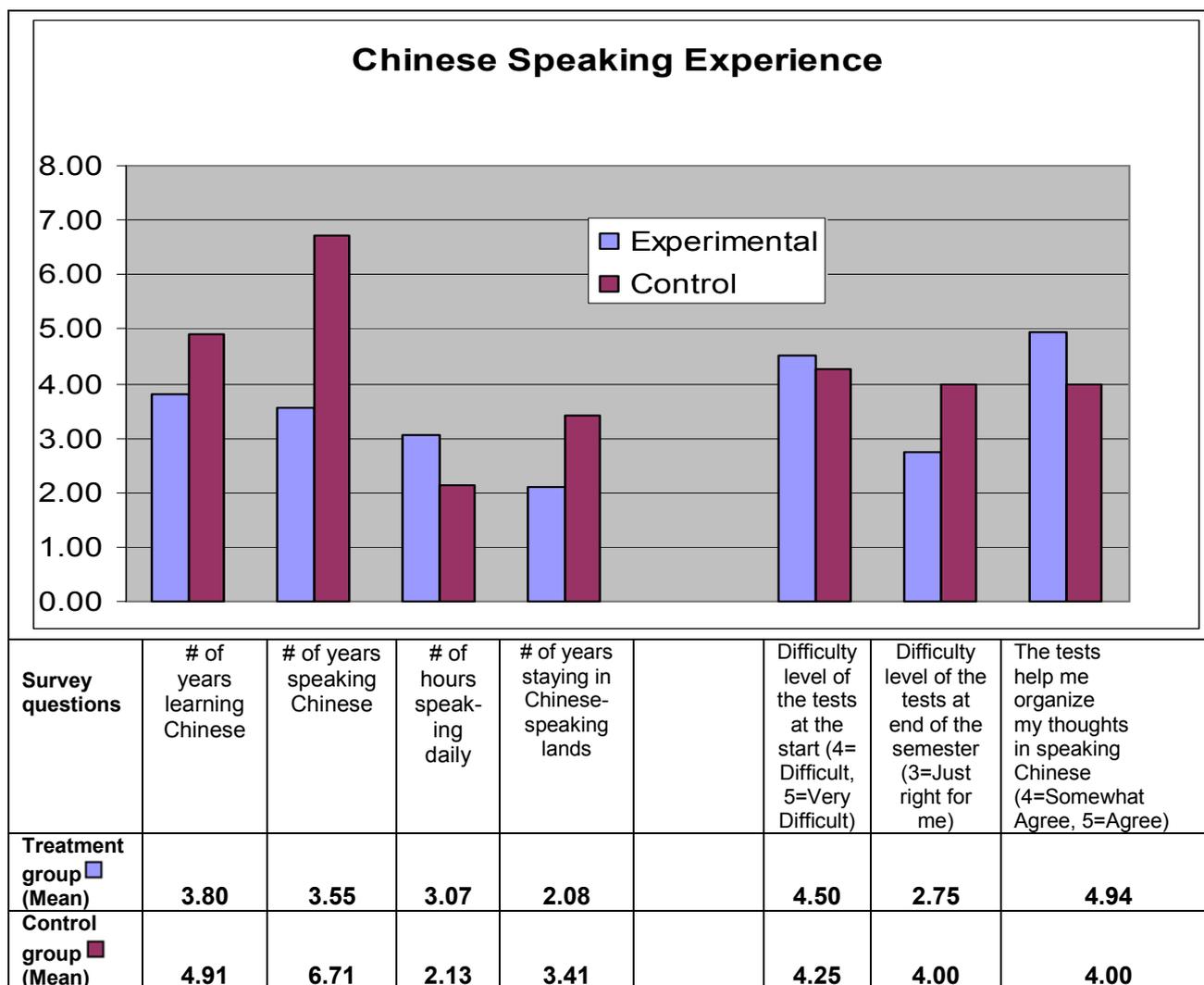
The main purpose of this research study was to investigate and measure the effects of using CALL as an assisted teaching tool in an advanced Chinese conversation course.

#### ***Group or Class Equivalency***

To minimize treatment diffusion, this study used two intact classes, one as a control and the other as the treatment group. Thus, it was essential to determine how different the entry Chinese-speaking abilities were between the two groups at the beginning of the study. Analysis of variance was used to determine the group equivalence on their pretest scores. The results of the analysis show that the control group was equivalent to the treatment group in their entry-level Chinese-speaking abilities as measured by the idiomatic and open-ended criterion-referenced tests.

