Implementing CALL technology in teaching
a content-based Chinese hand puppet theater course
(在主题内容式的中国布袋戏课程教学中
使用计算机辅助教学技术)

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Abstract: Content-based arts and literature curricula can make important contributions to any language program. This paper has chosen a Chinese hand puppet theater course as an example to demonstrate how to transfer traditional text materials into user-friendly multimedia and interactive game-type exercises that expose students to Chinese arts and culture, while also enhancing their language proficiency skills. It will also demonstrate how to make the best use of technology to enable use of content and exercises in different levels and types of curricula. It will showcase an example of technology that may be integrated into arts and literature oriented courses at the elementary, intermediate, and advanced levels. It is hoped that readers will benefit from the examples and gain ideas about how to empower the curriculum with technology, manage students with varying backgrounds, teach literature and culture, and balance content instruction with language skill instruction.

Keywords: Content-based teaching and learning, arts, literature, culture, CALL, Chinese puppetry, hand puppet theater

Abstract: 内容为基础的艺术和文学课程可以对任何语言课程做出重要的贡献。本文以选择中国手偶戏课程作为例子，来展示如何将传统的文本材料转换成受学习者欢迎的多媒体和互动游戏型的教学内容，以帮助学生更有效地了解中国艺术、文学和中国文化，同时亦能提高他们的语言能力。此外，本文亦阐明如何利用科技网络的优势，在不同课型和语言阶段中，有效地应用电脑科技来辅助语言与文化教学。此主题式的教学课程模式，不仅能帮助教师管理课上不同汉语水平的学生，而且也能帮助学生对主题内容知识的了解及强化其语言能力的技巧。

Keywords: 主题内容式教学，艺术，文学，文化，电脑辅助语言教学，
中国偶戏，布袋戏
1. Introduction

1.1 Content-based Instruction

Content-based instruction (CBI) is “... an approach to language instruction that integrates the presentation of topics or tasks from subject matter classes (e.g., math, social studies) within the context of teaching a second or foreign language” (Crandall & Tucker, 1990). As Genesee (1994) puts it, the content in CBI curriculum “need not be strictly academic (i.e., only dealing with traditional subjects such as mathematics, history, science, geography, and the arts), but can include any topic, theme, or non-language issue of interest or importance to the L2 learner”. In other words, CBI emphasizes the use of relevant content as a medium to facilitate language teaching and learning. CBI thus provides a context for meaningful communication to occur (Curtain, 1995; Met, 1991) and promotes negotiation of meaning (Lightbown & Spada, 1993), both of which are known to enhance second language acquisition. Therefore, researchers and language teachers promote CBI in second language curricula.

As part of a second language curriculum, arts and literature provide relevant and meaningful content for students to learn the language by using it. They also “play crucial roles in helping second language learners gain a better understanding of a target language, culture, people, and society” (Wu & Haney, 2012). Because of this, a content-based course focused on arts and literature can be a valuable addition to a second language curriculum. Indeed, in the Chinese L2 curriculum, CBI can play a critical role in providing meaningful topics (i.e. Chinese folk tales, Chinese modern films) and learning tasks for language instruction. Through CBI, Chinese L2 learners can enhance their language skills by using relevant and contextually appropriate language forms, and also promote their content learning via negotiation of meaning. Working closely with authentic artifacts from Chinese culture also enhances students’ Chinese cultural literacy. In these ways, a content-based Chinese L2 curriculum can make important contributions to Chinese learning and teaching.

However, due to a lack of available textbooks and consolidated materials, it is not an easy task to create content-based arts and literature courses within the Chinese as a foreign language (CFL) curriculum (Wu, 2014). We suggest taking advantage of contemporary technologies to solve this problem by leveraging CALL resources and techniques to facilitate content-based language and culture curricula. In this paper we will showcase a newly developed Chinese hand puppet theater course as an example of our efforts toward creating a new and innovative Chinese arts, language and literature curriculum.
1.2 Chinese Puppet Theater in the Social Context Course

布袋戏 (glove or hand puppet theater) is a Chinese traditional performance art in which small puppet figures are manipulated by hand. It is also called Zhangzhongxi 掌中戏 (palm-inner-play) and Xiaolong 小笼 (small-basket). The great skill of the puppeteers and the sophistication of the puppets, some of which are capable of facial expressions, allows hand puppet theater to be very entertaining, effectively delivering both action scenes and dramatic scenes. Originally developed during the Ming Dynasty (1368-1644), hand puppet theater was introduced to Taiwan about two hundred years ago by immigrants from 福建 province, where the hand puppet theater tradition had developed to a more sophisticated level than elsewhere in China. During its development in Taiwan, hand puppet theater has become intertwined with Taiwan local customs and practices, and become a valued aspect of Chinese and Taiwanese culture. (Wu, 2003; Wu, 2011).

