English Learning System Based on Project-Based Learning Theory in U-Learning Environment*

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Project-based learning (PjBL) theory advocates providing students with real problems. A case of a successful move to English learning system in ubiquitous learning is illustrated. For software majors, making Software English System is the focus for their project. Students not only learn about five stages and job responsibilities in software making process, but also enhance their overall skills including research, designing and art, coding, testing, problem-solving, project management, interpersonal communication, and English presentation skill.

Keywords: ubiquitous learning, PjBL, English learning system

Introduction

With the fast development of technology, education field has undergone many changes in recent years. The evolution of systems and networks, including Personal Digital Assistant (PDA), handhelds, mobile phones, Wireless Local Area Networks (WLAN), and Bluetooth provides us with new scenarios for learning. The development of digital communication methods, information transfer, and storage has had a significant influence on education. Students have ready access to a wide range of information and educational resources and it is more and more popular for college students to use mobile phone to check vocabulary online and have discussion on learning through Internet.

Teaching and learning now can occur almost at any time and in any place that has communication services. A newly emerging educational environment is termed the “Ubiquitous Learning Environment” (or u-learning, U-Learning). When learning environments can be accessed in various contexts and situations, new technologies are fully utilized and efficiency has been greatly enhanced. For U-Learning may use more context awareness to provide most adaptive contents for learners at the right time at the right place in the right way (ZHAO, WAN, & Toshio, 2010). The paper presents the designing and outcomes of the project—English learning system, which can be applied in ubiquitous learning environment.

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Project-based learning is a pedagogy which engages students in the project by providing a real problem. The project’s goal is to let students learn by hands-on experience, by asking questions and confirming answers, making plans and predictions, searching for and analyzing information, sharing ideas and debating with peers for the solution, reflection on the project, and presenting one’s task in the project. This approach enhances the impact of learning through experience.

For PjBL approach, the teacher needs to design a real problem to stimulate students’ interest and push them to acquire more by searching information and learn more to solve problems. The authenticity causes students to think actively and have great expectation towards the final product. To design such a task, the teacher should take students’ major into consideration so that students can enhance practical skill and expand the knowledge in the field related to their major.

Therefore, as English teachers in software department, we focus on the project that can improve students’ application skill in software major as well as in English. Due to the great need of students in ubiquitous learning, we think of a plan of the project—to make software of English learning. This can fully meet the demand from college students. Meanwhile, students have 12 years of learning English and the rich experience can help them in the software-making process.

**Structure of the System**

When students are given chances to decide what kind of English learning system they will create, they have a heated debate. Then they design their own questionnaires, collect answers, and have group discussion on which aspect should be improved most. In spite of the fact that 33% students (81 persons) want to expand vocabulary in CET-6 examination (a country-wide standard test for college students), 67% students agree that they should make an English system.

Currently, the reform of English teaching in China is shifting its emphasis from skill-based approach to ESP—English as special purpose. Our English Learning System is one system for specific purpose. Therefore, we can call it English System (ES). ES can be adapted to students’ learning needs and promote students’ learning motives.

The group leaders also conduct the research on what modules should be covered in the system. The result is quite amazing. They put forward a plan for one database and one forum. The database includes five modules: module one—vocabulary of software and computer English; module two—the scientific reading related to software and computer English; module three—the culture and history of various famous software companies around the world; module four—the most recent news about these companies’ product; module five—interview questions from company and techniques in interview.

**Five Stages and Job Responsibility of the Project**

Students are wholly involved in five stages of project of making software: need requirement analysis, designing interface, coding, software testing, and software maintenance. Their job responsibility and skill are as follows (see Table 1):
Table 1

| Five Stages | Job Responsibility                                                                 | Skill requirement                  |
|-------------|------------------------------------------------------------------------------------|-------------------------------------|
| Need requirement analysis | Designing questionnaires and collecting answers from customers about the needs for software | Research capabilities               |
| Designing interface     | Designing interface based on customers need                                         | Designing and art skill             |
| Coding                | Converting a piece of information into another form or representation               | Coding skill                       |
| Software testing       | Executing a program or application with the intent of finding software bugs and debugging | Testing skill                      |
| Software maintenance   | Stable operation, improvement of the system, regular optimization of existing software and handling application software failures | Problem-solving skill              |

Designing of ES

**Clear explanation for vocabulary.** The vocabulary module includes vocabulary explanation in Chinese, sentence and how to use the vocabulary. For instance, “desktop” is introduced as one of the computer terms in module one.

