

Mobile CALL-drill and Web-test Tool for Communicative Chinese Conversation Lessons¹

Song LIU¹, Kazuko SUNAOKA² Yoshiyori URANO³

¹ Doctor Course, Global Information and Telecommunication Studies, Waseda Univ., Tokyo, Japan

Liusong@suou.waseda.jp

² Professor, School of Political Science& Economics, Waseda Univ. Tokyo, Japan

ksunaoka@waseda.jp

³ Professor, Global Information and Telecommunication Institute, Waseda Univ., Tokyo, Japan

urano@waseda.jp

Abstract

The design and implementation of mobile CALL-drill and Web-test authoring tool is described. This system integrates modern networking, computer and mobile telephone technologies with linguistics and language pedagogy. This paper also aims to introduce the construction of a Chinese Corpus WTCC (Waseda Tutorial Chinese Corpus), to support Chinese conversation classes, as well as the development of the mobile CALL-drill and the Web-test based on these Corpus resources.

Keywords

Tutorial Chinese, Computer Assisted Language Learning (CALL), Mobile telephone, Corpus

1. Introduction

The Chinese language CCDL (Cross-Cultural Distance Learning) project at Waseda University is affiliated with Peking University and National Taiwan Normal University as of October 2004. There are thirty tutorial classes of four students each. In each class a native speaker language tutor located in Japan, Beijing or Taipei conducts Chinese conversation lessons by communicative approach. This education mode is called Tutorial Chinese and consists of two types: Distance Mode and Face to Face Mode.



Fig.1 Distance



Fig. 2 Face to Face

In order to support this new language education mode, we developed a Tutorial Chinese Platform (TCP) in 2003. The main education management server is located on the Waseda campus and manages all the classes that stretch over multiple countries. Unlike other distance education platforms, which are based on normal static classes, The Tutorial Chinese Platform is based on interactive dynamic conversation lessons. Through this platform, results of the lesson are fed back to the teacher and students by the tutors soon after the lesson. Functions such as report submission, homework correction, study log recording, BBS, web test and web questionnaire, etc have already been developed previous to the CALL-drill and Web-test tool on which this paper is based

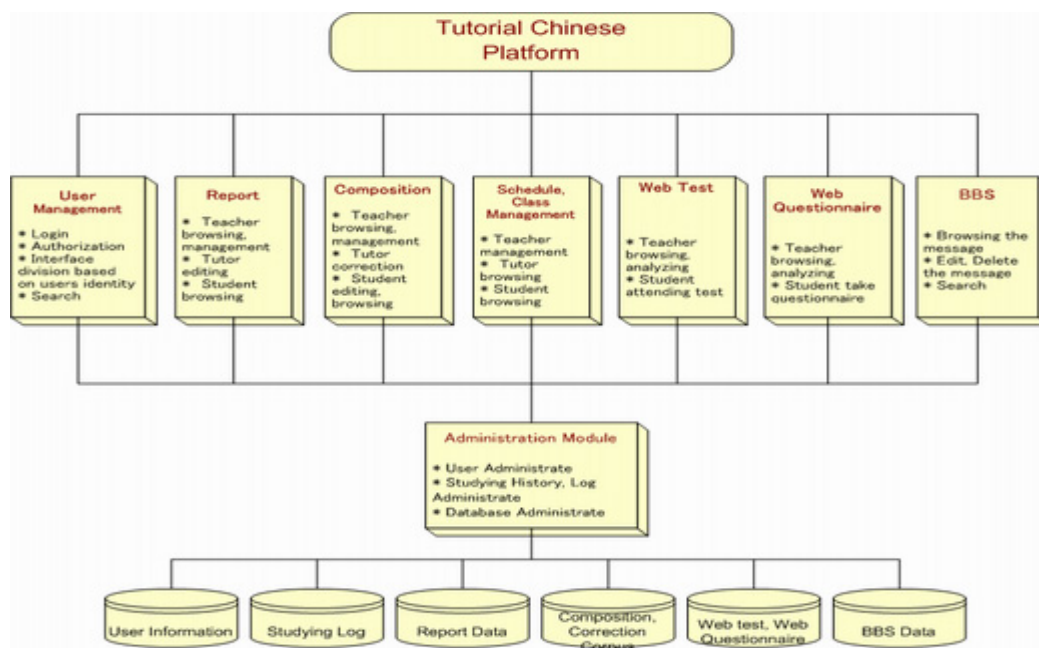


Fig. 3 TCP Module Structure

The CALL-drill and Web-test tool was added to the Tutorial Chinese Platform in May 2004. The tool has the following advanced features:

- (1) Web based interface and transmission mechanisms;
- (2) Integrated Waseda Tutorial Chinese Corpus;
- (3) Mechanism to save word corpus, problems and exercise papers in different layers, to make the authoring tool more flexible and reusable;
- (4) Ubiquitous language drill environment through mobile telephone technology.