This hand puppet theater course is designed for Chinese learners who have reached the advanced-low to advanced–mid level of proficiency as designated by ACTFL proficiency guidelines (ACTFL, 2012). It introduces students to Chinese puppet theater in the Chinese social context. It aims to help students obtain a more in-depth understanding and appreciation of the various Chinese puppet theater performance forms, including hand puppet theater 布袋戏, shadow puppet theater 皮影戏 and marionette puppet theater 傀儡戏. For each performance form, students are introduced to related cultural phenomena, dramatic literature, performance arts, and social functions. Relationships among performance forms are also explored.

Learning objectives and student outcomes: At the end of the course, students are expected to be able to:

- demonstrate a depth and breadth of knowledge of Chinese puppet theater traditions
- demonstrate competence in Chinese literature and culture, problem-solving, and critical thinking related to the puppet theater tradition
- apply their Chinese puppet theater literature and culture appreciation and observations to cross-cultural comparisons and personal connections
- reach advanced-mid to advanced-high language proficiency level and be able to write a 1,000-1,200 character essay in Chinese

Class activities: include lectures, guest speakers, and discussion, as well as presentation of multimedia, WWW and video examples of puppet theater performances.

Teaching materials: As we noted above, the lack of available materials is one of the main challenges encountered in creating a content-based arts and literature course. In this

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1 This puppetry course was designed and taught by Dr. Sue-mei Wu, and was offered for the first time at CMU in Spring 2014. Dr. Wu also designed and taught a folk performance tradition course at CMU in Spring 2009. Puppetry performance was introduced in that course, and students in the course expressed an interest in learning about puppet theater in more depth.
new course we have incorporated some print materials and research articles, and made use of anthropological and ethnographical data collected from fieldwork. Two new websites were also created to provide convenient access to the main multimedia materials used in the course. The websites have brief text introductions, links to related materials, and video clips. Following is a summary of the teaching materials for the course:

(1) Websites:
- Chinese Puppetry Website 《中国偶戏传统》网站 (by Sue-mei Wu); URL: http://www.xinterra.com/folkpage/pg_puppetry.shtml
- Chinese Folk Performance Website 《中国民间演艺传统》网站 (by Sue-mei Wu); URL: http://www.xinterra.com/folkpage/

(2) Book & research articles:

(3) Others: stage props, photos, multimedia DVDs and video clips, etc.

2. Instructional Sample

We have chosen the topic of hand puppet theater as an example of instruction which helps promote students’ content knowledge as well as their language proficiency skills.

**Theme: Hand Puppet Theater** 主题: 布袋戏

The following 8 chapters of hand puppetry theater content are covered in the Chinese Puppet Theater in the Social Context course:

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2 The puppetry fieldwork was conducted in Taiwan and mainland China by Dr. Sue-mei Wu.
3 There are many e-materials available on the WWW. For example, searching for “Chinese hand puppetry” on YouTube yields many video clips. The Wikipedia site is also a good reference for hand puppet theater. For Chinese shadow puppetry, the documentary called “Track the Shadow Puppetry,” by the Discovery Channel, is excellent and is available on YouTube.
Various teaching and learning materials are integrated throughout these chapters. Topics are presented with printed materials, video clips and web-based materials. Various activities are created to engage and promote students’ language proficiency training as well as increase their knowledge and understanding of the performance form.

The “5Cs” principles of the National Standards for Foreign Language Education (ACTFL, 1999) – Communication, Cultures, Comparisons, Connections, and Communities – provide the guidelines for the teaching and learning activities. We hope to empower learning outcomes by providing a practical, learner-centered, and enjoyable language and culture learning experience for students. While students need to continue to build their mastery of commonly used vocabulary and grammatical structures, they also need to do some basic anthropological and ethnographical fieldwork training so that they can apply their performance appreciation and observations to cross-cultural comparisons and personal connections.

