TEACHER EDUCATION STUDENTS
SOW SEEDS OF POSSIBILITY: TEACHING AND
LEARNING WITH INFORMATION AND
COMMUNICATION TECHNOLOGIES

Abstract
This transcript of our Wescast presentation describes for pre-service teachers and other educators some new and effective paths of integrating ICT into the classroom. The Seeds Program provided teacher education students with the opportunity to critically explore how various forms of classroom management, teaching and learning strategies and the design of professional learning portfolios that can be supported through ICT. Specifically, we discuss why the use of technology in the classroom is important. (See http://www.dkrug.com/westcast/index.htm for an online version of this presentation.)

Introduction
We experienced a technical glitch as our presentation began.

Anita: Welcome everybody.
Andrea: Ummm… What’s wrong?
Don: What’s wrong?
Carla: It says error 203?
Anita: Oh my goodness guys, you might want to try pushing enter.

**Ohhh*** Laughs***Applause***

Anita: We staged this glitch like the one we experienced yesterday when we were practicing. Technology trouble is probably something that we have all experienced in our life times as educators, students and professionals. It is a fear that we all have in our lives when it comes to working with technology. Not only are these technology troubles something that we, as new teachers, are worried about but they also come with a language of technology, concepts of technology, a 500 page...
manual of technology, that we have to flip through in order to find that one button, that one thing to get things going. As students at UBC we are here to try to illuminate a little bit of that fear, a little bit of that angst we might all have and we will talk about how we are working through the use of ICT.

We are going to take you on an adventure and share with you how we have overcome, and how we are still overcoming, this fear and angst. In this presentation, we will veer away from looking at information and communication technology (ICT) as a technical thing. Instead, we will discuss it as a language of learning rather than looking at it as a tool.

Andrea: First there are a few questions that lead us to do this presentation. While we are really excited to start to use ICT, why should we invest in something that’s not quite ours yet? What is our resistance to information and communication technologies? Why is it that we have so many fears or anxieties? In general, as pre-service teachers we are very apprehensive and scared to invest time in something new, especially in something that might not always work.

Second, what are we talking about when we say ICT? We are only going to speak to things we have used and, incorporated within our experiences at UBC and in classrooms, such as using MACS, WINS, digital cameras, print media, critical web searches, eportfolio websites, multimedia presentations and how this is all affecting us. We know and realize that we are living in a techno age and people are really drawn towards using ICT. We also know that the use of ICT has social consequences within most developing nations, as well as where we live in a large urban centre. Third, we are not here to tell you something new rather we just want you to see how we are trying to create change and how we are facing these challenges, realities and goals in all of our experience in the teacher education program and in our practicum.

In BC, and I am sure its similar is other provinces with other teacher educators, there is a clear push to have pre-service teachers feel comfortable using ICT. This
means increasing our ICT literacy and fluency. We are trying to effectively embrace the integration ICT through the Seeds of Possibilities Program, which currently includes all of our classroom experiences at UBC and hopefully will carry into our practicum planning and practicum teaching next year.

In the past, within the Teacher Education Program there has been a little gap in our overall curriculum experiences. There has not been a way to actually see how the curriculum connects across our methodology or professional courses. But through the Seeds program we are really lucky, to be able to begin seeing these relationships.

We are very fortunate and are benefiting from the Seeds of Possibility Program, which is supported by Dean Rob Tierney and Associate Dean Rita Irwin. We have asked Don Krug, the Seeds Program Director and our team of graduate mentors to join us and explain a little more about the Seeds of Possibility program, in their own words. Then we will share with you our journey of learning the language of technology.

**ICT Integration and the Two-year Elementary Teacher Education Program**

**Don:** Let me begin by also acknowledging Dr. Frank Echols the Associate Dean of Education last year when the Seeds Program started. It was through Dr. Echols encouragement and support and the assistance of Gail Wynston, Stan Auerbach, Sydney Craig, and John Yamamoto who work in the Teacher Education Office that we have been able to carry forward the Seeds program.