Integrating these various features, we have developed corpus-based, flexible CALL-Drill and Web-test authoring tool for teachers and a ubiquitous language drill environment for students.

In this paper, we will introduce the content and construction process of the Waseda Tutorial Chinese Corpus; the implementation of the CALL-Drill Authoring tool and Web-test interface for PC and Mobile telephone; and the directions for future research plan.

2. WTCC (Waseda Tutorial Chinese Corpus)

A Chinese Corpus named WTCC (Waseda Tutorial Chinese Corpus) is based on three sources: The Grammatical Knowledge-base of Contemporary Chinese corpus by Beijing University (approx. 10000 words), HSK (Hanyu Shuiping Kaoshi, approx. 8000 words) and Japanese Basic University Educational Vocabulary corpus (approx. 3000 words). We have added translations in Japanese, pronunciation signs in Pinyin and difficulty level tags to these basic corpus sources and listed it on the class website as a Vocabulary Corpus. Students take computerized achievement tests based on this Vocabulary Corpus. Furthermore, we have added 8000 vocabulary words from the class textbook to this Vocabulary Corpus information to make CALL drills to evaluate the daily improvement of the students.

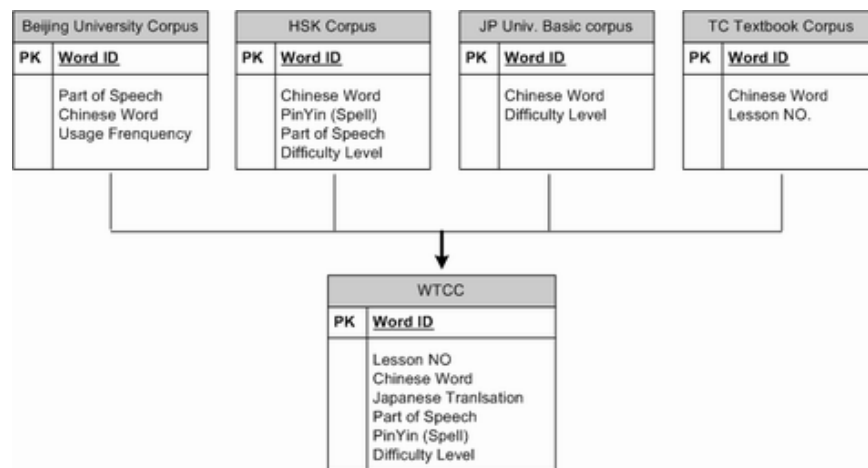


Fig. 4 WTCC Construction

The construction process consists of 5 steps:

- (1) Split sentences of TC textbook into words and morpheme.
- (2) Extract the POS, Pinyin spell and difficulty level information of each word by searching the Beijing University Corpus, HSK corpus and Japanese Basic University Educational Vocabulary corpus.
- (3) Select the target word from polyphonic or multi-meaning words based on the TC textbook.
- (4) Find the Japanese meaning of words using auto translation tools and manual confirmation.
- (5) Construct the corpus into an Internet based database.

ID	Lesson	Chinese	Japanese	POS	Spell	Diff. Level
618	1	大	大きい	adj	da4	1
729	1	...过	...したことがある	pre.	guo4	1
730	1	参加	参加する	v	can1 jia1	1
731	1	多大	どのくらい、いくつ	num	duo1 da4	1
732	1	房间	部屋	n	fang2 jian1	1
733	1	高兴	喜ぶ	v	gao1 xing4	1

734	1	高兴	うれしい	adj	gao1 xing4	1
735	1	功课	授業	n	gong1 ke4	3
736	1	号码	番号	n	hao4 ma3	2
737	1	机会	チャンス	n	ji1 hui4	1

Fig. 5 WTCC Structure

3. Implementation of CALL-Drill and Web-Test Tools

3.1 Development Environment

We have used C/S (Client/Server) structure in this system. On the server side, a web server has been used as the bridge between the user and the database server. User requests are sent to the database server through forms from client interaction and the results returned. On the client side, no special software is required to ensure that most standard computers are ready to use the system.

