Developing ESP Multimedia Courseware for East Rift Valley National Scenic Area

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Abstract

The government of Taiwan has carried out various policies to promote the tourism industry. To meet the needs of the industry, several related programs, departments and colleges in higher technical education have been established in Taiwan to cultivate high quality manpower by increasing English communication skills and related professional knowledge. With the rapid development of information technology, it is important to implement digital materials or courseware for students in higher technical education to help them acquire professional knowledge and English language abilities for their future jobs. Thus, the aim of this study is to develop bilingual (English and Chinese) multimedia courseware for East Rift Valley National Scenic Area, one of the most popular tourist sites in Taiwan.

The development of the courseware is mainly based on Mayer's multimedia learning cognitive theory. The courseware includes three sections: introductory English texts about the rift valley, scenic spots and festival activities, combined with corresponding English audio, Chinese translation support and integrative language exercises for English learning (listening, speaking, reading, writing and translation). An evaluation system with an instant feedback function is developed as well. The online evaluation system includes five language tests of various types such as cloze, sentence restructuring, dictation, and bilingual translation at various degrees of difficulty. Through the courseware, learners are expected to expand their language skills and obtain relevant content knowledge for a better understanding about the target subject. The multimedia courseware will be integrated into instruction for EFL students to investigate their learning effectiveness and their conception.

Keyword: ESP, English Learning, Multimedia, Courseware

Introduction

Tourism plays an important role in Taiwan's economy so that various policies related to tourism have been implemented by the government of Taiwan. In addition, since Taiwan has become one of members of the WTO, World Trade Organization, Taiwan has greatly increased opportunities to connect with foreign countries. Meanwhile, many foreign films and variety and reality shows are shot in Taiwan, such as Lucy, Grandpa over Flowers and Running Man, bringing growth to the economy and tourism. Natural landscape is not only a valuable treasure of mankind but also the source of attraction for foreign visitors. English as an international language is a significant component for global communication; hence, manpower with professional knowledge and English ability will be needed in order to faciliate the continuing growth of tourism industry. Therefore, English for specific purposes (ESP) instruction is increasingly emphasized at technical universities in Taiwan.

ESP is well-known as a learner-centered and content-based approach to teaching or learning English as a foreign language and is designed to meet the needs of learners who want to learn English for use in their specific field, such as technology, leisure and academic learning (Johns & Dudley-Evans, 1991; Dudley-Evans & St John, 1998). Hence, ESP instruction can narrow the gap between skills acquired in higher educational institutions and the skill sets needed in industry.

However, some problems are found in ESP curriculum development in Taiwan. After investigating the correlation of English proficiency of students at four technical universities, Lai (2005) indicated that first, there is a lack of sufficiently qualified teachers, authentic materials and specific knowledge of certain areas; second, students' needs for improving integrated language skills should be met in areas such as listening, speaking, reading; writing and third, a higher level of English skills is required to perform well in learning in ESP courses. These findings were echoed in Tsou (2009).

Courseware or multimedia integration into instruction has become an effective tool for learning (Roblyer, 2003). Courseware, also called instructional or educational software, is widely used in higher education as an integral part of the courses (Riley, 1995). Interactive multimedia can easily integrate language skills, including listening, speaking, reading and writing with authentic learning experiments, learners' control over their learning and a focus on the content (Warschauer, 1996). The development of ESP courseware can play the role of tutor, a tool, or a tutee and provide a kind of

team-teaching to help Chinese EFL students repeatedly practice their English skills with L1 audio through the courseware, while learning professional content (Tsai, 2009).

Therefore, the purpose of the study is to develop bilingual (English and Chinese) multimedia courseware about the East Rift Valley National Scenic Area, one of the most famous scenic spots. A variety of multimedia elements are incorporated in the courseware, for example, English texts with corresponding audio, Chinese translation support, images and an online evaluation system with instant feedback which includes five linguistic and content-based tests of various types such as cloze, sentence restructuring, dictation, and bilingual translation at various degrees of difficulty.

