

Developing an Educational Technology Group for Pre-Service Teachers

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The College of Education Technology Group is a pilot program that supports teacher candidates in developing an understanding of the integration of technology. By engaging teacher candidates with local schools the program is enhancing technology-based learning in the classroom for high school students, especially those from First Nations and other cultural backgrounds. This innovative program is based on the key goals of the College of Education and the Learning Charter of the University of Saskatchewan. This paper will share an overview of the first two years of the pilot and what has been learned about the application of technology to provide an enhanced learning experience for teacher candidates.

Background

The Education Technology Group (ETG) was formed in 2009 to create opportunities for teacher candidates to learn about the use of technology in classrooms. Its main goal is to expose teacher candidates to technology in an authentic teaching and learning environment. The Group is sponsored by the College of Education at the University of Saskatchewan and supervised by a faculty member in the Department of Curriculum Studies. The ETG goes beyond a focus on the nuts and bolts of technology to include the opportunity to work in culturally unique educational settings. The College of Education is a leader in Aboriginal education in Canada. Therefore,

increasing the theoretical and pedagogical awareness of First Nations culture and integrating it into the teacher education program is one of the other tasks of the ETG. This formal emphasis is especially important with the ongoing demand for teachers sensitive to the needs of First Nations students. With the influx of new ethnic groups to the province it is also key to raise student awareness of the area of English as an Additional Language.

The ETG completed its second year as a pilot project. This paper will share an overview of these two years, and how what has been learned might assist in our understanding of the application of technology to provide an enhanced learning experience for teacher candidates.

Theoretical Foundation

The theoretical foundation for the pilot was based primarily on the ideas of timing and authenticity – timing in that technology integration for teachers must begin in their pre-service experiences (Smarkola, 2007) and authenticity in that learning environments must include the actual implementation of technology in meaningful ways (Wenger, 1998; Wilson & Schwier, 2009). According to Milman and Molebash, (2008) and echoed by others (Franklin, 2007; Sang, Valcke, van Braak, & Tondeur, 2010), the best time for learning about teaching with technology is during pre-service in-school experiences. It is in the early stage of the beginning teacher's career that they have the time and the support to investigate possibilities and truly experiment. Another key component supporting the ETG plan is the need to situate learning in authentic situations (Herrington and Herrington, 2008). Stein, Issacs, and Andrews (2004) say that post-secondary classroom learning is often not authentic. Working in the classroom with actual students creates 'wicked problems' (Rittel & Webber, 1973) that do not exist in artificial teaching situations. The feedback that teacher candidates receive from the K-12 students is honest and often more helpful than what they would receive in a university-based environment. In addition, there is tremendous pressure for pre-service teachers to increase their use of technology (Albion, 2008; Bitter & Legacy, 2008). Learning to deal with the pressure is much more manageable for someone in a supportive environment such as a group or cohort (Ward & Overall, 2009).

Along with the limited understanding of applying technology in the classroom is a lack of exposure to English as an Additional Language training (EAL), an underdeveloped understanding of immigration trends and limited contact with First Nations students. The ETG provides an opportunity to reinforce the importance of social change by providing a chance to give to those students who are most in need of extra skill building and attention.

The Program

Both years of the pilot (2009 and 2010) began in the Fall semester with an e-mail request sent to all first-year education students. The ETG is presented as a volunteer opportunity to work with technology in a K-12 setting. The pilot groups consisted of seven students in 2009 and nine students in 2010. In 2009 the majority of the participants were studying Secondary Science. In 2010 most of the participants were enrolled in Secondary Math. Both years did have representation from English Language Arts, as well as Practical and Applied Arts. Before beginning the program, all participants were required to complete a survey to self-assess their level of ability and confidence when it came to applying technology in teaching and as a part of their daily lives. The results of the self-assessment indicated that the volunteers had a wide range of technology skills, experience and levels of confidence. Many had never used technology for anything more than e-mail, social networking, and writing essays. Despite where the participants suggested they were on their self-assessment, there was no required pre-requisite training or previous experience. What was important was that the teacher candidates were willing to make a formal effort to combine the technology and teaching together. Two partner schools were chosen to host the group based on potential benefits to their students as well as the teacher candidates. Both institutions were different in many ways. Participating schools were the English as an Additional Language program at Walter Murray Collegiate (made up of 90 plus students) and the general student body at Oskayak High School (Saskatoon's only all First Nations High School).

