A Case Study of Pre-service Teachers Learning to Teach with Technology during Internship

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Abstract: The iTeacherEd project is a three-year action research process in a Faculty of Education at a Canadian University. The overall goal of the project is to develop a model for the integration of Information and Communication Technologies (ICT) into the teacher education curriculum. As part of the iTeacherEd project, a case study was designed to understand the development of pre-service teachers’ ideas and experiences of integrating ICTs into their four-month internship. This paper highlights the experiences of six elementary school pre-service teachers, and their internship cooperating teachers, as they journey through the four-month internship. Several key issues emerging from the study are identified and discussed in the paper, including the significance of forming collaborative and constructivist approaches to ICT integration and the need to critically examine the contexts where ICT integration has the potential to enhance teaching and learning.

Introduction

Since 2002, the University of Regina research team of David Friesen, Vi Maeers, Kathleen Nolan and Alec Couros has been involved in an action research process aimed at integrating Information and Communications Technologies (ICT) into teaching and learning for faculties of education. The research initiative, referred to as the iTeacher Ed project, involves faculty members, elementary school pre-service teachers, and several teachers and school system personnel. The initiative is a three year action research project, with the first two years (2002-2004) sponsored by Industry Canada-SchoolNet. A central website for the project has been developed (http://education.uregina.ca/teachered/) where online educational materials and dissemination of project-related papers are located. In addition, a document has recently been written to report on the first two years of the project (Friesen, Maeers, Nolan & Couros, 2004).

As indicated above, the overall goals of the iTeacherEd research project are aimed at developing a model for integrating ICTs into the teacher education curriculum, with the ultimate goal of realizing more effective integration at the K-12 classroom level. The intention of this paper is to focus on one particular aspect of the project, that of a
special iTeacherEd internship program. The paper presents the experiences and understandings of elementary pre-service teachers as they learn about and reflect on the integration of technology into their internship classrooms. This paper represents part three of a recent trilogy of papers written on the findings of this extensive iTeacherEd research project. In part one of the trilogy, Nolan (2004) presented a paper at ED-MEDIA 2004 entitled What is integral to integration? Exploring student teachers’ experiences and understandings of ICT integration. In part two of this iTeacherEd trilogy, the research team presented a paper at SITE-2005, entitled ICT Integration in a Preservice Teacher Education Program: Lessons Learned (Maears, Friesen, Nolan & Couros, 2004). Through the research associated with these two papers, the iTeacherEd team and research participants have come to some key conclusions and recommendations for a working model of ICT integration into teacher education programs.

**The Special iTeacherEd Internship Project**

One aspect of the working model for ICT integration, which will be discussed in this paper, is a special iTeacherEd internship project. At the University of Regina, the undergraduate teacher education program is a four-year developmental program which includes a four-month internship in the seventh (of eight) semesters. In the special iTeacherEd internship program, six volunteer pre-service teachers were paired with a corresponding six (specially selected) co-operating teachers for the internship. The six volunteer interns were chosen as a result of the iTeacherEd team placing a call for those pre-service teachers who were interested in making a special effort to integrate ICTs into their internship experience. The co-operating teachers, who were matched with these interested interns, were also chosen based on their interest to make ICT integration a more substantial part of their classroom teaching and learning environment. It should be noted that in the selection of interns and cooperating teachers the most important consideration for the iTeacherEd team was an interest in, and perhaps some degree of comfort with, integrating ICTs into teaching and learning; neither interns nor cooperating teachers were chosen based on criteria related to perceived ‘expertise’ in the area of ICT integration.

The special iTeacherEd intern project consisted of several components, including the use of a weblog and discussion board by interns to journal and communicate ICT integration projects/lessons; a professional development day on ICT integration for interns and their cooperating teachers; individual interviews with interns midway through their internship semester; and two separate focus group discussions with interns and cooperating teachers (mid-semester and end of semester). In addition, iTeacherEd research team members served as faculty advisors for the interns so that classroom observations could be as ongoing aspect of data collection throughout the semester.

Preliminary results from this iTeacherEd intern project case study indicate several key issues emerging related to the decisions teachers make with regard to ICT integration. These issues include the significance of forming collaborative and constructivist approaches to ICT integration; the necessity for consistent ICT support and just-in-time professional development; the need to explore teachers’ underlying beliefs about, and comfort with, ICTs in education; and a critical examination of the contexts where ICT integration is believed to have the potential to enhance teaching and learning. This paper discusses each of these emerging issues through the experiences of the interns as they journeyed through their Fall 2004 internship semester.

**Collaborative and Constructivist Approaches to ICT Integration**

Through the use of a weblog, students reported that they felt part of a social network of interns, where ideas, challenges, and successes could be shared with other like-minded professionals. In most cases, the weblog entries consisted of brief reports by interns on activities and new programs tried out in their classrooms. Especially apparent in their entries, however, is their reference to the enthusiasm displayed by their students. From the weblog entries and interview comments, it became apparent to the iTeacherEd research team that the interns viewed their most successful lessons as those in which the students were actively participating in the construction of their own knowledge, and how technology helped to create the conditions for such a constructivist environment.

