THE iTEACHERED PROJECT: DEVELOPING AN INSTRUCTIONAL TECHNOLOGY INTEGRATION MODEL FOR TEACHER EDUCATION PROGRAMS TO ENHANCE CLASSROOM TEACHING AND LEARNING

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Abstract

In September of 2002, the Faculty of Education at the University of Regina began a three-year, collaborative action research project funded in part through an Industry Canada grant. The goals of the project are to develop, implement, facilitate and explore the appropriate integration of information and communications technology (ICT) into key components of the Faculty's undergraduate teacher education program and more specifically, into the professional practice of preservice teachers, faculty members and cooperating teachers in the field. The grant supplies the Faculty with wireless computer equipment for the classroom, provides resources for faculty professional development and supports the action-research process.

Introduction

In September of 2002, the Faculty of Education at the University of Regina began a three-year, collaborative action research project funded in part through an Industry Canada grant. The goals of this initiative, coined the iTeacherEd project, are to develop, implement, facilitate and explore the appropriate integration of information and communications technology (ICT) into key components of the Faculty's undergraduate teacher education program and more specifically, into the professional practice of preservice teachers, faculty members and cooperating teachers in the field. Through the course of the project, appropriate hardware and software, technology-related curriculum content and professional development needs will be addressed through various strategies. Such strategies will be discussed further in this paper. The project stands to build upon Industry Canada's long-running Grassroots program, which has brought funding and focus related to ICT integration into many of Canada's K-12 classrooms.

Background, Context and Pre-Project Developments

ICT integration in K-12 settings continues to grow worldwide, and Saskatchewan's school system is no exception. Recent government initiatives, both federal and provincial, have helped to bring ICT equipment and Internet access to all Saskatchewan schools. Saskatchewan's CommunityNet program (http://www.communitynet.ca), which has mandated province-wide broadband connectivity to all schools, health and government facilities by 2004, has been described as "the most advanced undertaking by any comparable national, state or provincial government anywhere in the world" (National Broadband Taskforce, 2003). Additionally, Industry Canada's SchoolNet Grassroots program (http://www.schoolnet.ca/grassroots) is a federally funded initiative designed for teachers. This program allocates funding to individual Canadian classrooms to facilitate the active integration of ICT into specific teaching and learning activities. Individual Grassroots' classroom initiatives are tied closely to provincial curriculum content, and upon completion, are showcased and made available to K-12 teachers who can benefit through classroom adaptation and reuse of these resources.

Such grand initiatives depend upon several factors to be successful. Beyond physical connectivity and access to appropriate hardware and software, teachers must be technologically competent to successfully complete curriculum projects involving technology. With this realization, the Faculty of Education has made substantial progress in providing a developmental approach toward increasing preservice teachers' technological competencies (Couros, 2002). However, if we are to improve on our existing mechanisms and supports regarding ICT, it is felt appropriate to adopt a collaborative, project-based model, which supports improved ICT competencies in preservice teachers, faculty members, faculty supervisors and cooperating teachers in the field. As the Faculty's undergraduate program is based on a four-year developmental model, the iTeacherEd project may best aim to move students from skill-particular learning to adopting theoretical integration models over the course of the program. Appropriately, the project will place the greatest emphasis regarding technological competencies around the preinternship and internship experience in the third and fourth years of the program.

The Program

The Faculty of Education is well positioned to develop a model of preservice ICT integration. The four-year program features significant field experience and flexibility of content throughout core professional study courses.

In the third year of the program (pre-internship year), students are in schools one day per week in the fall semester, and for the duration of two eight-day blocks in the winter semester. During the fourth year, students

typically spend the entire fall semester in schools (sixteen weeks) through their required internship. Altogether, students participate in approximately 100 days of field experience as a program requirement.

Ten ICT-based modules have been developed to correspond with students' preinternship experience. These modules have been previously developed over a five-year period and target specific technological competencies from the basics such as e-mail and web browsing to higher level activities such as the development of electronic portfolios, inquiry-based WebQuest activities and other curriculum based units and activities. These modules are developmental and both process and product-based, and result in students' creation of original, practical online materials.

Pre-Project Developments in ICT

The Faculty of Education has a strong history of development and research in the area of ICT in regards to classroom integration. A decade ago in 1993, the Faculty formed ETAC, the Educational Technology Advisory Committee. The committee's membership represented each of the program groups for the undergraduate program, as well as representatives from local school boards and student representatives. The committee, in consultation with the Dean of Education, began to form the structures and practices through which the Faculty could take advantage of ICT in order to enhance faculty and student instructional practices, learning opportunities and research projects. Targeted areas included:

- Curriculum Integration: Integrating computer concepts and skills in curricula.
- Faculty Computer Support: Supporting faculty computing, information and resource management.
- Liaison and collaboration: Collaborating with other entities within and beyond the university to further Faculty goals regarding educational technology.
- Research and Development: Promoting and facilitating research and development related to educational technology.
- Organization and Structure: Promoting and facilitating faculty and student computer-related work through structural and organizational development.

The focus on these areas brought about noteworthy changes in the years to follow. Below are a few of the significant developments.

