Chapter III
Understanding the Value of Interactive SMS for Large Classes

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ABSTRACT

The increasing sophistication and rapid uptake of mobile phones among university students is providing an unprecedented platform for the development of classroom interaction systems. This chapter describes the development of a SMS-based classroom interaction system and explores the impact that this application can have on students' learning experience. The findings indicate that instructors and students perceive a number of benefits from the additional channel of communication in the classroom. The chapter concludes with a summary and recommendations for future practice and research.

INTRODUCTION

Classroom interactivity has a number of significant benefits: it promotes an active learning environment, provides greater feedback for lecturers, increases student motivation, and enables a learning community (Angelo & Cross, 1993; Bishop, Dinkins, & Dominick, 2003; Hake, 1998; Mazur, 1998; McConnell et al., 2006). On the other hand, interactive activities for large classes (for instance, over 100 students) have proven to be quite difficult and, often, inefficient (Freeman & Blayney, 2005).

During the past six years, the rapid proliferation of mobile devices, particularly cellular phones, in the student demographic has changed the levels of student access to information and communications technology (ICT) in the classroom, presenting an extraordinary opportunity to develop interactive classroom systems and to enhance students’
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learning experience (Schwabe, Göth, & Frohberg, 2005; Scornavacca, Barnes, & Huff, 2006; Sheng, Nah, & Siau, 2005).

The present challenge for researchers is to go beyond anecdotal perceptions and obtain empirical evidence about the impact of these technologies in the classroom. This chapter aims to describe the development of a classroom interaction system as well as to understand the impact that mobile applications such as short-message-services (SMS) can have on students’ learning experience.

The chapter is structured as follows: the next section illustrates the theoretical background used in this research. This is followed by a brief description of the system as well as the trial that took place. Subsequently a discussion of the survey results is presented. Finally, the chapter rounds off with a summary and conclusions.

CLASSROOM INTERACTIVE FEEDBACK SYSTEMS

The traditional lecture theatre environment has provided universities with a cost effective and scalable means of teaching students. Particularly, over the last century, as participation in university education has grown, the lecture theatre has coped with the growth in student numbers, but this growth has come at the price of making any form of interaction difficult and inefficient. The work of Laurillard (2002) and social constructivist theorists (Jonassen, Peck, & Wilson, 1999) suggest that a further price of the traditional lecture delivery is reduced engagement and student learning. This is not inevitable, however. The work of Mazur (1998) suggests that the use of interactive pedagogies that are able to engage students in peer discussion and activities, guided by the lecturer, can result in effective student learning outcomes. Using interactive classroom pedagogies it is possible to promote a more active learning environment, increase the motivation of students, inform the work of teachers and generally enable a genuine learning community in the classroom (Angelo & Cross, 1993; Bishop et al., 2003; Hake, 1998; Mazur, 1998; McConnell et al., 2006).

The decision to engage in a more interactive pedagogy is, however, not a trivial one, and it requires effort and application on the part of the teaching staff. Large classes of more than 100 students are clearly where the most benefits of a more interactive approach can be realized but the inherent inefficiency, inaccuracy and lack or anonymity present significant problems (Freeman & Blayney, 2005).

Classroom feedback systems (CFS) provide one possible technological affordance that can efficiently enable interaction in large classes. Known by a vast array of names and produced commercially by a range of vendors, CFS technologies have been used since the sixties (Judson & Sawada, 2002; Penful, Roschelle, & Abrahamson, 2005) allowing students to respond to questions and have the results processed and displayed for use by the lecturer and the class as a whole. Modern systems provide the ability to answer a range of question types from simple yes/no through to detailed responses, free-form questions and role-playing (Bollen, Eimler, & Hoppe, 2004). Other media such as images are now also being used in particular contexts (Seppälä & Alamäki, 2003). The hardware used now ranges from small infra-red units like those used with televisions, through more reliable radio units, to the use of Web systems accessed by wireless personal digital assistants (PDA) or laptops.

These systems are generally well regarded by students when they are used, and many case studies describe the use of CFS technologies in disciplines ranging from the physical sciences (physics, chemistry, geology), through mathematics, accountancy and literature (Blodgett, 2006; Bollen et al., 2004; Carnaghan & Webb, 2005; Draper & Brown, 2004; Freeman & Blayney, 2005; Hall, Collier, Thomas, & Hilgers, 2005; Mazur, 1998; McConnell et al., 2006). There is also some evidence to suggest that teachers also benefit, not