In this section, the Graduate mentors and myself are going to talk a little bit about the who, why, when, where and how of the Seeds program. This information is not the focus of this presentation so we will cover it quickly.

**ICT and TYETEP: Why?**

**Zuochen:** Why should teachers and students use ICT? The focus of the Seeds program is on how the use of ICT can enhance learning, teaching and research. A net generation of kids is growing up and it is important that they do not take for granted the social and cultural affects of technology. Young people embrace the use of MSN instant messaging and other kinds of online social software, e.g., blogs, wikies, and podcasting.

These forms of virtual communication spaces are an expanding part of their cultural environments. ICT literacy is needed so that people do not embrace technology blindly. For example there is still a digital divide between those financially advantaged and other people less fortunate in the world.
The proliferation of electronic environments has introduced people of all ages to opportunities for interacting with digital rich media, both in and out of school settings.

Considering that electronic environments are so pervasive, important questions for teachers, students, parents, and administrators include:

What constitutes virtual education?
How do/will people learn?

Tapscott (1998) believes that teachers should consider particular cultural characteristics when developing curriculum. He writes,

Kids look at computers the same way boomers look at TV. This shift from a broadcast medium (television) to an interactive medium (the Net) signals a ‘generation lap’ in which the N-Gen is lapping its parents on the ‘info-track.’ We don’t marvel at the technology or wonder how television transfers video and audio through thin air, we simply watch the screen. TV is a fact of life. So it is with kids and computers. (p. 39)

Virtual encounters have been infused into everyday and educational experiences through desktop publishing, distance education, telecommunication, visualization systems, on-line zines, chatrooms, world wide web sites, news groups, listservs, bulletin boards, web-based games, instant messaging services, and the world wide web, and satellite wireless communication systems.
Over 50% of the people around the world do not even have electricity much less access to a computer or a cellphone. What are the consequences as this gap between those economically enfranchised and those economically disenfranchised becomes greater?

Teacher education students should study ICT literacy as a way to eventually help their own students inquire critically about the use of ICT. In addition ICT may not always be the best way to learn particular content because it does not suit their particular learning preferences. We should not assume that the internet offers the most effective method of learning rather than face-to-face instruction in all situations. We should recognize that virtual education is not more valuable than reality, because it is actually part of real life. Does ICT help people to achieve more? It might, but then again it might not. Therefore it is not about choosing one approach over another as much as it is finding ways to have the best of both.

We know that learning occurs both inside and outside of the bricks and mortar of school buildings. At some point in the near future educational institutions will need to embrace the certainty and power of informal learning spaces. We live at a time when some believe that the real is separate from virtuality and what we are saying is that it is not. In order to have a virtual experience you must experience it through a sense of the real. This means that we have to ask critical questions all the time, and not take things for granted.
ICT and TYETEP: When? Where?, and Who?

Don: I will talk about the Seeds program and the Two-year Elementary Teacher Education program (TYETEP) in relationship to when, where, and who. I need to stress however, that in this presentation we are just describing the program and not reporting any research results.

The current (TYETEP) curriculum is fairly complex. The program extends over two years and is divided into two terms each year. In the first year, students take three professional courses and several different methodology classes. Methodology courses include subject areas such as: art, math, music, language arts, physical education, science, and social studies. Students also take professional courses in areas of child
and adolescent development, special needs, social justice and moral and ethical issues.

The only two courses that students take both terms in the first year are the Principles of Teaching and Communication courses. When we started the Seeds program we knew that we could not add another course to this program. Instead what we decided was to work though the POT/Com courses and identify ways to have each of the methodology and professional courses do a little bit with ICT. At this point we are still collecting information to learn more about where ICT has been introduced, how ICT might be introduced in the future through specific course objectives, and how successful students are in learning to use these various forms of ICT. During the first year, students also go out on a short practicum experience. Then in the first term of the second year, they participate in an extended practicum. Afterwards, when they return from the extended practicum they take two more professional courses and four courses related to an area of specialization.