**Warm up:** The class usually begins with some general questions asking students what they know about hand puppetry performances, and the introduction of some key vocabulary and concepts for each topic. This helps check on students’ knowledge, experiences and expectations. It can also help keep them motivated, interested and curious about each topic.

**Interactive communicative learning activities:** Some introductory materials and handouts are distributed and presented along with key vocabulary, concepts, structural patterns and useful expressions. Class activities are implemented with some props (e.g.
puppet figures, photos...etc), multimedia such as DVDs, websites, and video clips selected from YouTube to help showcase actual performances. Question-and-answer sessions and discussion sessions follow. To promote their language proficiency, students are encouraged to practice using the key vocabulary and expressions during the class activities.

**Assignments and assessment:** Different types of homework and activities are assigned to help assess students’ learning outcomes. They include surfing the assigned links, visiting websites, and watching video clips, then writing short summaries and creating a few questions in Chinese and English about what they have discovered. Students are also assigned to complete regular self-reflections and journal entries in Chinese to help engage their learning with self-learning evaluation and to promote critical thinking. Some text translation and summary tasks are also assigned to help reinforce knowledge acquisition and language proficiency. A term project is assigned to encourage collaboration among students and encourage them to apply their theater performance appreciation and observations to cross-cultural comparisons and personal connections. Students have the choice of writing their term project in Chinese or English, but abstracts in both languages are required. A 1,000-1,200 character essay in Chinese is also assigned. Both the project and essay are accompanied by an oral presentation with written handout supplements. The handouts for the oral reports require an outline, key words list, and 3-5 questions in Chinese. The handouts are distributed in class before the presentations. This has helped to further students’ interpersonal and presentational communicative proficiency. It also helps organize the class to be a collaborative learning community, as student-produced handouts, questions, and reports contribute to each learning activity.

3. **Leveraging Technology and Applying the Modules to Different Classes**

We would like to make the best use of technology to help empower our language and content-based arts and literature instruction. The following examples from the online modules demonstrate how we transfer the traditional text materials into user-friendly multimedia and interesting game-type exercises that help expose students to Chinese arts and culture, while also enhancing their language proficiency skills. Note that each text is accompanied with photo(s), a sound file, and Pinyin and English translation as illustrated below:

**Sample Text:**

(繁體字版) 布袋戲介紹: 布袋戲也叫掌中戲、小籠和指花戲等等。其起源於17世紀中國福建泉州, 然後主要在福建泉州、漳州、廣東潮州與台灣等地流傳。布袋戲是用手來操縱布偶表演, 是一種中國民間的地方戲劇。

(簡体字版) 布袋戏介绍: 布袋戏也叫掌中戏、小笼和指花戏等等。其起源于17世纪中国福建泉州，然后主要在福建泉州、漳州、广东潮州与台湾等地流传。布袋戏是用手来操纵布偶表演, 是一种中国民间的地方戏剧。
**English:** Introduction to Glove Puppetry: Glove puppetry is also called hand puppet theater, small basket puppetry and finger puppetry...etc. It originated during the 17th century in Quanzhou of China's Fujian province, and is now mainly performed in Quanzhou and Zhangzhou of Fujian province, Chaozhou of Guangdong province, and Taiwan. Glove puppetry is a performance using hands to manipulate the puppets. It is a kind of local folk performance theater in China.

**Pinyin:** Bùdàixì yě jiào zhǎngzhōngxì, xiāolóng hé zhǐhuāxì děngděng. Qí qiyuán yú 17 shiji Zhōngguó Fújiàn Quánzhōu, ránhòu zhǔyào zài Fújiàn Quánzhōu, Zhāngzhōu, Guǎngdōng Cháozhōu yǔ Táiwān děngdī liúchuán. Bùdàixì shìyòng shǒu lái cāozòng bù’ǒu biǎoyǎn, shì yizhòng Zhōngguó mínjiān de difāng xījù.

**Sample Vocabulary List:**

<table>
<thead>
<tr>
<th>#</th>
<th>繁体</th>
<th>简体</th>
<th>拼音</th>
<th>英文</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>世紀</td>
<td>世纪</td>
<td>shìjì</td>
<td>century</td>
</tr>
<tr>
<td>2</td>
<td>流傳</td>
<td>流传</td>
<td>liúchuán</td>
<td>to spread; circulate</td>
</tr>
<tr>
<td>3</td>
<td>操縱</td>
<td>操纵</td>
<td>cāozòng</td>
<td>to manipulate</td>
</tr>
</tbody>
</table>

**Sample Structural Patterns and Useful Expressions:**

1. 起源于…; is originally from…
2. 然后…; then…
3. 在…流传; is circulated among….

