Mobile CALL-drill and Web-test Tools for the Communicative Chinese Conversation Lessons

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Abstract

The design and implementation of mobile CALL-drill and Web-test authoring tools 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 the Chinese Corpus WTCC (Waseda Tutorial Chinese Corpus) which supports our Chinese conversation classes and the development of the mobile CALL-drill and the Web-test that are based on these Corpus resources.

Keywords

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

1. Introduction

As of 2004 October, the Chinese language CCDL (Cross-Cultural Distance Learning) project at Waseda University affiliates with Peking University, National Taiwan Normal University and administers thirty tutorial classes of four students each. We place native speakers in Japan, Beijing and Taipei as tutors to conduct Chinese conversation lessons by communicative approach. This education mode is called Tutorial Chinese, which has two education types: Distance Mode and Face to Face Mode.
In order to support this new language education mode, we have developed Tutorial Chinese Platform (TCP) in 2003. We have established an education management server on campus to administrate all the classes that stretch over multiple countries. Being different from other distance education platform based on normal static class, Tutorial Chinese Platform is based on interactive dynamic conversation lesson. Through this platform, the education information in class will be fed back to teacher and students by tutors soon after the lesson. Up to now, we have already developed the functions such as report submission, homework correction, gathering studying log, BBS, web test and web questionnaire, etc.
As one major assistant part of Tutorial Chinese Platform, we have constructed CALL-Drill and Web-Test tool from May, 2004. This tool has the following advance features:

1. Web based interface and transmission mechanisms.
2. Combined with Waseda Tutorial Chinese Corpus.
3. Constructed the mechanism that saved words corpus, problems and exercise papers as different layers, to make the authoring tool more flexible and reusable.
4. Constructed ubiquitous drilling environment with the mobile telephone technology.

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

In this paper, we will introduce the content and construction process of Waseda Tutorial Chinese Corpus; the implementation of 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)

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 the difficulty level tags to these basic corpus sources and listed it on the class website as Vocabulary Corpus. Students take the computerized achievement tests based on this Vocabulary Corpus. Furthermore, we have added 8000 vocabularies from the class textbook to this Vocabulary Corpus information to make CALL drills to check the daily improvement of the students.

![Fig. 4 WTCC Construction](image-url)
The construction process consists of 5 steps:

1. Split sentences in TC textbook into words and morpheme.
2. By the way of database searching of Beijing University Corpus, HSK corpus and Japanese Basic University Educational Vocabulary corpus, to get the words’ POS, Pinyin spell and difficulty level information.
3. Select the target word from polyphonic or multi-meaning words based on TC textbook.
4. Get the words’ Japanese meaning using auto translation tools and checking by hand.
5. Construct the corpus into Internet database.

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</table>

Fig. 5 WTCC Structure

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

3.1 Development Environment

We have taken B/S (Browser/Server) structure in this system. In the server side, web server has been used as the bridge between user and database server. Through Forms, users’ requests will be sent to database server and then feedback the results to users. In the client side, no special software installs are required and it ensures that fairly standard computers will be 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. So this kind of technology stack has rapidly been adopted for building web applications in these days.

3.2 System Design

The CALL-Drill & Web-Test tools have four modules: Corpus Management, Problems Authoring, Exercise Paper Authoring, Drill and Administration Interface. Different from normal system, we have constructed the mechanism that words corpus, problems and exercise papers are saved as different layers. Therefore, when the teacher wants to construct exercise paper, she/he only needs to select problems that already constructed and saved. The same problem can be utilized multi-times in different papers. Based on this mechanism, the authoring tool is more flexible and reusable.
3.3 Interface

Fig. 8 System Structure

Fig. 9 Login

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

This mobile CALL-Drill and Web-Test tools 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) layer architecture to make authoring flexible, (c) based on textbook corpus to make the drill effective, (d) ubiquitous environment to make the drill usable whenever, wherever users are.

In the next step, we will develop new functions as follows: We hope to build an automatic registry system that adds new vocabularies used in the live tutorial lessons into the Corpus automatically. New vocabularies will be reported by the tutors after each class and will be registered in the server. The server refers to the WTCC Corpus database and if it is already registered, it will provide the educational data for further study. If it is not yet registered, it will be acknowledged as a new entry and the server makes an additional entry. This additional information will be circulated among the students through their computers and mobile phones. This whole process will be computerized.

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