Chapter XIV

Wireless Interactive Teaching by Using Keypad-Based ARS

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Abstract

Lecturing large classes in tertiary education is always a challenge; one of the most difficult tasks being how to gauge students’ understanding. Introducing interactivity can alleviate this problem by providing instant feedback that enables the lecturer to clarify problematical points. This is even more crucial and challenging when lecturing to large classes with students from many different cultural backgrounds. This chapter reports the authors’ experience with a wireless keypad-based system in different classrooms. New deployment strategies used in this project, and educational foundations...
on which they were based, are explained. The environment and the experience of using the technology from the educator’s viewpoint are also described. Student feedback is also discussed, and improvements for future use are also proposed.

Introduction

It is well known that an interactive approach is the most effective way to achieve a high quality of teaching and learning in the classroom (Happern & Hakel, 2003; McConnell, Steer, & Owens, 2003; Rust & Gibbs, 1996). However, the difficulty of organizing interactive teaching and learning activities with a large, lecturing class size is also well recognised (Mazur, 1997; Panitz, 1998). An increasing number of tertiary students are coming from other countries, especially from Southeast Asia, where the teaching and learning cultural styles are markedly different from the Australian open interactive classroom teaching style. This adds another difficulty to interactive teaching and learning activities in the classroom.

Like Australian universities in general, RMIT University of Australia is a student-centred institution. The School of Computer Science and Information Technology (CS&IT) at RMIT has a typically high percentage, as high as 50%, of international students in many classrooms. The School conducted a reflective research project to explore an effective way of organizing interactive teaching and learning activities in an environment that includes a large number of students from diverse backgrounds. The aims were to engage students in a lecture environment that was traditionally regarded as requiring passive student participation (Neild, 2004; Rodrigues, Bu, & Min, 2000), and to introduce overseas students to a more interactive learning approach. The project team was headed by Dr. Jiankun Hu, and comprised four lecturers, one teaching and learning adviser, one teaching and learning specialist, and one research assistant. The project deployed wireless technology, a keypad-based audience response system (ARS) for the classroom teaching and learning, in the field of computer science and information technology. With the support from KEEpad Australia, this project leased 150 KEEpad wireless voting devices at a heavily discounted price. In the remainder of this paper, we use KEEpad to represent the company KEEpad Australia, and the keypad-based ARS system supplied by KEEpad Australia, interchangeably. The KEEpad wireless voting device has buttons labelled with numbers 1 to 10, and letters A to I. This allows the user to choose an answer to a multiple-choice question. The KEEpad company has also provided TurningPoint software for class and statistical analysis. The TurningPoint application was embedded in the PowerPoint™ software. It can record and display the device ID, and voter selection from this device on the slide. A statistical summary showing the percentage of voting on each possible answer is displayed that can help the lecturer identify the level of students’ understanding. TurningPoint operates on Windows 98, 2000, or XP. More details can be found at the KEEpad company Web site (KEEpad).

The objective of this chapter is to report some of the experiences, case studies, issues, controversies, and critical problems encountered in using this wireless interactive technology. In this chapter, we cover background, case studies, implementation issues, lessons learnt, and future thoughts.
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