Literature Review

With recent progress in information technologies, computer-assisted language learning (CALL) can provide numerous advantages in the fields of contextual (Shamsudin & Nesi, 2006; Tsai, 2009), self-paced, autonomous and individualized learning (Fischer, 2007), motivation (Chang, 2005), feedback and evaluation (Dickinson, Eom, Kang, Lee & Sachs, 2008). Besides, E-learning is known as a learner-centered educational system. Learners can learn what they want anytime and any places on their own needs and at their speed (Rosenberg, 2001). These advantages and values meet the requirements of ESP curriculums, in which content and method are related to the needs of learners. Among innovative information technologies approach, integrating multimedia courseware into instruction is regarded as an efficient instrument for learning (Roblyer, 2003; Tsai, 2009). Courseware development and its application in classroom instruction are much more stressed. However, both of its layout and application have been greatly concentrated on courses of technology and sciences (Li, 2004; Shamsudin & Nesi, 2006), probably due to teachers in these areas, who have more skills and competence in use of multimedia software and programming. Thus, teachers can more easily transform lecture notes into interactive multimedia. The effectiveness of these instructional instruments has not been completely investigated with regard to developing ESP courseware in Taiwan because it is an interdisciplinary mission, addressing to coordinate and integrate subject language, language learning and technologies of multimedia and information.

Generally, six characteristics of multimedia digital materials are included. First is integration, incorporating characteristics of several media, such as audio, video, image

and text to communicate learning information. Second, it is interaction, offering mutual communication between learners and the computer so that learners' motivation and participation are enhanced. Third is familiarity which offers users with a user-friendly environment. Fourth is non-linearity which offers learners more resources and information through hypermedia. Fifth is simultaneity which offers learners the latest development or information through internet. Final is virtuality which offers a virtual world that nearly seems like the real one through computers, which will promote learning interest and efficiency(Tsai, 2005).

Most digitalized learning materials can be linked to the internet. Through browser hypermedia, information is searched and acquired so that learners can access to abundant and various learning resources. Even though digital materials incorporate these advantages, it is also very important to consider the user's ability. If all the information or knowledge cannot be appropriately acquired by the learner, the information, therefore, won't be effectively used. Hence, several factors should be considered in the production of digital material, such as content of the material, the style of the media and the layout of the interface.

The materials play an important role for the learner to explore and study. Appropriate teaching methods combined with strategy in digital material production should be also considered for conducting an effectively English learning . In order to increase the learner's motivation and interest in learning persistently, five components should be incorporated. First, it is necessary to enlarge cognitive ability, cultivate better attitude and characteristics and develop frequent and practical usage of multimedia materials in order to reduce the stress of learning. Second, the tendency of the new generation to use technology should be considered to establish an interactive and various learning environment so that user's attention or interest should not be distracted and lost by multimedia usage and layout. Third, topic of materials should be based on daily life in which learner's prior experience can be incorporated to facilitate the acquisition of new knowledge. Next, computer games can be designed to allow learners studying in an interesting and challenging environment while enjoying the system. Finally, in order to assess the learner's independent thinking and problem solving ability, learners can take part in the online evaluation with instant feedback for learners to self-examine and understand their learning progress(Tsai, 2005).

Methodology

In this study the procedure used to develop the multimedia courseware incorporates

background analysis, mining and selection of data, structure design of content and its production, digitalization of content, multimedia design, integration of content system, testing and modification and courseware completion, as shown in Figure 1.

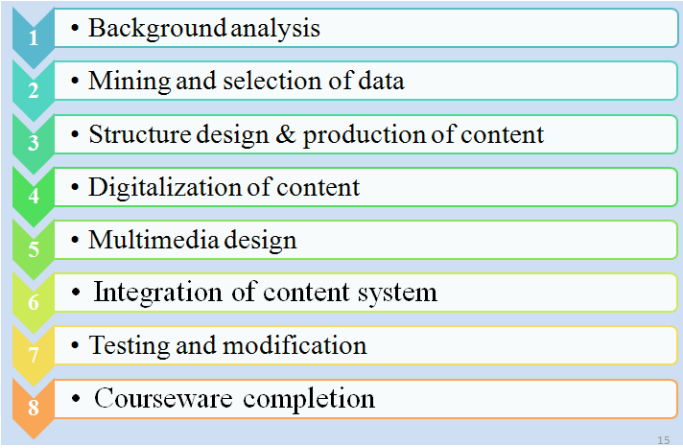

Figure1: The procedure of multimedia courseware development

The software used in the courseware development includes Microsoft, Audacity, Photoshop and Hypermedia to integrate a variety of resources such as text, audio, pictures and movies. For the multimedia courseware design, it is important to effectively use the multimedia and educational technology so that in the learning process, the interaction between the meaning and media will be executed. The multimedia courseware was based on Mayer's learning cognitive theory (2001; 2005) in this study. The bilingual content of the courseware were excerpted from the official website East Rift Valley National Scenic Area (http://www.erv-nsa.gov.tw/user/main.aspx?Lang=2&SNo=00000000). The Figure 2 shows the structure of the multimedia courseware. The courseware for East Rift Valley separates into three parts: About Rift Valley, Scenic Spots and Festival Activities. Each part includes many topics and every topic contains many learning units.