A broader goal of the Seeds program is that we'd like to create a sustainable learning environment for these young professional teachers to keep in contact with each other through a communication portal and to share the work they are doing through the creation of an eportfolio. We see the eportfolio being used not only during their extended practicum but also during their first years of teaching and possibly afterwards. The value of the eportfolio and the communication portal is in creating a virtual educational space that is sustainable, and that it is a means for them to connect with each other to support their own professional development.

**ICT and TYETEP: What?**

**Yifei:** In this section, I will discuss three concepts: ICT literacy, ICT fluency, and ICT integration.

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**Integrate Information and Communication Technologies (ICT) into teaching, learning, and communication practices.**

- **ICT Literacy** — become comfortable, confident, knowledgeable
- **ICT Fluency** — use ICT to enhance teaching and learning
- **ICT Integration** — use ICT across curricula subject areas

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**What?**

ICT literacy is a process of helping teacher and students feel comfort and build confidence in using technology. These are the skill and knowledge that one needs in order to use ICT in teaching and learning. ICT fluency refers to what teachers do
with ICT in their own practices, and ICT integration includes how teacher apply technologies through teaching so as to not only to maintain learning but to assist the students in generating new knowledge.

**ICT Literacies** refer to the teacher’s and student’s comfort and confidence in using learning technologies.

These are the skills and knowledge one needs to use ICT to improve learning, productivity, and performance. Teacher and student ICT literacies are the seeds for developing and effectively using ICT in teaching and learning. These can be acquired through self-directed learning, teacher education programs, professional development education, and daily interactions within one’s own cultural setting.

**ICT Fluencies** refer to what teachers need to know in order to teach (do) effectively in ICT enhanced learning environments.

The effects of learning need to be understood in the context of both the student and teachers use of ICT. ICT fluencies are characterized by teacher practices with ICT use across the curriculum and their engaging ICT to problem-solve and make decisions in F2F, hybrid, and ODE settings.

**ICT Integration** refers to a teacher’s ability to apply ICT through teaching, so as to not only maintain learning, but also to assist students in generating new knowledge.

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**ICT and TYETEP: How?**

**Jenny:** Two key pieces of the Seeds program is that we strive to build collaboration and help students use critical inquiry in their teaching. Below are some of the questions that have guided the process of implementing the program. One significant element in how we are implementing the Seeds program is that we are working slowly, incrementally and accumulatively in the ICT integration process and we see this process taking three to five years.

**Katherine:** Let me back-up a moment and provide some context to the Seeds program. The Seeds pilot program started in term two of 2005. We began by asking questions like why use ICT? How can ICT be used to conduct critical inquiry in the classroom? From there we established a communication portal, which ended up being an evolving communication space. The seeds portal is used to connect teachers and learners from the different subjects areas and provide a sense of overview.
Jenny: The pilot program was successful and a new proposal were submitted to the Deans Learning Technology fund from the TEO office. Several broad program goals were identified: that the use of ICT be sustainable, that the program introduce ICT to lots of people working together and that the program infuse ICT slowly into teaching education.

Katherine: This is a list of the learning objectives that will be demonstrated by the students in moments.
Specific activities around how the Seeds program is being enacted includes graduate student mentors observing courses across the entire two-year elementary program. Our goal is to identify one or two objectives that could be modified in each course to integrate ICT into the existing curriculum.

The students have created eportfolios to represent their learning. Cross subject and cross community integration between faculty associates, tech coaches and grad coaches is also a key component of this integration.

While the overall program is complex, the idea of extending teacher education learning into professional practice so that all these pieces can coming together and flow back out beyond the school is important. We see the Seeds
Program possibly providing a space of continuity to carry professional education into their future practices.

**Student Voices: Our ICT Experience**

**Anita:** The Seeds program was introduced at the beginning of our journey. We were invited to actively participate as we embarked on our journey. The Seeds mentors, from the beginning and even now, are our support system. They really are! The Seeds mentors are the ones that we can go to, who provide the support that we need in order to learn enough and be knowledgeable and become experts in the field. At the same time, we are also active participants in this, which makes the process basically a reciprocal relationship.

