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Design, Development and Implementation of New Century College English: A Project on a Web-based English Learning Environment in China

Guodong Jia & Wing Sum Cheung

Abstract

The use of web-based instruction has played an important role in education. More universities and institutions have been using it to reach out to an increasing number of students by providing a cost-effective programme. In 1999, the State Council of China approved and implemented a national scheme named the "Action Scheme for Invigorating Education towards the 21st Century (ASIETTTC)". It serves as a guideline for the development of education in China in the twenty-first century. As a result, a series of research projects has been launched. In this paper, we will describe one of the projects conducted by South China University of Technology (SCUT), China. It is a web-based English learning environment project. We will report the design, development and implementation of the project.

Introduction

In China, language educators, researchers and teachers started the study of the utilization of the Internet in language teaching and research in the late 1980s with the establishment of the China Education and Research Network (CERNET) and have moved forward steadily and quickly ever since (Wang, 1997; Gu, 1998; Wang, 1999; Liu & Wang, 2000; Lui, 2000; Xue, 2001; Ding, 2001). The State Council of China has been making efforts to make good use of Internet technology for the lifelong learning of all citizens. In January 1999, the State Council of China approved and implemented a national scheme named the "Action Scheme for Invigorating Education Towards the 21st Century (ASIETTTC)" which was submitted by the Ministry of Education (MOE). ASIETTTC serves as a guideline for the development of education at all levels in China in the twenty-first century. A document within ASIETTTC is entitled "Implementing Modern Distance Education Project" which outlines an image of building up an open educational network for lifelong learning for all

citizens. Under this title, there are six points addressed as follows:

- (1) making full use of modern telecommunication technology to promote distance education;
- (2) upgrading the transmitting capacity of the China Education and Research Network (CERNET) to connect all universities and colleges (nearly 1000) and about 1000 secondary schools by 2000;
- (3) reforming the existing TV education transmission network to achieve its high-speed connection with CERNET, and to connect a part of distance education sites to computer networks;
- (4) setting up some key educational-software-developing bases across the country to build up resource databases for distance learning and to develop high-quality educational software packages; meanwhile to introduce into the country some worthwhile educational programmes from abroad;
- (5) the MOE is in charge of the development of the modern distance education programme and is responsible for organizing the formulation and implementation of the national "Plan for Developing Modern Distance Education". The strategy for developing the "Modern Distance Education Project" is characterized by government support at the initial stage and self-financed operation in the long run. Advanced means of information technology should be adopted in light of China's actual conditions to keep upgrading modern distance education; and
- (6) encouraging key universities to be involved in distance learning programmes and to offer related courses; setting up or improving the national continuing education system so as to meet the needs of people's knowledge renewal and life-long learning (MOE's ASIETTC, 1998).

Under the guidance of ASIETTC, MOE has launched a series of research projects, of which the "New Century Higher Education Instruction Reform Project (for undergraduate education)" is one of the biggest consisting of 670 programmes covering all areas of higher education. The programmes are conducted by as many as 250 key universities and colleges from over 29 provinces. It is not an easy task to describe all of the programmes involved.

In this paper, we will focus on the description of one project conducted by South China University of Technology (SCUT) with the title "Web-based New Century College English (NCCE) – A course for Undergraduates" which is also used by some other universities and colleges. The duration of the project was from 2000 to 2002. As many as 50 scholars, teachers, instructional designers and programmers participated in the project, doing course design, script writing, web authoring, digitalizing, implementing and evaluating.

The students who are enrolled in the course are from the Distance Education College of SCUT with on- and off-campus students numbering 7000 from 2001. The students fall into four disciplines – Computer Science, Business Administration,

Electronic Commerce and English Language. College English, a two-year (four semester) programme, is one of the compulsory courses for all undergraduates.

Aim of the Project

The aim of this project is to design and develop a series of web-based courses of College English, which include English Intensive Reading, Extensive Reading, Listening & Speaking, Speed Reading and Grammar. The course is designed on the basis of the requirements from the National College English Syllabus (1999, p. 1) which claims its instructional objectives are "developing in students a relatively high level of competence in reading, an intermediate level of competence in listening, speaking, writing and translating, which enables students to communicate with others in English. College English should be instructed in the way of aiding students in their efforts to set a solid foundation of the language, to have a good command of language learning strategies and to enhance understanding of the culture of target language countries so that they may meet the needs of social development and economic construction."