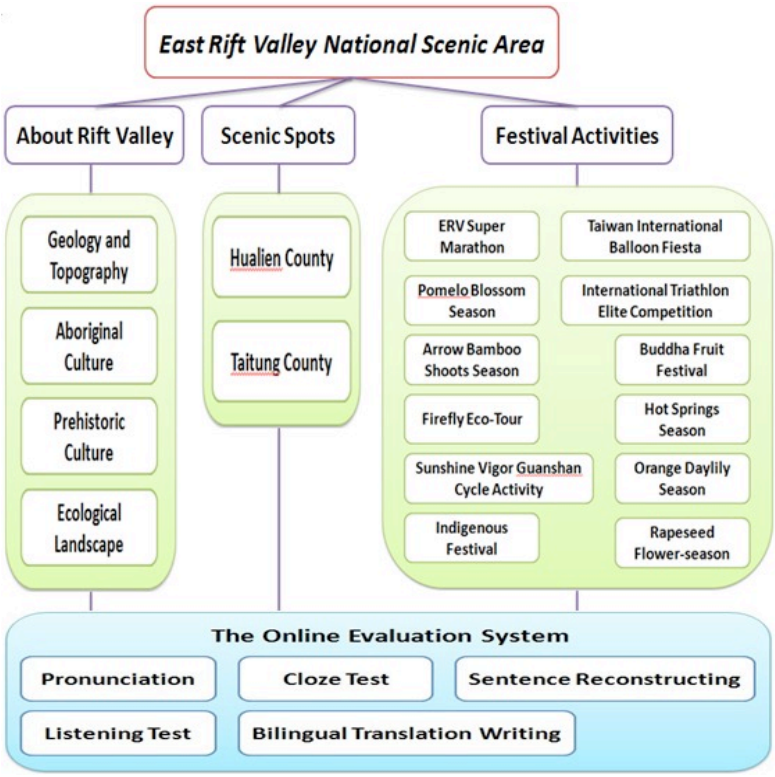

Figure 2: The development of multimedia courseware materials

A variety of learning items will be presented in each unit, including authentic English texts with its audio and Chinese translation, narration, practices of language skills, on-line tests with an immediate self-checking function and graphical images. Mayer's temporal and spatial principles were considered in this study, as shown in Figure 3, suggesting that students learn better when corresponding words and pictures are presented near or simultaneously rather than far from each other on the page or screen. Besides, the navigation and interface design will be carried out in learner-paced sections by button clicking so that students can control their learning pace and educational experience for repetition, deliberate practice and self-evaluation with the multimedia courseware. This feature is in accordance with the pacing principle which means the pace of presentation is controlled by the learner rather than by the program (Moreno& Mayer, 2000).

