PACALL: Supporting Language Learning Using SenseCam

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ABSTRACT

The authors’ research defines a ubiquitous learning log (ULLO) as a digital record of what a learner has learned in the daily life using ubiquitous technologies. In their previous works, the authors proposed a model named LORE (Log – Organize – Recall – Evaluate) to describe the learning process of UULLO and developed a system named SCROLL to implement this model. This paper focuses on Log among 4 factors in LORE and proposed a passive way to log UULLOs. They use SenseCam to capture a learner’s learning activities and propose a system named PACALL to support reflection of what s/he has seen. This system filters bad photos that taken by SenseCam and helps learner find learning content. The author use this system in language learning and help learners learn the foreign name of objects around.

Keywords: Learning Log, Life Log, Passive Capture, Passive Capture for Learning Log (PACALL), Sensecam, Ubiquitous Learning

1. INTRODUCTION

Learning Log was originally designed for children as a personalized learning resource (Wikipedia, n.d.). It was set by teachers to help their students record their thinking and learning. In this learning log, the logs were usually visually written notes of learning journals. We defined a ubiquitous learning log (ULLO) as a digital record of what a learner has learned in the daily life using ubiquitous technologies and proposed a model called LORE (Figure 1) to show the learning processes in the perspective of the learner’s activity (Ogata, Li, Hou, Uosaki, El-Bishouty, & Yano, 2010). Our previous works has developed a system SCROLL (System for Capturing and Reminding Of Learning Log) (Ogata, Li, Hou, Uosaki, Moushir, & Yano, 2011; Ogata, Li, Hou, Uosaki, & Yano, n.d.; Ogata, Li, Hou, Uosaki, Moushir, & Yano, 2010) that helps learners log their learning experiences with photos, audios, videos, location,

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QR-code, RFID tag and sensor data and share ULLOs with others. Also, learner can receive personalized quizzes and answers for their question (Li, Ogata, Hou, Uosaki, & Yano, 2012). This system is implemented both on web and android smartphone platforms. With the help of built-in GPS and camera on smartphone, learners can navigate and be aware of past ULLOs by augmented reality view.

- **Log What a Learner has Learned**: When a learner faces something new in daily life, s/he may learn some knowledge by her/himself, or ask others for a help in terms of questions. The system records what s/he learned during this process as a UULLO.
- **Organize UULL**: When the learner tries to add a UULLO, the system compares it with other UULLOs, categorizes it and shows the similar UULLOs if exist. By matching similar objects, the knowledge structure can be regulated and organized.
- **Recall UULL**: The learner may forget what s/he has learned before. Rehearsal and practice in the same context or others in idle moments can help the learner to recall past UULLOs and to shift them from short-term memory to long-term one. Therefore, the system assigns some quizzes and reminds the learner of her/his past UULLOs.
- **Evaluate**: It is important to recognize what and how the learner has learned by analyzing the past UULL, so that the learner can improve what and how to learn in future. Therefore, the system refines and adapts the organization of the UULLOs based on the learner’s evaluation and reflection.

Miller and Gildea (1987) compared the way that children are taught words from dictionary definitions and a few exemplary sentences with the way vocabulary is normally learned outside the school. They noted that people generally learn words outside school. It suggests that using mobile devices is a good way for people to remember the vocabulary since people can use mobile devices anywhere and anytime. Therefore, in our previous works, we used mobile devices such as smartphone and tablet PC with the aim of registering UULLOs whenever and wherever learners want to log. In other words, learners have to take photos and registering UULLOs manually. It means that learners must record their learning experiences consciously. This is an active mode to record the learning experiences. However under this active mode, learners cannot record all of the learning experiences in the system. For example they may forget to take some pictures when they learned some new words, or although they wanted to take photos but they are could not because they were too busy. As a result learning chances will be lost and forgotten.

A passive mode can be a solution of these problems. In this mode, learners are not required to record learning experiences actively, and

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Figure 1. LORE model in SCROLL

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