The LAMP (Linux, Apache, MYSQL, PHP) mode has been used as the development environment in this system, which has many advantages: (a) the entire technology stack is available through open-source; (b) it works fine for most applications; (c) it is easy to learn; (d) it allows one to build a web application quickly; and (e) there are many open source code examples available that make creating an entire web application even easier. The combination of Linux, Apache, PHP and MYSQL has formed an ideal network database environment.

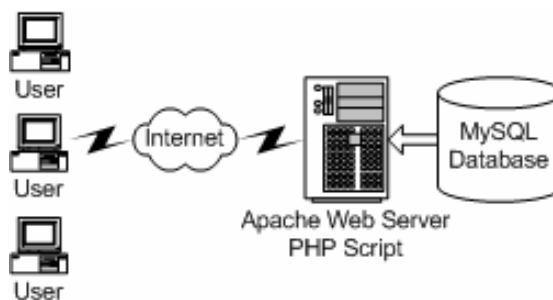


Fig.6 Development Environment

3.2 System Design

The CALL-Drill & Web-Test tools have four modules: Corpus Management, Drill Problem Authoring, Exercise Paper Authoring and Drill and Administration Interface. Unique to this system, we have constructed a mechanism that words corpus, problems and exercise papers in different layers. Therefore, when the teacher wants to construct an exercise paper, she/he only needs to select problems that already exist. The same problem can be utilized many times in different papers to save time and enhance review. Based on this mechanism, the authoring tool is more flexible and reusable.