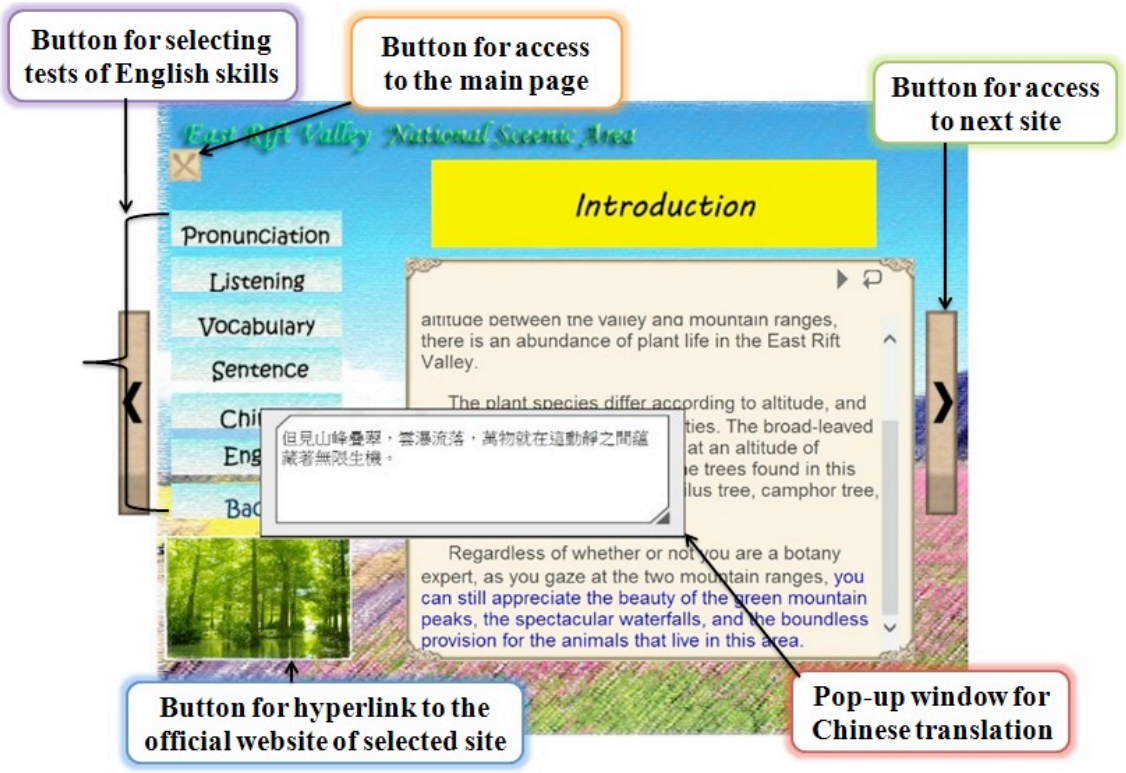

Figure 3: Layout of the learning content and activities of chosen website.

Results and Discussion

Mayer's multimedia learning cognitive theory (2001, 2005) was adopted in the courseware design. The main page of East Rift Valley National Scenic Area courseware incorporates three sections, as shown in Figure 4. Teachers and learners can click "Text Print" button on the bottom right of the screen to print all material of the courseware.

Figure 4: Main page of multimedia courseware East Rift Valley National Scenic Area

By clicking one of three section button on the main page, learners can go through the topic of the chosen section, shown in Figure 5. By further clicking any section button, learners can access to the related learning content and activities of the section shown in Figure 6, including several buttons for studying subject content and practicing language skills. Five kinds of the online language tests are embedded such as pronunciation practice, listening test, cloze test, sentence reconstruction and translation writing. To get more additional materials and resources, learners can click the photo on the bottom left side of screen which is hyperlinked to the official website. The courseware was designed based on a logical layout with a clear guidance and interface to meet the principles of Guided-discovery in the Advanced Principles of multimedia learning (Mayer, 2005). Thus, learners can have the freedom to study any learning topic at their own pace.

Figure 5: The main page of the selection of introduction to About Rift Valley

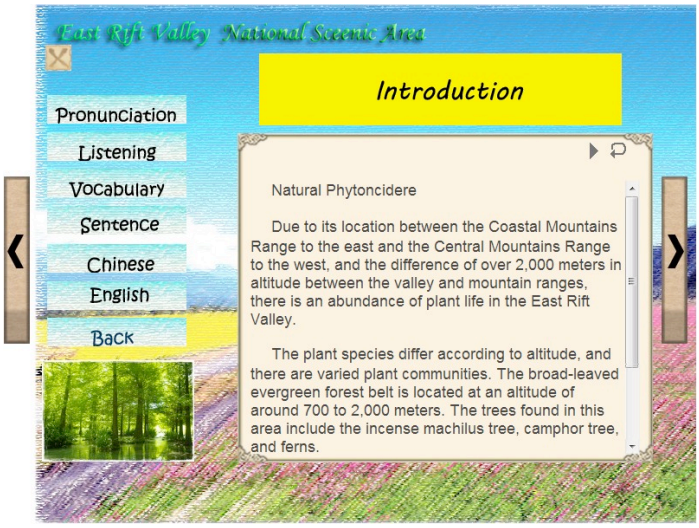

Figure 6: The learning content and activities of chosen section

The operational mode of language learning of the multimedia courseware is explained as follows: while any sentence of English text in each learning unit is touched by the mouse, the color of the clicked sentence turns into blue, shown in Figure 3. The sentence is being spoken with English audio when clicking the left button of the mouse, which enables learners to practice English reading skills, pronunciation and listening skills. The multimedia message with words presented with spoken language is in accordance with the modality and multimedia principle proposed by Mayer (2001). It facilitates learners to establish verbal and visual cognitive representations and integrate them. In addition, when clicking the right button of the mouse, the Chinese translation and explanation will be presented in a pop-up window near the clicked sentence, shown in Figure 3. This design corresponds to Mayer's temporal and spatial contiguity principles (2001). Such a bilingual version (English and Chinese) will facilitate EFL learners' text comprehension.