Their Chinese-speaking experience in general, as reported in the Chinese Language Experience Survey (see Appendix A) shows that the control group had more Chinese-speaking experience than the treatment group. For example, on average the control group had stayed in Chinese-speaking countries for 3.41 years, had spoken Chinese for 6.71 years, and had learned Chinese for 4.91 years. Yet the treatment group's time in Chinese-speaking lands, on the average, was 2.08 years. The treatment group had spoken Chinese for 3.55 years and had learned Chinese for 3.8 years (see Figure 8).

Nevertheless, these differences are not statistically significant, and both groups viewed the pretests as difficult. If there is any difference between the control and treatment groups, the survey results suggest that the control group, on average, had a stronger Chinese-speaking background than the treatment group.



**Figure 8. Results of Chinese language experience survey**

### ***Students' Performance***

The following techniques were used to analyze the data collected:

- 1) One-way analysis of variance for pre- and posttest comparisons
- 2) Frequency distributions, percentages and means of student responses from a survey
- 3) Content analysis for qualitative data

***Pretests vs. posttests.*** In order to measure the treatment effect on students' advanced Chinese verbal-skill development, the gain or loss scores between the pre- and posttests of the control and treatment groups in both the idiom and open-ended criterion-referenced tests were compared and analyzed using one-way analysis of variance.

***Survey.*** The students' Chinese language experience during the study were gathered at the end of the study. The data were analyzed using simple frequency distribution comparisons and qualitative content analysis procedures.

## Results and Discussion

### *Pretests vs. Posttests*

The results of the criterion-referenced tests show that at the conclusion of the study, the treatment group demonstrated significantly higher mastery of their advanced Chinese verbal skills.

Table 1 below provides the composite pre- and posttest scores (in percentages) of all the participants, first showing the participants in the treatment group and then those in the control group. As can be seen in Table 1, the participants in the treatment group performed significantly better after the intervention. The question lies in how significant the difference is statistically. Further analysis will address this question.

Table 1. Each participant's composite Chinese-speaking pre- and posttest scores (in %), organized by group

#### Treatment group:

	<u>Pretest A</u> (9 quizzes, 1 unit test)	<u>Posttest A</u>	<u>Pretest B</u> (10 quizzes, 1 unit test)	<u>Posttest B</u>
Student 1	8%	93%	8%	94%
Student 2	3%	93%	4%	95%
Student 3	7%	94%	11%	97%
Student 4	15%	93%	18%	91%
Student 5	8%	94%	7%	96%
Student 6	6%	90%	0%	95%
Student 7	7%	86%	7%	87%
Student 8	5%	95%	11%	93%

#### Control group:

	<u>Pretest A</u> (9 quizzes, 1 unit test)	<u>Posttest A</u>	<u>Pretest B</u> (10 quizzes, 1 unit test)	<u>Posttest B</u>
Student 1	5%	12%	5%	9%
Student 2	5%	14%	0%	13%
Student 3	3%	6%	4%	4%
Student 4	13%	17%	14%	12%
Student 5	7%	14%	4%	15%
Student 6	3%	10%	6%	25%
Student 7	15%	23%	5%	13%
Student 8	14%	17%	9%	10%

To further analyze the data, Table 2 presents the pretest and posttest means, the gain scores, the standard deviations, and the ranges of composite idiom, open-ended tests, and combined tests.