**Samples of the Online Interactive Exercise Types:**

**I. Multiple Choice**

( ) 1. 布袋戲起源於哪個世紀？ (a) 15 世紀 (b) 16 世紀 (c) 17 世紀
   - Hand puppet theater was originally developed in which century?
     (a) the 15 century  (b) the 16 century  (c) the 17 century

( ) 2. 布袋戲是演師用什麼來操縱布偶表演的？ (a)頭 (b)手 (c)腳
   - The puppet master uses what to manipulate the puppets?
     (a) head     (b) hand     (c) foot

**II. True or False**

( ) 1. 布袋戲也叫掌中戲、小籠和指花戲, 是一種中國的地方戲劇。
   - Glove puppetry, also called hand puppet theater, is a kind of local folk performance theater in China.
III. Fill in the Blank

( ) 1. 布袋戲也叫_____、小籠和指花戲等等。(a) 掌中戲 (b) 偶頭戲 (c) 木頭戲
布袋戲也叫______、小笼和指花戏等等。(a) 掌中戏 (b) 偶头戏 (c) 木头戏
Glove puppetry is also called______, small basket puppetry and finger puppetry…etc.
(a) hand puppet theater (b) puppetry head theater (c) wood head theater

IV. Question and Answer

Use the useful expressions (such as: 起源于…; 然后…; 在…流传… etc), in your answers to the following questions (write as homework first, then orally summarize in class).
1. 布袋戲起源于什麼時候? 主要在什麼地方流傳?
布袋戏起源于什么时候? 主要在什么地方流传?
When did hand puppet theater originate? Where is it mainly performed?

Note that the materials in the online modules are all presented with traditional and simplified characters, sound files, and English counterparts in order to accommodate different learners’ backgrounds, preferences and levels. This makes the online exercise modules flexible and adaptable to different classes. For example, the English presentation can be incorporated into beginning Chinese language courses or into a Chinese culture class. Intermediate level courses can use the Chinese and English versions and place more emphasis on the key vocabulary, structures and expressions. In advanced level courses, students are encouraged to read only the Chinese version, and are required to master the key vocabulary, structures and expressions and use them in class activities as well as their homework. They are encouraged and motivated as they learn to understand the authentic artifacts such as the texts and multimedia materials. Because these online learning modules are adaptable and useful for different classes, we receive a larger return on the investment of effort and devotion we have applied to their development.

4. Highlights of Technology Tools

To facilitate students’ learning about Chinese Puppet Theater, a number of technologies have been chosen to empower the course with technology.

(1) BlueGriffon: In order to provide students with easy access to all kinds of materials and exercises used for the Chinese Puppet Theater course, a website has been created to serve as a learning platform for the students. We use BlueGriffon to create and edit web pages. This web-editing program is free and is compatible with Windows, Mac OS X and Linux. It can support up to 18 languages, including Simplified and Traditional Chinese. BlueGriffon is a what-you-see-is-what-you-get (WYSIWYG) editor, which means that the document on the editor will look as it will appear when rendered by a web browser, such as Internet Explorer, Google or Firefox. In fact, BlueGriffon uses the Gecko rendering engine that is used by Firefox, so edited documents are guaranteed to look the same when rendered by Firefox. As an example, Figure 1.1 shows the homepage as it
appears when being edited in BlueGriffon. Sound files, animations, pictures and videos can be added to the web pages, providing sufficient multimedia input for enhancing the understanding and appreciation of the content as well as language proficiency.

![Figure 1.1](image1.png)

(2) **Audacity**: In the website, we provide lots of multimedia resources to help empower the language and content instruction. Photos and video clip links are selected from the WWW. In addition, audio recordings are available for all the texts and exercises on the website. Audacity is the software we chose for the audio recording and editing. This program is a free audio recorder and editor. It is available on Windows, Mac OS X and Linux. It can be used to record sounds and edit sounds. Audacity has a wide variety of digital sound tools, including noise removal, amplification and normalization, which can help improve the quality of the sounds. Figure 1.2 is the screenshot of noise removal function on Audacity. All the files on Audacity can be exported as WAV or MP3 files and linked to web pages.