**Attractive interface.** Based on cognitive theory, students’ interest should be captured so that they can further develop their English learning skill. For the designing of the interface, students’ preference is put above all the other factors. It is more stylish and fancy. It is designed that students should memorize how to spell the words, and they can move to the next page of learning only if they can write down the correct spelling. This game further motivates students to memorize more of the technical terms in English related to computer and software.

**Recently released news on virtual world.** In module two, we have the most recently released scientific news about virtual world. Students can have easy access to the development of trend in software market. They come from Fox news in 2015.

**Tailored to need of students.** In order to improve students’ practical English, we collect the questions of interview in some companies (like SAP Company) and list them in module five. This helps students familiar with the oral English used in business context and prepares them to apply English in future working environment.

**Personal database.** Based on learners’ needs and learning styles, students have the opportunity to expand the database if they have some relevant materials and upload those they consider important and store them online. They may also share materials with their peers through the forum.

The learning is student-centered and self-directed. Teacher is no longer transmitting knowledge, but acts as a facilitator in the learning process. Students can monitor and control their own learning for the personal database function of the system. Constructivist strongly advocates the construction of knowledge through interaction with the aid of learning tools.

**Outcomes of the Project-Based Learning**

The project-based learning enhances various aspects of students’ skills, including:

**Project Management Capacity**

Because teacher assigns students with the real task, they learn more about the process of making software (five stages). According to the task in their group, students decide how much time is distributed to complete one specific assignment. They keep track of their procedure and realize the importance of connecting from one stage to another in a project. Their hands-on experience gives them insight into the collaboration in the project and the
project management capacity is improved during the whole process.

**Interpersonal Skill**

Different groups in the project have many chances of communication. Group of need analysis provides their research answers to the group of interface design and both have discussion on the interface designing. Coding group should make some changes in debugging when they gain response from testing group. The maintenance group should communicate with coding and testing group if problems about software occur. Students fully understand the important role of communication and many times of inquiry and response enhance their interpersonal skills in process of working out the real problem.

**English Presentation Skill**

After the project, students need to present their own responsibility and performance in the project to all peers. Each one should give a public speech in English for four minutes. When students are preparing for their presentation, they need to reflect what problems they encounter and how they come up with solutions. Due to the fact that speech’s content mainly comes from their experience, students are more confident of expressing ideas and making analysis.

The content of speech is full of involvement in the process of making software, and the real thought on what they have experienced gives students a great sense of achievement for the actualization of the learning in software and English.

**Changing of Roles in ES in Ubiquitous Learning**

ES in ubiquitous learning shifts learning from a traditional to non-traditional context. It provides students with the opportunity to access instructional materials at different times from different locations. The teacher is no longer the main source of information. Instead, teacher becomes facilitator, organizer, trainer, and supervisor. Teacher becomes consultant. The learning atmosphere is free of pressure. Students feel safe and enjoyable to share opinions with peers and instructors.

Students are inspired to become lifelong learners. Visuals (photos, drawings, and flash cards), audios, videos, overheads, and PowerPoint are cost-effective ways to disseminate knowledge. Students might improve their searching skills while searching for knowledge and information and summarize them. They are learning to solve problems with what they acquire.

Teachers and students have different roles: filmmakers, radio producers, photographers, reporters, editors, or journalists. For example, students can be asked to produce a short movie or conduct an interview using their cell phone cameras. Teachers can also set up an audio player as a radio station on their website and ask their students to record specific materials.

**Conclusion**

Ubiquitous learning environment is a situation or setting of pervasive or omnipresent education or learning. Source data is present in the embedded objects. Software majors improve their overall skill in making the English System as a project and change their roles in ubiquitous learning. The cross-discipline approach is worthwhile, achieving satisfying results for teacher and students.
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