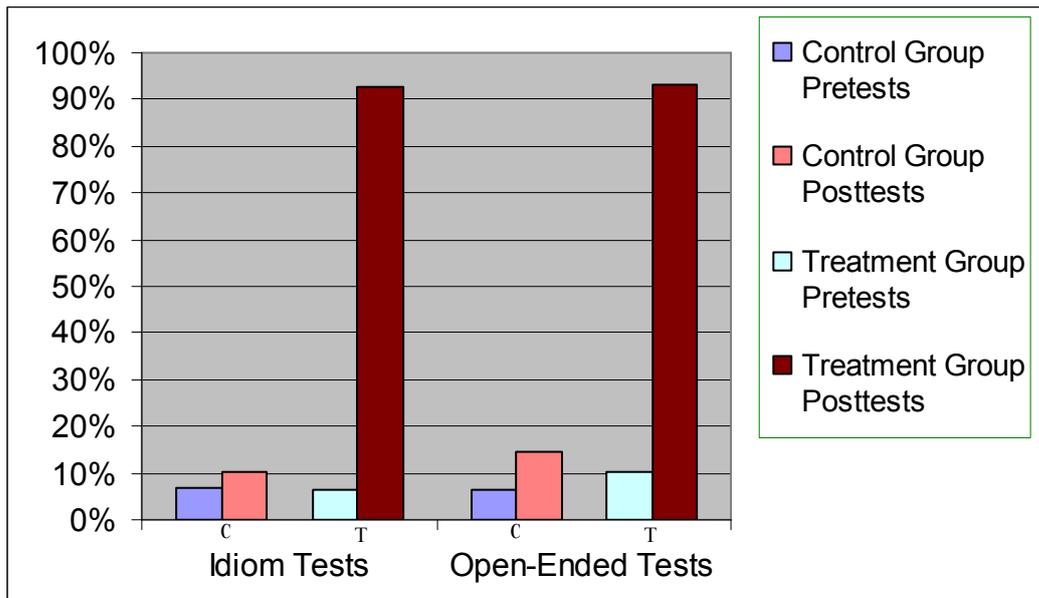
Table 2. Means, standard deviations, and ranges of composite idiom and open-ended Chinese verbal criterion-referenced tests

<u>Dependent variables</u>	<u>Control group</u>			<u>Treatment group</u>		
	<u>Pretest</u>	<u>Posttest</u>	<u>Gain</u>	<u>Pretest</u>	<u>Posttest</u>	<u>Gain</u>
1) Chinese idiom tests (Definition and usage)						
<b>Mean</b>	<b>13.9</b>	<b>22.0</b>	<b>8.0</b>	<b>11.9</b>	<b>176.4</b>	<b>164.5</b>
<b>S. D.</b>	<b>12.6</b>	<b>15.9</b>	<b>7.3</b>	<b>8.8</b>	<b>7.1</b>	<b>8.7</b>
<b>Range</b>	<b>2.0 to 38.5</b>	<b>6.8 to 49.2</b>	<b>0.8 to 23.2</b>	<b>3.5 to 24</b>	<b>160.9 to 182.9</b>	<b>153.5 to 176.2</b>
2) Chinese open-ended questions						
<b>Mean</b>	<b>7.1</b>	<b>18.0</b>	<b>10.9</b>	<b>11.2</b>	<b>102.7</b>	<b>91.4</b>
<b>S. D.</b>	<b>4.7</b>	<b>13.4</b>	<b>12.6</b>	<b>9.7</b>	<b>2.0</b>	<b>9.7</b>
<b>Range</b>	<b>2.0 to 16.5</b>	<b>0 to 40.5</b>	<b>-2.5 to 32</b>	<b>0 to 30</b>	<b>99.5 to 106.1</b>	<b>73.1 to 100.9</b>
3) Combined						
<b>Mean</b>	<b>21.0</b>	<b>40.0</b>	<b>19.0</b>	<b>23.1</b>	<b>279.1</b>	<b>256.0</b>
<b>S. D.</b>	<b>12.1</b>	<b>12.6</b>	<b>14.0</b>	<b>12.5</b>	<b>8.7</b>	<b>15.4</b>
<b>Range</b>	<b>7.5 to 41.0</b>	<b>14.3 to 53.8</b>	<b>2.7 to 38.9</b>	<b>8.5 to 49.5</b>	<b>260.4 to 289</b>	<b>226.6 to 271.3</b>

Notes. All the scores in this table are raw scores. Maximum scores for idiom tests and open-ended question tests are 190 and 110 points respectively. In other words, the maximum combined score is 300 points.

Control group, n = 8  
Treatment group, n = 8

Converting the raw scores above to the mastery scores in percentage for both the idioms and open-ended questions, Figure 9 presents the comparison of group average scores between pre-and posttests within each group.



**Figure 9. Group comparisons of average scores between pre- and posttests**

The results of the one-way analysis of variance comparing the average gain scores show that the treatment group did significantly better in idiom definition and usage ( $M_1 = 164.5$ ) on the criterion-referenced tests than the control group ( $M_2 = 8.0$ ),  $F(1, 15) = 1516.6, p < .000$ . The analysis of the open-ended tests presents similar results, showing that the treatment group did significantly better ( $M_1 = 91.4$ ) in orally responding to questions requiring expressive Chinese verbal skills than the control group ( $M_2 = 10.9$ ),  $F(1, 15) = 206.3, p < .000$  (see Table 3).