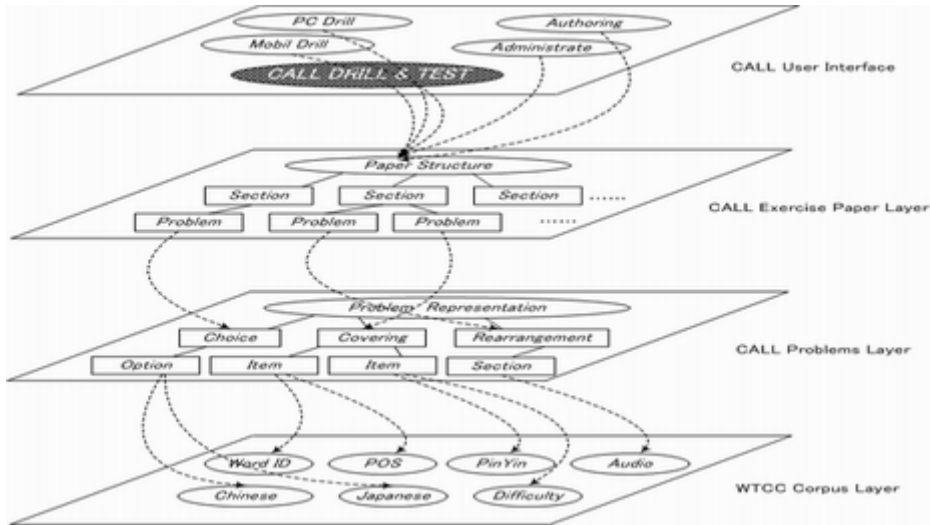


Fig.7 Layer Mechanism

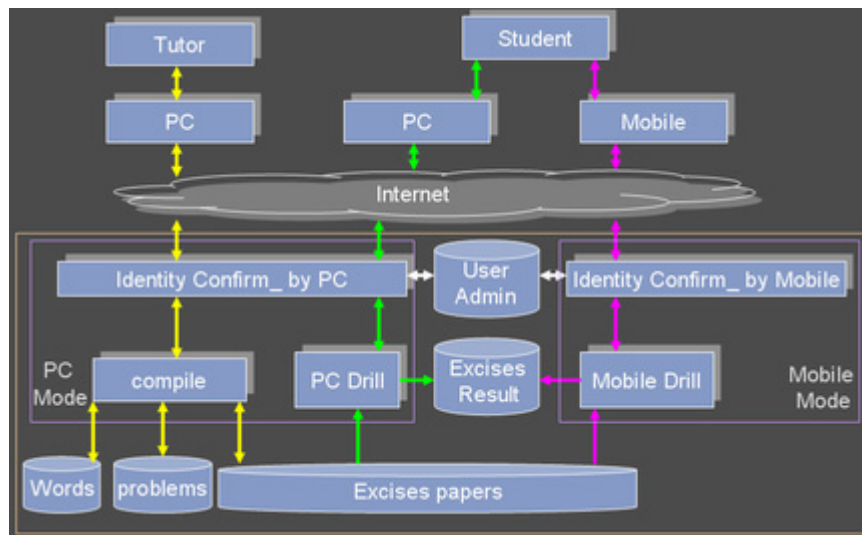


Fig.8 System Structure

3.3 Interface



Fig.9 Login

序号	单词	中文	日文	词性	发音	词频	学习次数	状态
401	我	我	わが	pron	wa	1	1	未学
402	你	你	あなた	pron	na	1	1	未学
403	他	他	かれ	pron	ka	1	1	未学
404	她	她	かれ	pron	ka	1	1	未学
405	它	它	かれ	pron	ka	1	1	未学
406	我们	我们	われら	pron	ra	1	1	未学
407	你们	你们	あなたら	pron	ra	1	1	未学
408	他们	他们	かれら	pron	ra	1	1	未学
409	她们	她们	かれら	pron	ra	1	1	未学
410	它	它	かれ	pron	ka	1	1	未学

Fig.10 Corpus Management



Fig.11 Problem Authoring



Fig.12 Paper Authoring



Fig. 13 Web-test (PC)

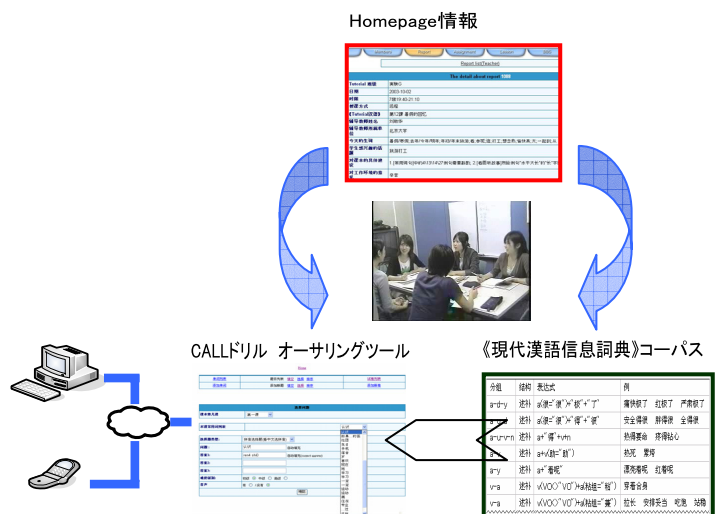


Fig.14 Web-test (Mobile)

4. Conclusions and Future Work

The mobile CALL-Drill and Web-Test tool has many advantages which distinguish it from conventional software. Among these advantages are: (a) a web-based user interface for students and teachers to facilitate system access, (b) a layer architecture to make authoring flexible, (c) a textbook based corpus to make drills more effective, (d) a ubiquitous environment to make drills accessible whenever, wherever users are.

In future versions, we plan to develop new functions as follows: an automatic registry system that adds new vocabulary used in the live tutorial lessons into the Corpus automatically. New vocabulary will be reported by the tutors after each class and will be registered in the server database. The server will refer to the WTCC Corpus database and if the word is already registered, the server will provide the educational data for further study. If the word is not yet registered, the server will acknowledge it as a new entry and make an additional entry. This additional information will be circulated among the students through their computers and mobile phones. The whole process will be automated to greater enhance learning for all users.



References

砂岡和子, 村上公一, “以提升交际能力为目的之汉语教学以及水平测验台议—早稻田大学国际汉语远程教学四年实践见证”, 第三届全球华文网络教育研讨会论文集, p.1-9, 2003年10月24日—10月26日, 台北。

砂岡和子等「基于 Active Database 与師生課本互動的國際漢語口語教学」 第四屆中文電化教学國際研討会 (北京) p.328-334,2004, 7, 12 数字化对外漢語教学理論与方法研究 (清華大学出版社)

LanZhang · SongLiu · JianmingWu · Yoshiyori URANO 「Chinese Language Learning Systems with 3G Mobile Phones」 Asian Info-communications Council WG3, 2004,11 Shen z hen, China. Document No. 91

劉松 · 砂岡和子 · 浦野義頼 「日中台遠隔中国語口語レッスン管理プラットフォームの開発-早稲田大学Tutorial Chinese E-Learning Platform-」 2004, 8, 4 PC Conference 論文集 P142-145

劉松等「遠程網絡漢語口語教学管理平台的開發」 第四屆中文電化教学國際研討会 (北京) 2004, 7, 12 数字化对外漢語教学理論与方法研究 (清華大学出版社) P293-299

i 「本論文は科学研究費補助金研究(B)(2)「国語チュートリアルシステムの国際共同開発」(課題番号: 14310136・研究代表者: 砂岡 和子)による成果の一部である。」