

Chapter 13

The Concerns of Elementary Educators with the Diffusion of Information and Communication Technology

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ABSTRACT

In this paper, the authors use a mixed methods study, including a survey and follow up interviews, to investigate the concerns that elementary educators in a school district in British Columbia have regarding the diffusion and integration of Information and Communication Technologies (ICT) in their teaching. The research participants identified four major categories of concerns: the philosophy and pedagogy of ICT integration; accessibility of ICT (including software, hardware and resource personnel); infrastructure technical support; and educational integration of ICT in their teaching. Based on the research findings, the authors propose appropriate intervention methods to address these concerns, including targeted professional development, technical and educational support, and sustained access to proper ICT equipment.

INTRODUCTION

One of the impacts of continuous technological advances and the information technology reform movement in schools is the requirement for professional staff to adopt skills and abilities that help

meet challenges and pressures brought on during implementation of ICT. The concerns that individuals have regarding change implementation is known to directly impact their performance (Hall & Hord, 1987). The active support and involvement of teaching staff is essential for meaningful reform and innovation in schools (Dooley, Metcalf, & Martinez, 1999; Haddad & Draxler, 2005; Hall

DOI: 10.4018/978-1-4666-0047-8.ch013

& Hord, 1987). Thus, the human factor can be considered as important as hardware and software when allocating funds for integration of ICT in teaching. By identifying and understanding the issues raised by educators, district staff development departments and other change agents can better target individual concerns of teachers and design and implement appropriate models based on personal and professional needs and demands.

Research on teachers and innovations gives direction to districts' staff departments as well as teacher training programs to implement policies that are suitable to teachers' needs throughout the change process. This research helps to develop recommendations to meaningfully implement ICT in schools and looks at the future needs of teachers—specifically at the elementary level—with regard to implementing technology.

ISSUES IN ICT IMPLEMENTATION

The emergence of ICT and its growing potential in improving and transforming teaching and learning has led countries to invest significantly in integrating modern technologies and education in order to help individuals develop the skills and competencies that they require to function well in information societies (Delors et al., 1996; Guzdial & Weingarten, 1995; Haddad & Draxler, 2005; Rychen & Salganik, 2003). As a result, schools are filling with computers, printers, scanners, digital cameras and the latest technical tools and equipment. New positions and centres are created to help teachers develop professionally in the area of educational technology. University education departments implement new programs to reinforce the importance of technology, and review and research teams envision a new future of learning for children (Browne & Ritchie, 1991; Carlson & Gadio, 2005; Guzdial & Weingarten, 1995; Stuhlmann & Taylor, 1999). With the emergence of new forms of ICT and multimedia, more demands are made on professional staff to acquire the skills

and abilities to respond to the implementation of ICT in schools (Delors et al., 1996; Haddad & Draxler, 2005; Rychen & Salganik, 2003; Trewin, 2002). However, in the final analysis, it is the way technology is implemented by educators that determines its impact on student learning.

Despite the growing number of modern technical tools in schools, there is still scepticism about the way these new technologies are used by teachers (Becker, 1994; Cuban, 2001; Pelgrum, 2001; Plante & Beattie, 2004; U.S. Department of Education, 1999). Teachers learning technology skills in workshops do not always lead to the willingness and/or ability to implement those skills in the art of daily classroom teaching (Granger, Morbey, Lotherington, Owston, & Wideman, 2002). And as districts continue to infuse newer technologies into their systems, the necessity of understanding teachers' perceptions, feelings and concerns towards the integration of ICT in their practice becomes more apparent. The willingness and involvement of teaching staff is essential to integrating any innovations in schools—including educational technology (Dooley et al., 1999; Haddad & Draxler, 2005; Hall & Hord, 1987).

Canadian schools are well-equipped with computers, and students generally have access to internet at all levels of their schooling; however, Canada is no different from its counterparts in international surveys with regard to the generally weak integration of ICT by teachers (Pelgrum, 2001; Plante & Beattie, 2004;). The low percentage of teachers integrating ICT in their practice raises many questions about factors that impact the rate of adoption of ICT by many educators. Most notably, if the introduction of technology into schools can play a critical role in improving teaching and learning (Carlson & Gadio, 2005), why are educators slow to integrate technology in their teaching practice? Can well-designed teacher pre-service and district in-service programs that consider teachers' concerns toward educational technology open doors to new educational opportunities for both teachers and students?

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