

Chapter 11

Development of Adaptive Kanji Learning System for Mobile Phone

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ABSTRACT

This paper describes an adaptive learning system based on mobile phone email to support the study of Japanese Kanji. In this study, the main emphasis is on using the adaptive learning to resolve one common problem of the mobile-based email or SMS language learning systems. To achieve this goal, the authors main efforts focus on three aspects: sending the contents to a learner following his or her interests, adjusting the difficulty level of the tests to suit the learner's proficiency level, and adapting the system to his or her learning style. Additionally, this system has already been evaluated by the learners and the results show that most of them benefited from the system and would like to continue using it.

INTRODUCTION

The learning of Kanji or Chinese characters is considered to be one of the most challenging problems faced by the learners of Japanese as a second or foreign language (Gamage, 2003). This is because there are approximately 2,000

characters of Kanji used in daily life in Japan and the foreigners who do not use Kanji in their mother languages are not used to handling such large sets of character (Hayashi & Yano, 1994). In 2008 the Japanese government announced that Japan aimed to host 300,000 international students by 2020 (Ministry of Education, Culutre, Sports, Science and Techknology, Japan, 2008).

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Therefore, the need of learning Japanese increases sharply and how to help these foreigners to learn Kanji quickly and effectively is becoming a very important question.

M-learning is thought as a good approach to solve such a problem, because mobile phones, which we always carry with us, are very useful for language learning (Chinnery, 2006; Kadyte, 2003; Kukulska-Hulme & Traxler, 2005). Generally speaking, there are three kinds of M-learning systems: mobile phone applications, the systems based on web browser and the mobile phone email or SMS systems (Li, Guo, Gao, Huang, & Cheng, 2009). Compared with the latter two, mobile phone applications are very difficult to use widely because they are dependent on the type of the mobile phone. So we would like to choose one from the other two kinds. In order to make the final decision, we have conducted a questionnaire among 19 international students in the University of Tokushima and the results show that 74% of them prefer to use the mobile phone email or SMS systems to the systems based on web browser because the latter costs too much. Therefore, to be accepted easily by the learners, we have decided to adopt the daily-used mobile phone email in our system.

The rest of this paper is structured as follows: in the second section, we will review the related research and state the goals of our research. In the next section, we will describe the issues regarding the implementation of this system. As for the fourth section, the adaptability of our system will be detailed based on three aspects. Then the experiment of our system and the results will be talked about. Finally, conclusions and future work are summarized.

1. REVIEW OF RELATED LITERATURE

Thanks to the low cost and the widespread use of mobile-based email or SMS, a considerable

amount of research has been done in regards to their use in language learning systems (we call them “MESLL” systems). For example, Levy and Kennedy (2008) have developed an SMS system in Australia. It helps the Italian beginners to learn Italian vocabulary by sending a short message containing some words, idioms, definitions and example sentences to the learners at a certain time every day. Cavus and Ibrahim (2009) also developed a system to help undergraduate students to learn technical English language words at the Near East University in Northern Cyprus. In Japan, Thomson and Houser (2005) created a similar system using mobile-based email to promote the students’ English vocabulary learning. In addition, many systems using mobile phone email or SMS have been developed in the other directions (Cheung, 2008; Seppälä & Alamäki, 2003; Stone, Briggs, & Smith, 2002). The results of all these studies indicate that the students prefer the mobile-based email or SMS functions and that they wish to continue using such systems.

However, we find that most of these researchers only focus on the effectiveness of the text messaging service function and neglect its further development. For example, few of them expend their view to include the use of mobile phone email or SMS in adaptive learning or cooperative learning. What’s more, due to the limitations of the simple text functionality, a common problem in these systems is pointed out by some researchers. It is that because the text messaging service is in push mode that the texts are sent by the server, not requested by the clients like HTTP (Hypertext Transfer Protocol), so many of the studies ignored the ‘anytime, anywhere’ affordances supposedly offered by mobile devices. In other words, they usually send texts to users at set times and on set days instead of learners being able to obtain this information when they want it (Kukulska-Hulme & Shield, 2007). Sometimes the texts are even perceived as “mobile phone Spam” (Mellow, 2005). In this paper, we call this problem the “spam problem”. We analyze that the “spam problem”

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