To meet these requirements, NCCE consists of four major parts. Part I is an introduction to the English language by famous language educators nationally. Part II is the introduction to language learning strategies from foreign language experts, Chinese experts, experienced English teachers and course-complete students points of view. Part III is the introduction to the Western Culture, Society and Customs targeting at the cultural and social information of English speaking countries, mainly the US, the UK, Canada, Australia and New Zealand. The rationale for this part lies in the concept that cultural awareness has a great impact on the effectiveness of language learning. Part IV is the instructions for English Language Knowledge and Skills which is composed of detailed instructions to the five courses, namely English Intensive Reading, Focus Listening, Extensive Reading, Fast Reading and Grammar.

Rationale of the Project

There has been a big demand in China for web-based English teaching and learning materials since the time of the launching of ASIETTC in 1998. Here are the six major reasons for the design and development of NCCE.

1. to meet the needs of the National College English Syllabus for English learning; this is because no existing commercial material is available to match the distance learning programme,
2. to provide instant-access teaching and learning materials with full supporting systems,
3. To create a learning environment employing English complemented with the Chinese language which is crucial for non-English-major students,

4. to provide courses which are cost-effective to educate a large number of students by using the web-based approach in comparison with the traditionally costly classroom instruction. In China, all college students need to learn English. In addition, many who cannot be accepted by universities also have a desire to learn English. This is because many vocations require them to be competent in English. However, the number of qualified English teachers is limited compared to the large number of students who want to learn English,
5. to develop a web-based learning environment for college students because SCUT has a strong web-based instructional design team, language educators and computer programmers and other technical supports as well,
6. to serve to a certain extent as a web-based model to teach and learn English language in China.

Structure of the Project

The project takes the hierarchical structure as its main frame which organizes its learning materials in the shape of a pyramid. The hierarchical structure has the characteristics of each row of objects in the structure linking to objects directly beneath it. It has the clear advantage of neatness of information organization as shown in Fig. 1.

Three levels are designed for this hierarchical structure. Level 1 is the Home where any part of the course can be navigated to. Level 2 is the sub-menu including four major parts mentioned above. Level 3 is the content pages with an average of 10 learning units for each sub-course.

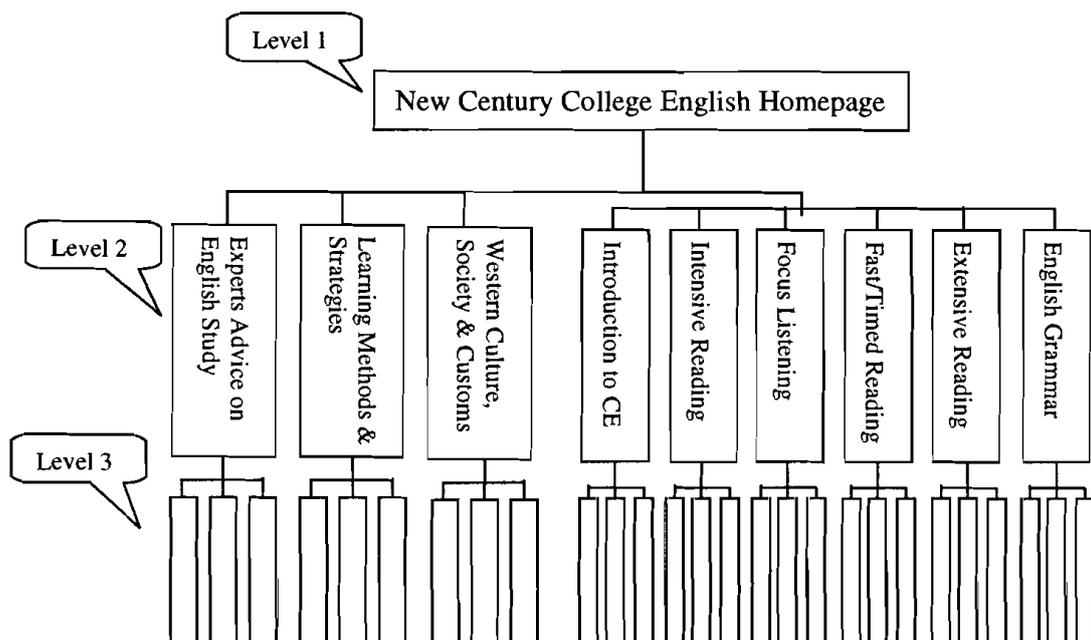


Fig. 1. The hierarchical structure of NCCE.