As for language practice such as listening, speaking, reading, writing and translation, learners can select one of five different levels language tests in the online evaluation system provided by the courseware. While learners choose one of these five tests, then, the program randomly selects questions of the test for them to practice. Since all these learning tests are accompanied by an instant self-checking system, learners can examine themselves instantly and understand their learning progress. If learners don't know the answer of the question, they can click the button of bell shown at the end of question. Then, the English audio of the reference answer will be played to help learners to answer the question, shown in Figure 7. Such a learner-centered cue layout can decrease cognitive load and learning difficulty. This design is in accordance with Mayer's prior knowledge principle in multimedia learning advanced principles.

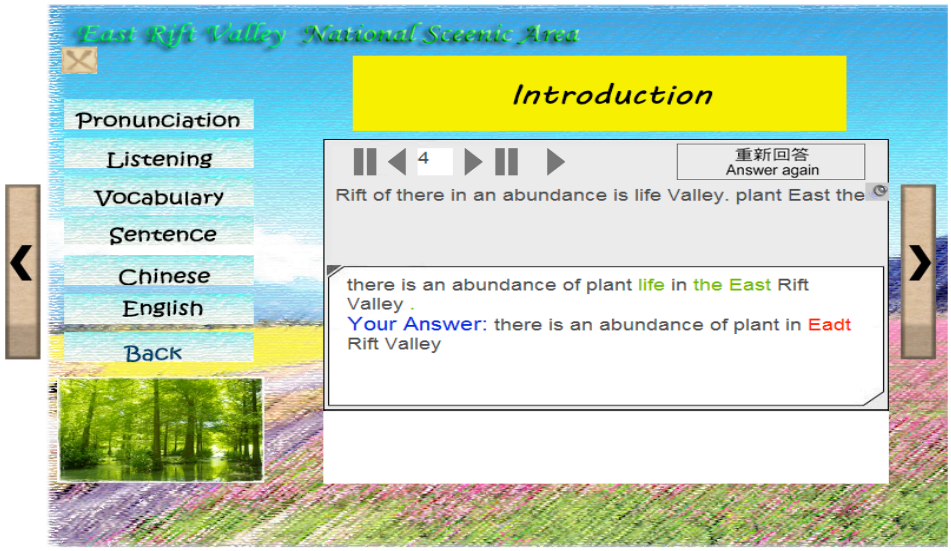

Figure 7: The self-checking system for the sentence restructuring

The wrong part of learner's answer is presented in red and its reference answer is in green.

Meanwhile, the courseware design in this study also corresponds to Chapelle's suggestions for multimedia CALL (1998). For instance, the features of color, English audio and Chinese translation provided by the courseware are in accordance with Chappelle's first suggestion, indicating that important linguistic traits notable through emphasizing them in a different color, in aural input and translation of sentences involving linguistic components.

The multimedia courseware provides learners to repeatedly practice integrative language skills with written English texts and its English audio. This design corresponds to Chapelle's second suggestion related to linguistic input offered by either aural or written language and modified in many ways, such as repetition, simplification through reduced speed, reference material and change of input mode. Moreover, a variety of language tests, for example, pronunciation, cloze test and sentence reconstruction are incorporated in the online evaluation system, allowing learners to practice integrative English skills and increase comprehensible output. This feature corresponds to Chapelle's third suggestion. Furthermore, learners can analyze, recheck, identify and correct their mistakes through the online evaluation system, which corresponds to Chapelle's fourth and fifth suggestion, mentioning the opportunity for learners to notice their mistakes and correct the linguistic output. Hypertext links and learning activities in language and in subject content embedded in the courseware can provides modified interaction between the learner and computer

through mouse clicking. It corresponds to Chapelle's sixth suggestions

Conclusion

The purpose of the study was to develop multimedia courseware for East Rift Valley. Mayer's multimedia learning cognitive theory was adopted in the courseware layout of the study. The language learning of the courseware corresponded to Chapelle's suggested criteria to develop multimedia CALL. The multimedia courseware included authentic texts with English audio and Chinese translation support, narration and practice with integrative language skills. In addition, the online evaluation system provided learners with a variety of language tests with instant feedback.

A model of networked ESP courseware development for East Rift Valley national scenic area provides learners with opportunities both to interact with content knowledge or integrative language practices at their own pace and need. Therefore, through a great amount of authentic materials for real life and meaningful communication, learners can explore and interact in the target language. In order to further investigate learners' effectiveness and perception, the multimedia courseware will be integrate into classroom.

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