Table 3. F values of the composite idiom and open-ended Chinese verbal criterion-referenced tests

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Dependent Variables

1) Chinese idiom test (Definition and usage)	1516.6*
2) Chinese open-ended questions	206.3*
3) Combined	1034.1*

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Treatment group n = 8

Control group n = 8

\* $p < .000$

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Therefore, a confident conclusion can be drawn that CFL learners using the Chinese CALL application (the treatment group) scored higher on the criterion-referenced tests than CFL learners who did not use the application.

### ***Survey***

After posttesting, both the treatment and control groups were asked to rate the difficulty level of the tests at the beginning of the semester and also at the end of the semester, with 1 being *Very easy* and 5 being *Very difficult*. Both the control and treatment groups regarded the tests as difficult ( $M_2=4.25$ ) or very difficult ( $M_1=4.50$ ) in the beginning of the semester. However after the intervention, the treatment group ( $M_1=2.75$ ) reported that they felt the tests were just right for their Chinese skill levels, while the control group ( $M_2=4.0$ ) still felt the tests were difficult (Figure 8). Both groups agreed that the tests helped them organize their thoughts while speaking Chinese. The results of the students' Chinese-speaking experience survey also show that the treatment group ( $M_1=3.07$  hours), on a daily basis, spoke more Chinese than the control group ( $M_2=2.13$  hours) during the semester.

## **Conclusions and Recommendations**

### ***Conclusions***

Wang (2004) advocates that advanced CFL learners need to acquire language naturalness, communicative effectiveness, and culturally appropriate behavior in various social situations and cultural contexts. The Chinese CALL application utilizes these cultural and social contexts through culturally rich video. The results reported in this study show that the Chinese CALL application significantly helps improve CFL learners' mastery of their advanced Chinese verbal skills over a period of three-and-a-half months. Students also deem the CALL application a timesaver and an effective means for advanced Chinese learning. In conclusion, this study proves that CALL really helps advanced CFL learners.

### ***Recommendations for Future Research***

This study shows promising results for teaching Chinese verbal skills to advanced CFL learners using culturally rich video. Since the research sample size was relatively small ( $n = 16$ ), a follow-up study is recommended.

All the studies discussed thus far treat the CALL application as an assisted language-learning tool. Another viable research could compare the effects of using only a CALL application as an independent study to those of the traditional classroom teaching on CFL learners' verbal skill development. Language teachers continue to face challenges in the classrooms such as students with various language skill levels and diverse needs, not to mention the challenges of limited time, space, and constraints in assessing students' foreign language-speaking abilities. Additionally, L2 students come to the classrooms with different levels of motivation and foreign language speaking anxiety.

So, what kinds of roles can CALL really play to help language teachers? The author hopes that this study will encourage future research furthering technological applications in advanced foreign-language learning and teaching.

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## **APPENDIX A**

### General Chinese Language Experience Survey

## General Chinese Language Experience Survey

### Advanced Chinese Conversation (CHIN311R)

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Please answer the following questions:

- 1) A. When did you first learn Chinese (PuTongHua)? B. How many years and months total have you spent learning Chinese (PuTongHua)?  
A:  
B:
- 2) How many years and months have you been *speaking* Chinese (PuTongHua)?
- 3) On average, how many hours do you speak Chinese (PuTongHua) *daily*?
- 4) How long have you stayed in any Mandarin-speaking places?
- 5) What were the purposes of those visits stated on Question 4 above?
- 6) Please rate the difficulty level of the quizzes and unit tests taken (circle one each).

	<i>Very easy</i>	<i>Easy</i>	<i>Just right for me</i>	<i>Difficult</i>	<i>Very difficult</i>
At the beginning of the semester:	1	2	3	4	5
Right now:	1	2	3	4	5

- 7) The quizzes and unit tests give me the opportunity to organize my thoughts and to speak Chinese (circle one).

<i>Strongly disagree</i>	<i>Disagree</i>	<i>Somewhat disagree</i>	<i>Somewhat agree</i>	<i>Agree</i>	<i>Strongly agree</i>
1	2	3	4	5	6

- 8) What are the most difficult challenges for you, if any, in learning advanced Chinese conversation?

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