Description of Courses

As mentioned above, College English is a two-year (four semester) course divided into four bands – Band 1 to Band 4 with a steady increase in language difficulty. The content structure, however, is basically the same. In the Expert's Advice on English Study (see Fig. 1), language educators are invited to give online lectures on the English language, the relationship between language and culture, language and society, history of English, and advice on the effective method of English study. In Learning Methods and Strategies, specific views, methods and valuable experiences on the effective learning of English are presented by foreign language experts, Chinese teachers and students. In Western Culture, Society and Customs, 40 online lectures on a particular country like the US, conducted by a foreign teacher and a Chinese teacher, are presented. In English Language Knowledge and Skills, an introduction to the course and five sub-courses are presented concerning the aspects of English intensive reading, extensive reading, fast/timed reading, listening and grammar.

Measures of Course Instruction

The measures of course instruction include the online lectures in video format, the online lectures in text and graphic formats, the online real-time tutoring system, the BBS supporting system, the homework submitting system, the e-mail communicating system, the related web sites for general English, CD-ROMs and face-to-face teaching.

Oliver (2001) suggests a framework which describes three critical elements of an online learning setting. They are learning activities, learning resources and learning supports. According to Oliver (2001, p. 209), learning activities are "the tasks, problems, interactions used to engage the learners and upon which learning is based"; learning resources are "the content, information and resources with which the learners interact in completing the tasks"; learning supports are "the scaffolds, structures, motivations, assistances and connections used to support learning".

The learning activities, resources and supports of NCCE web-based learning environment are summarized in Table 1.

Online Lectures

Online video lectures are the primary method of course instruction. Technically, they are condensed and developed into two formats, the 300 kbps format and the 33 kbps format. The former is intended to be used by those students who can get access to computers in the LAN-based network system and the latter is supposed to be used by those who can only have their computers connected to the Internet by modems although the quality of the videos is not so satisfactory. Basically, the course can be run smoothly over the net in either way. Besides, the lectures are also

Table 1.
Learning activities, support and resources in the NCCE project.

Learning activities	Online lectures <ul style="list-style-type: none"> ● Intensive reading ● Fast reading ● Extensive reading ● Focus listening ● Grammar
Learning support	<ol style="list-style-type: none"> 1. Online real-time tutoring system <ul style="list-style-type: none"> ● Conducting student-tutor communication in real-time chat-room format 2. Online BBS system <ul style="list-style-type: none"> ● Allowing students to post their questions, opinions, and suggestions so as to communicate with tutors off-line ● Providing a learning environment for students to learn from each other (i.e. peer learning and collaborative learning) 3. Online homework system <ul style="list-style-type: none"> ● Providing administrative support for teachers to collect assignments and for students to submit assignments 4. E-mail system <ul style="list-style-type: none"> ● Providing communication support between students and tutors at any time 5. Face-to-face teaching <ul style="list-style-type: none"> ● Providing opportunities for students and tutor to communicate face-to-face
Learning resources	<ol style="list-style-type: none"> 1. Web sites: <ul style="list-style-type: none"> ● A web site for general information concerning English learning http://www2.scut.edu.cn/fld/flnet/flnet.htm ● A web site for general English including English knowledge, English reading and writing, and western culture http://www2.scut.edu.cn/fld/chinese/Callmain/callmain.htm 2. CD-ROMs <ul style="list-style-type: none"> ● Four sets of College English CD-ROMs are used as a resource 3. Text books <ul style="list-style-type: none"> ● Traditional textbooks are still used as resources

delivered via the net in text format just in case some students are still running very slow computers.

Online Real-time Tutoring System

The online real-time tutoring system has been built and implemented for the purpose of real-time communication with students. It takes the form of chat-room communication. Once in the system, any student can raise his/her questions which appear on the screen immediately and can be viewed by both teachers and other students. The teacher may then choose to answer the questions or invite other online

students to react on the question before he/she suggests the answer. The teacher can also control whether the answer will be viewed only by the enquirer or by all the other online students. Also, the student can decide whether his/her question will directly and privately reach the teacher or both the teacher and other students.

Online BBS System

An online BBS system has been developed in order to give students an opportunity to post and discuss their questions, exchange opinions and raise suggestions. Teachers may monitor the process of this sort of learning by providing advice, suggestions or references if necessary.

Online Homework System

The homework system is a database-powered system with the functions of collecting, sorting, recording, and returning students' homework. The teacher can use it to set, revise, collect, correct, delete, download and return homework. The system automatically records the date of the homework setting and the date of submission. It also records how many times the students have submitted homework out of the required times and how many times the tutors have corrected each student's homework.

Other Online Supporting Systems

Apart from the systems above, other supporting systems have also been set up to facilitate instruction. The supporting systems are the e-mail system, a web site for related information, and a web site for general English.

The e-mail system is intended for convenient communication between students and tutors. The student can send e-mail to his/her tutor whenever he/she has queries, doubts and difficulties in the process of learning.

