
Chapter VII

SEGODON: Learning Support System that can be Applied to Various Forms

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ABSTRACT

We have developed learning support systems, named SEGODON and SEGODON-PDA. SEGODON consists of personal computers and a Local Area Network (LAN). SEGODON-PDA consists of Personal Digital Assistants (PDAs) and wireless LAN. We have applied them to classes, the results of which show that the class using SEGODON was not superior to the usual class which did not use digital equipment. The result of the end-term examination was almost the same regardless of the systems' used. The result of the evaluation using SEGODON-PDA was comparatively high. We analyzed the results and found that good results were derived from the curiosity of students in the class using new digital equipment like a PDA.

INTRODUCTION

In recent years, personal computers (PCs) have progressed amazingly and the Internet has spread widely. Many web-based learning support systems have been developed (Web-Based Training, 2002; Harasim, 1999). We have been developing learning support systems for about 10 years (Munemori et al., 1993; Yoshino et al., 1999a; Yoshino et al., 1999b; Yoshino et al., 2001; Munemori et al., 2002). In the early 1990s, we developed several information management systems for exercises of programming

(Munemori et al., 1993). In the mid-1990s we developed distance-learning systems for lecture-type classes and an exercise-type class because we can use audio and video communication via the Internet easily.

We show the learning support systems, which are named SEGODON (diStance lEarning support GrOupware for university eDucational envIrONnment). SEGODON is a real time distance learning support system for PCs. SEGODON supports both lecture-type classes and exercise-type classes. Forty students can use their own PC, each of which has a CCD (Charged Coupled Device) camera and a microphone for audio and video communication. A shared pointer is attached for indicating in each PC, and the teacher teaches students with a shared pointer on the prepared contents. The shared temporal drawing function can also be used for teaching. SEGODON has two means of recording class content, which are named the Blackboard system and the Note system. The former is for the teacher and the latter is for students. The contents of the Blackboard system and the Note system are the same. Students can take their notes freely in the Note system.

SEGODON-PDA is a learning support system, which uses a Personal Digital Assistant (PDA) and a wireless LAN. Each student has a PDA with the wireless LAN. The teacher teaches students by writing the lecture notes on the Blackboard. In the latter half of the lecture, students download the exercise data using the PDA and the wireless LAN. Students solve the problem and then write the answer on the Blackboard, carrying and using the PDA. The class consists of a lecture-type class and an exercise-type class by the PDA and the wireless LAN.

We show our learning support systems and the results of its implementation and usage in the chapter.

SYSTEM DEVELOPMENT

SEGODON for Lecture

SEGODON is equipped with the fundamental functions for lectures and for exercises. Also, the system also has special functions for lecture and for exercise. This section shows the fundamental functions, and the special function for lecture.

Design Policy

The following items are fundamental policies required for distance education.

1. *Easy operation of the whole system by a teacher.* Conventional distance learning support systems do not take into account the importance of easy operation of the whole system by a teacher in classes. We thought that the easy operation functions of the whole system are required.
2. *Shared temporary drawing.* In conventional systems, a shared pointer is only a pointing method on a shared screen. Explanation with only a shared pointer is hard to understand for the receiving side. We have developed a new pointing method, named shared temporary drawing.

System Overview

Conventional systems use one PC for every site for audio and video communication (Maeda et al., 1997; Zaslavsky et al., 1998). In SEGODON, each participant uses one PC.

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