Apply Mobile Technology in Foreign Language Learning

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The quickly evolving Third Generation (3G) mobile networks and mobile devices make mobile learning feasible which can provide learners with more flexibility to access online learning materials and to participate in collaborative learning activities conveniently. Foreign language leaning needs an immersed environment for practicing the language. Especially, speaking and listening comprehension are two critical elements for foreign language learning, and they can only be achieved by frequent practice. Mobile learning empowers learners with a convenient way to fit into this learning style quickly. This paper describes the implementation of an ubiquitous learning environment for Chinese language online learning using mobile Website and mobile devices.

The booming economics in recently years in China has driven Chinese language learning on demand for most foreign investors. In addition, College Board will start to provide AP Chinese (Advanced Placement program) examination for high school students in the school year of 2006. But, how many Chinese language teachers are available in high schools today? It is obvious to see the potential market demand for Chinese language learning, and online Chinese language learning seems to be an effective solution to meet this market need.

The emerging 3G wireless data services and applications are available worldwide. Mobile technologies and devices (such as Mobile phone set, Pocket PC Phone edition, Blackberry PDA, Tablet PC, etc) have changed people’s daily lives dramatically in recent years by providing “wearable” computing features. These features allow people to send emails with captured pictures and recorded sounds, to surf mobile Websites and WAP (Wireless Application Protocol) sites for information, to locate positions with GPS (Global Position System) applications, to read downloaded e-books, to listen to music and to watch video clips (TV programs) on the road, to play online games, and even to used as remote controller for garage door and to work as smart cards for electronic transactions, etc. The mobile technology wants to empty people’s pocket.

However, there are technical challenges in developing the language learning application in mobile devices:

1. First, most mobile devices, such as mobile phone, sold in United States do not include Chinese characters. One of the ways to display Chinese characters is to display them as images. It also means that the backend system of the application needs to store these images or to do real time image conversion. Since most mobile devices have limited resources, it is critical to consider and choose appropriate character font, image type and size while creating these images.

2. Mobile devices have different form factors and capabilities. For example, devices have different resolution, varying numbers of display lines, different screen orientation (horizontal or vertical) and color or black and white displays. Some devices can support more image types (such as wbmp, jpg) and sound types (such as mid, mp3), some can take picture and record sound, and some can receive short messages (SMS), multimedia messages (MMS) or instant messaging.
3. Since different manufacture mobile devices may come with different micro browsers, it is necessary for applications to generate different markup languages for different mobile devices, such as HTML for PDAs and Pocket PCs, wireless markup language (WML) for some cell phones which support Wireless Application Protocol (WAP), and compact HTML (cHTML) for some other phones.

4. Mobile devices have different network connectivity, ranging from 9.6 K bits per second mobile network connections to 11 M bps (or 54 M bps) Wi-Fi Wireless LAN connections. Therefore, it is critical to build a single, mobile Web application such as the wireless Web that can response appropriate markup language document for a wide variety of mobile devices. In addition, for online foreign language learning application, there are other challenges: it needs a conversation environment, it needs collaborative learning among learners, and it needs a practice environment.

How will learning environments be designed and developed for foreign language mobile learning? The Mobile Classroom (MClass) system (http://www.mclass.tv, created by the author) is a computer system composed of a wireless Web, a database server, an e-mail server, and the interface to mobile networks. It can provide online learners with the mobile learning environment which allows them to access online course content on the Web and to participate in collaborative learning activities anytime and everywhere with their mobile devices. MClass has also been working on to be able to cooperate with existing Learning Management System, such as Blackboard via building block interface.

This site serves as a mobile teaching and learning resource to those who want to incorporate mobile learning activities into their existing distance education systems. MClass is designed to use learners’ time efficiently, to focus on improving online collaborative learning, and to support online learners’ group activities at the levels of brain-storming, synthesis, and survey evaluation. The Web site applies the "create-your-own" concept to give instructors the ability to create dynamic course content and activities online. Related data is then saved into a database to provide the data source for learning activities for online learners in the mobile classroom.

Mobile Classroom offers an effective and comfortable platform for teaching and learning a second language. In this system, the instructor works on the Web site to enter course instructions and design suitable learning activities, and then the system sends a short notification message to learners’ mobile devices. By clicking the hyperlink in the notification message (or directly accessing to the site) on the mobile device, the learner will be directed to the appropriate Web or WAP page where he/she can view the course content and participate in the course activities such as a poll, vote or short discussion.

The workflow of this mobile classroom Web site looks like this:

1. The instructor supplies the account with basic information and then creates the course.
2. The instructor assigns students to join the mobile learning activities.
3. The instructor creates suitable mobile learning activities such as prompt feedback on short assessments like quizzes for each course.
4. Students receive notification and then download learning materials (audio or video) or respond to mobile learning activities by using their mobile devices.
5. The instructor replies on learners’ activities.
6. Students view the feedback and statistical results.

Mobile Classroom provides an alternative approach for foreign language learning by utilizing latest mobile technologies and data services from mobile carriers to provide online learners with a synchronous learning environment and enables them to practice speaking and listening compression conveniently.
Online learners are often self-directed and working in their chosen fields, so they opt to apply their newfound skills or knowledge to the workplace, hobby, or home right away, especially the language stuff. Mobile Classroom facilitates these types of learning habits in a timely and interactive manner that releases time pressures and speeds learning more than the traditional online classes, while increasing retention.

Mobile technology enables learners to better utilize their odd time for online learning and participating in collaborative learning activities, without having to access their personal computers at home or in the office. With the ability to learn anytime and anywhere, mobile learning brings new concepts for teaching and learning into online environments. There are also barriers for wide adoption of mobile learning today such as the issues of communication coverage, system reliability (message delay issue), communication security and air time fees. While comparing with the traditional language learning environment, we would expect to see the increasing learning outcomes by applying mobile technology in foreign language learning with wireless networks to optimize support for multimedia applications.

Biographical Sketch

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