![Figure 1.2](image2.png)

(3) **Hot Potatoes**: Apart from the multimedia enrichment of the course, a variety of online exercises have also been created to assess the students’ learning outcomes. We use
Hot Potatoes to develop the exercises. Hot Potatoes is a free exercise-creating program. It has six applications, which enable instructors to create exercises using the following formats: multiple choice (JQuiz), short question-and-answer (JQuiz), fill-in-the-blank (JCloze), matching/ordering (JMatch), crossword puzzles (JCross), and a mixture of those exercises (JMIX). The exercises can provide pre-edited hints and prompts, and can show students correct answers to the questions after they submit them. Another advantage of the software is that it can incorporate sound files and images, which help enhance the students’ comprehension of the exercises. All the exercise can be exported as web pages. The following images show different types of exercises that can be created with Hot Potatoes. Figure 1.3 is a sample vocabulary exercise. Figure 1.4 is a sample multiple choice exercise. Figure 1.5 is a True or False exercise, and Figure 1.6 is a sample fill-in-the-blank exercise.
5. Pedagogical Applications and Learning Outcomes

From the aspect of language learning, one student in the class noted that the authentic readings with listings of vocabulary and key structures and expressions, together with the various online exercises and audio sound files improved his language competence. As the course progressed he became comfortable using Chinese to talk about various forms of Chinese Puppet Theater. At the end of the semester, he was able to write an essay in Chinese of over 1,000 characters, which was published in the Polyglot, the undergraduate journal for the Department of Modern Languages at Carnegie Mellon University. We also observed that as the course proceeded, students developed higher motivation and confidence in using key structures and expressions in Chinese to compose oral and written reports that addressed aspects of Chinese Puppet Theater content and criticism.

From the aspect of content learning, students gained concrete understanding and appreciation of Chinese Puppetry in the social context. Observations of their participation in class activities show that they have an increasingly transparent and impressive understanding of the cultural content. Students are amazed by the vivid performances and consummate skills of Chinese puppetry masters, and they gained both better understanding and appreciation of the art form through their discussions and criticisms of the puppetry performances. Moreover, they were able to carry out related cross-cultural comparisons and personal connections. For example, in their written assignments, some students made comparisons between Chinese Puppetry and Western Puppetry on their performance forms and cultural connotations, while some other students connected their in-class experiences of Chinese puppetry with their childhood memories and impressions of this form of art. Thus, students’ interest in the topic content and its relevance to them motivates them well to participate in class activities which are beneficial to the acquisition of content knowledge and critical thinking skills.
From the above leaning outcomes and feedback from students, we can see the value of integrating technology into a content-based course focused on performance arts. The video resources offer visual and audio displays of the content from multiple perspectives. DVD video showcases how puppet masters perform the puppet shows. This allows students to sense the differences between two main types of performances, the slower-paced performance accompanied by South-pipe music and the fast-paced performance accompanied by North-pipe music. Video clips from YouTube help students understand how the puppets are made and how the puppets come alive. In addition, videos can present the puppet theater performances in local dialects, along with narration and singing in the show. These illustrate the fascinating features of some local Chinese dialects, which enable students to understand the connections between local language and culture.

The two websites we incorporated into the course offered essential resources for students to explore the world of Chinese Puppetry outside of the classroom. The information on the websites is classified according to different topics and different types of puppetry, so that students can easily find the information they need. The websites not only contain texts and exercises for culture appreciation but also provide language-learning activities. All of them are helpful for students to learn language in context. Students’ comments on the two websites were highly favorable. In their evaluations, they considered these two websites key resources to help them build a more ample and deep understanding of the content. In addition, the online activities and online interactions among peers facilitated their learning of Chinese Puppetry and also increased their access to language practice.

6. Conclusion

This paper has used the Chinese Puppet Theater in the Social Context course to demonstrate how to leverage technology to help design a content-based Chinese arts and literature curriculum. With the help of multimedia, photos, audio, websites, YouTube clips, etc., students receive multiple benefits and are very much impressed by the significant advantage that CALL learning and teaching can enable in a class. Moreover, these tools help balance content instruction and language skill instruction in the curriculum. The online modules are also flexible and may be adapted to different levels of Chinese classes and learners.

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