I used Kidspiration with the class this week. I created a sorting activity using a Venn diagram and used the data projector to display it for the students. It was a great set to my math lesson. Yesterday we set up the sorting activity on all three of our classroom computers and let students use it themselves. They loved it. Its
overwhelming how many different subject areas you can cover with Kidspiration, it has everything! It is very child-friendly too (and teacher friendly!), which I love! (iTEd intern weblog comment, September, 2004)

In addition to enthusiasm for how technology can really engage the students, several of the interns commented on how collaborative their approaches to teaching had become because of a special focus on ICT integration. One intern reported that it became very natural for collaborative lesson planning and teaching between her and her cooperating teacher since each would “feed off one another’s ideas.” With a collaborative outlook on education, the classroom (and school) becomes a community of learners—intern, cooperating teacher, and students:

We introduced Inspiration and a few of the students were already familiar with it, but they still learned new things (which they thought wouldn't ever happen :)). We're having them become experts with the program so that if other teachers ever need help using it in their classroom, these students can come in and teach a few of their students who will in turn teach the rest of the class. For the school website, the students are working in pairs and going around to a couple classrooms each to find out what other classes are doing. They take pictures and sometimes videos and these will get posted on the site with some info. (iTEd intern weblog comment, September, 2004)

ICT Support and Professional Development

The nature of the special iTTeacherEd intern project encouraged multiple avenues of support and just-in-time professional development for the interns and cooperating teachers. In addition to the availability of iTTeacherEd research team members, interns could access IT support through the local school board office. The iTTeacherEd research project ended up expanding into the community, eliciting the support of many school board personnel who were keen to be involved in a project of this nature. Not only were students being exposed to cutting edge classroom technology innovations, but this project was helping to create a new generation of teachers who were comfortable with, and enthused about, the integration of technology into the classroom. One aspect of the special iTTeacherEd intern project that helped interns and cooperating teachers feel more comfortable sharing their ideas was the opportunity to engage in a few after-school professional development sessions with members of the iTTeacherEd research team and two IT consultants from the school board office.

Teachers’ Beliefs about, and Comfort with, ICT in Education

As mentioned previously, the six interns did not necessarily have any special expertise or extensive experience with the use of ICTs in the classroom. The one thing all six interns did have in common was an interest in learning more about teaching and learning with technology, partly because they were personally interested in learning more and also partly because they recognized the unequivocal influence of technology on today’s classrooms and students. That being said, it is still interesting to note that the range of comfort with technology, even among just the six interns, was substantial. Two interns who had slightly more developed technology skills and experience began a unit with students within the first week of internship that involved the students constructing an e-book. One other intern, upon hearing about this e-book project, viewed it from the perspective of a deficit on her part; she began to feel uncomfortable with being a part of the iTTeacherEd internship because she felt that her efforts to integrate technology were quite small and insignificant in comparison. Within a few weeks, this same intern expressed greater comfort and understanding with the fact that it is not the size of the project that matters but the overall learning environment that is created. In other words, based on her more limited experience with technology she was able to integrate smaller-scale projects that everyone (herself, her cooperating teacher, and her students) felt comfortable with and could clearly see how learning was enhanced through the variety of small ICT integration initiatives.

Enhancing Teaching and Learning through ICT Integration

One issue that emerged at several points during the focus groups and individual interviews with the interns was the importance of critically examining when/how/if technology was being used for the benefit of the learner. When
different technologies were being introduced to the interns, a common question they asked was whether the use of this technology (be it a particular piece of software or web-based application) would enhance the teaching and learning situation in the classroom. This critical approach was a pleasant surprise to the iTeacherEd research team. Initially, we wondered if the students who volunteered for this special project were so keen on learning about, and teaching with, new technologies that they might not take a critical approach; we thought they might just take advantage of the opportunity for their own ICT professional development without necessarily focusing on an awareness of the impact of the new technologies on their students’ learning. This was, as it turned out, not the case at all. In fact, most of the interns maintained a commendable balance between their interest in learning new technologies and their interest in providing the best possible environment for their students’ learning.

**Implications and New Directions for iTeacherEd**

The iTeacherEd research project is beginning to take on new directions as a result of some of the findings of the three-year action research initiative. In addition to continuing work with elementary pre-service teachers in their internship, the project is expanding into the secondary program as well. Even more significant than this expansion, however, is the new direction that is being initiated with faculty in the teacher education program at the university. A new initiative (referred to as iTOPs, since it merges the iTeacherEd project with a strategic opportunities research fund at the university) presents many exciting possibilities for understanding the importance of modeling ICT integration by teacher educators themselves within their curriculum and instruction courses. While faculty have been developing in many ways in terms of ICT integration over the past ten years or so, it is the iTOPs project that is the first to bring a small group of faculty together on a consistent basis to share their ideas, challenges, and successes as a community of learners (in much the same way as the special iTED internship project was designed). As was reported in Nolan (2004),

> Through this research it became clear that the modeling of ICT integration by faculty and instructors in a teacher education program is unlikely to be effectively realized through an individualized approach. In fact, even though individual faculty members and instructors achieve varying degrees of success with their own personally-driven desires to integrate ICT into their curriculum classes (approaches varying from the use of presentation software to course webpages to discussion boards), what seems to be integral to integration is a community of practice.

The possibilities of the iTOPs project are only just beginning to be explored but this small faculty group is a dedicated and energetic one, and one which will likely provide the iTeacherEd research team with new directions in developing a model for integrating ICTs into the teacher education curriculum and, ultimately, in K-12 classrooms.

**References**