What Happened

The first two years had a similar rhythm in how students worked together. The program started with an attempt to understand the needs of the participating Education students. They were asked to share what they were interested in learning. Orientation visits were made to the participating

schools to learn about the philosophy of each school, the students, available resources, and teaching possibilities. Scheduled group meetings allowed the participants to gather every week to share and learn about teaching and technology. These group gatherings continued throughout the entire school year. After two or three group meetings, the teacher candidates were required to spend a minimum of one half-day a week in one school, but additional visits were encouraged. Teacher candidates worked alone and in pairs with the students on technology-based projects that supported their learning and engagement. Projects included science fair displays, video production, digital personal narratives, and cultural multimedia presentations. The visits were intentionally casual. It was the responsibility of the students to manage their visits in consultation with their classroom teachers and students. The visits continued until the end of the university school year.

Results

At the end of the university school year pilot participants were asked the following questions:

1. What were your expectations or goals for participating in the technology group program?
2. In what areas of technology have you developed a better understanding?
3. Has your confidence with using technology increased or decreased?
4. What has been the impact on you as a developing teacher from participating in this program?
5. What would you say the impact has been on the students?
6. What would you change about the program?

The responses showed that the main motivation for involvement was to develop a basic understanding of technologies to help participants to become better teachers. Students did not feel a need to become technology experts. They also were looking

for practical, hands-on opportunities. They shared that they had learned to use and apply a variety of technologies, web resources, interactive whiteboards, digital photography, digital audio, and in particular, digital video production. All participants reported increased levels of confidence, although the amounts varied. They gained confidence in using technology and the integration of technology in their teaching. The experience had a positive impact on the participants as teachers and as individuals as it helped them to connect to students in fresh ways. They enjoyed the opportunity to engage with teachers and their students, especially those from First Nations and other cultural backgrounds. The teacher candidates felt they served as important role models for the high school students. Through their involvement in the program immigrant students felt they were able to develop a stronger presence within their schools and they discovered new ways to participate in the culture of the school. Having the teacher candidates in the classroom afforded more individual attention and instruction to students. The participants and the teachers wished that the group could start earlier to increase the frequency of school visits. The most important request from the teacher candidates was to be part of their own cohort so that they could focus their efforts on the ETG, an experience they felt was far more beneficial compared to other in-school opportunities.

What Worked Well and What Lies Ahead

Most importantly, teacher candidates developed their understanding of English as an Additional Language and improved their knowledge of different cultural aspects related to teaching. In addition to the weekly meetings, they made efforts to expand their knowledgebase through professional development opportunities and self-study. The experience raised their awareness of other cultures and they became more comfortable working in a First Nations learning environment. The need to be proactive and professional in developing understanding is a trait that will be promoted in future versions of the ETG.

Teacher candidates valued the opportunity

to work as a group and created strong professional and personal bonds with one another. They looked forward to the time spent with the other members of the group in the weekly meetings. They used the time to share their thoughts and experiences of the past week. As they were working in the schools at different times the opportunity to reconnect with the other teacher candidates was valuable. The regular meetings are an important aspect of the design of the ETG that must be maintained.

Participants improved their overall confidence and skill set with technology. They were given plenty of freedom to choose the technologies with which they could work. Based on this approach they initially chose tools that they were comfortable with and then branched out into other areas. Professional development technology sessions were highly valued and gave them an opportunity to try the technology and then move it into the classroom setting. The ability to have a choice and support the choice with training is another important aspect that must continue to be included in the ETG.

Facilities differed from building to building, and inconsistencies existed with the availability of resources. At one school students had access to every piece of hardware and software. The options were overwhelming at times for the teacher candidates. They felt that they did not know where to start. At the other school there was almost no technology available. The lack of resources made planning difficult at times due to the uncertainty around the technology available on any given day. Funding has been received to purchase equipment to take to the school where there is a need. Addressing the technology uncertainty will give the participants a stronger foundation on which to base their instruction. Availability to resources is an ongoing issue in schools and this provided a good opportunity for teacher candidates to encounter these problems.

The limited amount of time students are able to commit is a significant factor. Teacher candidates have many demands on their time and making regular visits in conjunction with the other program requirements was difficult for them. An attempt will be made to formalize the cohort process by attaching the group to the faculty leader and making

involvement in the ETG the main student teaching experience. Scheduling the group to start as soon as the school year begins would go a long way to enhancing the experience. In the third pilot students will be contacted during the summer to plan and allow the group to start earlier in the year.

Conclusion

The pilot has improved the university student experience by facilitating the creation of deeper meaning around theory and by increasing teacher competency in a supportive collaborative environment. As the program enters its third year the feedback from former participants is being used to make changes. It is hoped that through these changes a well-timed, authentic, culturally connected introduction to technology will continue for a growing number of educators entering the teaching profession.

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Biography

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