A web site for related information is named SCUT (South China University of Technology) Foreign Language Education and Research Network (SCUT-FLERN: <http://www2.scut.edu.cn/fld/flernet/flernet.htm>) in which a particular section is for distance education which provides some sort of information relating to English study via the Internet.

The site for general English is entitled WWW English Study Wonderland (<http://www2.scut.edu.cn/fld/chinese/Callmain/callmain.htm>). This site offers three main sections, namely English Knowledge & Tools, English Reading & Writing, and Western Culture & Society.

Off-line Supports

To supplement the course, two types of off-line supports are provided to the students. One is related to commercial CD-ROMs and the other is face-to-face tutoring.

Students use the College English Intensive Reading on CD-ROMs for their own independent learning. The CD-ROMs are developed by the Department of Foreign Languages, South China University of Technology and published by the Shanghai Foreign Language & Education Press. Face-to-face tutorials are arranged once every fortnight on a regular basis with a 4 hour class each time. The content of the tutorials is based on the semester schedule of instruction.

In summary, we have a system that is composed of: online lectures, real-time tutoring, online BBS, online homework system, online supports, and off-line supports. In essence we recognize the importance of complementing both online and off-line supports because not all issues of language learning can be handled online. Future efforts include creating an online community of learners for such a language-oriented effort. Other initiatives could be to collaborate with other English language online communities. Research is underway to consider how these features directly support (or otherwise) the learning of the English language within a predominantly Chinese speaking community.

Formative Evaluation

To assess the functionality and content accuracy of NCCE, a formative evaluation was conducted at the end of the NCCE prototype development. This evaluation consisted of an internal review and a small scale piloting. The internal review was conducted at SCUT by staff members in two stages.

In Stage one, the reviewers were divided into two groups. Group one, consisting of five instructional designers and computer programmers, focused on the functionality of NCCE. Group two, consisting of five experienced English teachers, focused on subject content. Both groups were shown and introduced to the prototype of NCCE that includes all the features of the course. The duration of this evaluation lasted about 8 hours, which was assumed to be comprehensive enough. Observation and interview were used as data collection means. Based on the reviewers' comments, numerous revisions were made.

In Stage two, the reviewers were in one group consisting of five members from the Computer Assisted Language Learning section of the School of Foreign Languages who have expertise in both English teaching and software development. This group, introduced to the revised version of prototype, reviewed NCCE on both aspects with a similar reviewing process as Groups one and two. Based on their comments, more revisions were made. Finally, the prototype was reviewed by SCUT administrators concerning foreign language teaching and research, and was followed again by revisions.

The prototype of NCCE was piloted with two groups of distance learning undergraduates (10 students in each group). Ten staff members acting as students worked through the prototype and filled in a protocol document with notes on behaviour and timing. At the end of each part of the prototype, questions were

also asked regarding any difficulties or any opinions about the improvement of the design.

From this formative evaluation, the following points can be summarized as guidelines to help the design and development of language software with regard to functionality and subject matter:

- provide user-friendly navigation tools;
- provide immediate feedback after each task;
- shift control as much as possible to the side of learners;
- use graphics and animation where they may apply to reduce the amount of text;
- use common words and short sentences and phrases to simplify the instructions and directions;
- use proper fonts, size, style, colour etc. to reduce the fatigue of screen reading;
- digitalize sound with good quality (better in 22,050 Hz, 16 bit, stereo format) for students' imitation of pronunciation and intonation;
- be accurate in the interactive instruction of English idiomatic usages and grammatical elements.

Conclusion

The literature on IT usage in China indicates that so far there is no College English course being developed and delivered via the Internet as complete and self-supported as the New Century College English series. Potential students using the course will not only include those of distance learning but also campus-based ones of over 1000 universities and colleges throughout China. Some universities, due to the lack of English teachers, have already expressed their interest in using the course on their campus network to support their instruction of college English.

The course may also be viewed as a model for creating and developing web-based English learning environments since NCCE is designed and developed on a national standard in terms of online technical principles issued by the MOE.

Information technology makes it possible for a dramatic change in education in terms of creating a new paradigm for teaching/learning and reaching out to students in new ways (Kang, 2001). In the process of designing, developing and implementing NCCE many issues have to be considered. Among them the most appealing one is the change of the learner's roles from traditional listen-and-notetaking to doing-and-self-exploring mode.

The online environment in this paper is but one of the online initiatives taken by the government, albeit a very important and extensive one. We note that the other online initiatives in China (except for Hong Kong, Special Administrative Region of the People's Republic of China) are predominantly in the beginning stages and that the project as characterized in this paper may represent a primary model in China's online language learning journey.

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