- The Education Computer Centre (ECC) was implemented to serve the technical infrastructure and professional development needs of faculty, staff and students. The Centre has a core staff of two technicians and an instructional technology coordinator. The staff

has become a key component of the Faculty's computing support structure.

- Two undergraduate courses, ECMP 355 and ECMP 455, were developed and continue to evolve. These courses have become two of the most popular elective courses in the undergraduate program.
- Six Graduate level courses have also been developed. These courses focus on various elements of ICT integration in both the classroom and distance environments.
- As mentioned in the previous section, ICT-specific technology modules have been developed to ensure that all students have exposure to base concepts in technology integration. The modules are currently offered to all third-year students as a component of their required professional studies courses.
- Increased research related to ICT integration by individual faculty members and the Faculty's research body, the Saskatchewan Instructional Development and Research Unit (SIDRU). One of SIDRU's major contributions was an evaluation study in four major Saskatchewan school divisions, which recently implemented wide-scale, thin-client based, SunRay systems.

These evolving developments in the areas of infrastructure, course development and faculty and student support have allowed the Faculty to gather technical experience and pedagogical knowledge related to ICT integration. Strong relationships with K-12 partners through research and teaching have given further insight into the levels and types of ICT competency needed by practicing teachers.

Project Structure and Goals

The goal of the project is not simply to provide more hardware and software for the classroom, but rather, to support faculty members, teachers and students in developing thoughtful, useful and appropriate ways of using technology in teaching and learning. As outlined earlier, the project provides the development of ICT based modules, which are significant to the development of teaching practice. These online modules have been developed to address some of the following key areas: the assessment of online resources, media awareness, strategies for gathering and compiling appropriate resources for classroom use, the creation of online resources, the appropriate integration of ICT into the classroom and the use of inquiry-oriented activities (e.g., WebQuests) in the classroom. These modules include both hands-on and theoretical components and are explicitly linked to the students' field experience.

A central website for the project(http://education.uregina.ca/iteachered) has been established as a central source for project dissemination and for

the hosting of educational materials and resources. At this point, all ICT modules are available at the site as well as original, student-created materials (e.g., WebQuests, Internet projects, digital videos). As the project unfolds, the site will make available valuable materials to other teacher education programs and school divisions.

Project Phases, Cycles and Tasks

This three-year project will involve two major cycles, and each cycle will have three distinct phases, and several tasks related to professional and materials development.

Phase One (Fall 2002-Winter 2003) – At the time of this paper, phase one is nearly complete. This phase focused on the skills and pedagogical development of the first group of preinternship (third year) students. In the fall semester, students worked through the first five ICT-based modules (available at http://education.uregina.ca/iteachered). As technology is only one component of good teaching, students were not expected to integrate technology into teaching during the fall semester, but rather to focus on other relevant teaching strategies. For the winter semester, students each developed inquiry oriented activities known as WebQuests. Each student created an original WebQuest and was expected to integrate a component of this technology into their field experience.

Research for Phase One involved data collection through a survey targeting the experiences of faculty members and students involved. Survey questions related to perceived impact of the modules, baseline skills, levels of ICT expertise attained upon completion of the phase and an analysis of preintern integration of ICT into teaching. Data are currently being analyzed.

Phase Two (Fall 2003-Winter 2004) – The research project will follow the group of preinternship students as they move into their internship year. For the sixteen-week internship, students will be placed with cooperating teachers who are actively integrating technology in their own classrooms. The student/teacher pair will be expected to participate in and complete a Grassroots project. Specific expectations will be outlined to ensure that the intern is the main contributor to the project. This phase will involve close collaboration between the Faculty's Field Experiences Office, school divisions, and likely, technology consultants from each school division. The goal of the research project is to work with at least 15 student/teacher pairs during this phase.

Phase Three (Fall 2004) – The final phase of the project will involve tracking former students from the research as they move into careers as teachers. The focus in this phase will be to determine the level of technology use in their first year of teaching and to assess their abilities to

integrate technology into the curriculum. Participants will be surveyed by questionnaire and possibly interviewed depending on the location of first employment.

Cycle Two (Fall 2003-Fall 2005) – In the next cycle, a second group of students will be followed through the same three phases. Data from the first cycle will inform improvements to the emerging model in regards to content and professional development. The major difference of the second cycle is that it will likely take a mentored approach. Experienced faculty and exemplary interns or teachers from the first cycle will likely be able to assist participants of the second cycle in their professional growth.

Benefits to Schools and Teacher Education Institutions

The project hopes to provide an informed focus for technology development in schools by providing additional resources and emphasis on appropriate ICT integration. Cooperating teachers will have access to the project's modules and professional development content, which should offload some responsibility from local school divisions. Teacher education institutions may benefit from the collaborative model for technology integration, which will emerge from the study. The resulting model, research findings and all developed content will be made available to other institutions in Canada and throughout the world. The project aims to guide pedagogical practices that enhance student learning using ICT.

Conclusion

The project is still at an early phase but the researchers are excited at the progress thus far. The collaborative nature of the project has demonstrated that technological change in schools is not hierarchical, but ideally should involve the active thoughts and actions of all vested participants.

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