

# Chapter 10

## Innovations in the Use of Technology and Teacher Professional Development

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### ABSTRACT

*This chapter explores the innovative uses of technology for teachers' professional development as well as its impact in the classroom on learning and teaching. Two international case studies are included. The first outlines technological innovations in graduate programme delivery within the university context in Canada. The second case presents a multi-dimensional professional development initiative in Australia which has influenced teachers' and students' learning. Two models are described: the macro-oriented "Webs of Enhanced Practice" that addresses the professional development of educators and experts; and the micro-oriented "Webs of Enhanced Learning" focusing on the learning occurring at the classroom level. These two models represent innovations in the use of technology as they conceptualise the eclectic use of multi-modal, varied technologies to advance the professional development of communities of learners.*

### INTRODUCTION

Technology has radically altered human civilisation. Few nations have not been affected in some way by the technological advances of the 20th and 21st centuries. Evidence from the 21st century indicates that technological change and adoption is not slowing, rather it is increasing at an almost exponential pace. Education, both in the schools and institutions

of higher education, has similarly been affected by increasing accessibility to technology. As Levine and Sun indicate new technologies, in particular the Internet, have greatly influenced the opportunities to access education, interact with others, and to "disseminate knowledge to an exponentially large number of people than ever before" (2002, p. 1). This also applies to opportunities for accessing ongoing teacher professional development. This chapter outlines two main perspectives in relation to innovations in the use of technology and teacher

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professional development. The first perspective is that new technologies offer increased opportunities to facilitate personal reflection on practice, collegial collaboration, problem-solving, and the production and sharing of teaching resources through the creation of online professional development communities. The second perspective is that teachers need professional development to become comfortable and innovative in their use of these technologies in order to relate to technologically-adept students in schools and to integrate information communication technology (ICT) into their classroom activities.

## **BACKGROUND**

### **Understanding Teacher Professional Development**

Literature about effective professional development is certainly abundant with many scholars dedicating their professional research lives to investigating what works and what is largely ineffective. Research started as early as the late 1970s with significant numbers of studies emerging throughout the 1980s and 1990s. Joyce and Showers (1970-1990s) identified flaws in the prevailing view that professional development initiatives failed due to teachers' lack of motivation and engagement (Joyce & Showers, 1980, 1982; Showers & Joyce, 1996). They found that professional development must contain certain components in order for teachers to be able to transfer their learning from workshop settings into their regular repertoire of strategies. The key to success was ongoing, in-context support structures, such as peer coaching, which made significant difference in teachers' capacity to transfer these innovations into regular classroom practice (Joyce & Showers, 1995; Showers, 1984). They linked effective professional development practices with school improvement and recommended teachers along with leaders, take

ownership in shaping the school vision and approaches to improving student learning (Joyce & Showers, 1995; Showers, 1995). Lieberman and Miller identified the need to ensure teachers have constructivist learning opportunities (Lieberman, 1995; Lieberman & Miller, 2000). Lieberman and Miller along with Sparks and Hirsh (1997) emphasised the importance of teacher engagement in collegial dialogues which focused on classroom activities and improving student learning. Even with this knowledge about what constitutes effective teacher professional development, there still exists challenges in establishing and sustaining these valuable approaches.

Guskey stated professional development should be perceived as a "process, not an event ... that the process is intentional ... and is a systematic effort to bring about ... positive change or improvement" to teachers knowledge, beliefs and/or skills (cited in Todnem & Warner, 1994, p. 63). Quick fixes and one-shot sessions, while politically desirable, are rarely effective as they lack systematic approaches or in-context support structures to aid transfer of learning into regular pedagogical practice (Scott, 2003). Frequently, professional development is introduced to ensure reforms of educational environments; however, the magnitude and pace of the requisite changes also influences the effectiveness of the staff development. Guskey reflected "asking teachers or administrators to change too many things too rapidly also may result in maintenance of the status quo ... [because they] find it necessary to adopt a coping strategy that seriously distorts the change" (1994, p. 35). Therefore, leaders must understand that effective professional development processes take time and they must support the integration of these into their schools. Entrepreneurial leadership is demonstrated through creative timetabling and decision-making that facilitates collaborative teacher-teams; and building strong and positive cultures which nurture whole-staff engagement in activities that support teacher and student learning (Darling-Hammond, 1998; Darling-

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