So where do we find our motivation and passion? As students teachers coming into a program for education we already have the passion and the motivation to become teachers in the field and to go out there and work with students. The introduction of ICT on the other hand challenged us to ask what is it? Why should we use it? Where is it coming from? So we needed to find this passion and motivation to integrate ICT into our teaching and into our future classes. Motivation, as we know, lets us do to the best of our ability what we already can do. So without knowing anything about ICT, and how to integrate it, how could we could we that motivation.

Additionally, as the Seeds program started all 19 of us came from all these different levels of ability to use ICT. So there wasn't one particular ICT goal that we all use and be comfortable with. We first needed to understand our own ability and levels of ICT literacies and with help establish directions where we could find our own paths, individual paths, to actually reach a way to maximize our potential. This is/was a slow process and once we started reaching these points, then we could establish common ground to work together at our own pace but also working together towards achieving ICT literacy.

**Gica:** I want to begin with a video we made about our ideas of ICT. (http://www.dkrug.com/westcast/video01.swf) So as you saw there is a huge range. Some of us are able to be innovative and yes some of us tremble. When I first started with Seeds I had lots of questions. What is this class? Is it going to be more work? Where is this all going? I think most of all many of us asked how is this going to help us? What can we do in our practice, on practicum, and in our classrooms? I think there was just a general feeling of confusion. We were coming from completely different ability levels using ICT and
it was apparent that some of us were really good and really comfortable using
technology and those others were shy and reluctant to use it.

For some the pace of the class was too slow for others it was too fast. So we
were coming from all different experiences and backgrounds. And perhaps our
biggest struggle was that we lacked the overall language around ICT. Some of us
lacked the understanding and proficiency to grasp the idea of clicking in this box,
dragging it over here, dropping it over here and there, or that a server is a computer
that stores information. So where is all the information really going? We had no
idea. There was a steep learning curve.

And while using ICT was frustrating to begin with, we know realize that we have
received great gains from these experiences. We needed that struggle. We needed
to appreciate that the knowledge we were learning does not always come easily.

So where are we now? I would say that we are confident, motivated, and have a
clear expectation of where we are going. As mentioned above, we have come to
this place however in different ways. We all were able to create our own personal
goals on how we would get there. Now there is an overall feeling that we get it. We
are excited about it. This is a result of our hard work.

By far our biggest challenge and biggest accomplishment is our eportfolios. This
is part of our personal growth. While it’s not yet completed, these are definitely
starting to take shape. You can see the great variety of all of our efforts. Just look
at the diversity of our eportfolios. Here are some examples. The eportfolio is a
place where we can store, organize and share our learning. We are still in very
different stages. Some of us have pictures, links and lesson plans. We are in the
process of developing the content and individualizing it. This does not happen over
night. It’s been a lot of hard work and a lot of struggles and we are very grateful
for the mentorship that we have been allowed and received.

I have stressed our difficulties
because I personally struggled
with using ICT a lot. I have
experienced a lot of struggles, a
lot of hard work, a lot of setbacks
and risks. I wish to encourage and
support the program and help to
make the program clearer and
smoother for cohorts to come.
Any change does not come
without struggle. Technology
skills can become old and change
and get outdated, but the ideas we
are learning about ICT literacies
will stay with us. Learning about
ICT literacies allow us to not
have fear of the next big change to come. I personally have received great benefits
from the opportunities we have had through the Seeds program. I hope we will be
able to use it to further our careers and to further our learning. We are so lucky and
fortunate to be learning ICT literacies that are for life.
Anita: What else has brought us to this point of illumination? There are a lot of other things that we have done in other classes, a lot of other things that we have been able to take advantage in order to get to this point. We have had sessions on how to use applications, for presentations, word processing, image manipulation, and spreadsheets. We have learned to use dreamweaver to make or eportfolio and ftp applications to upload and download or files to a directory on a server. Everything like that has come together in small doses so that we can apply it in both our present classes at UBC and also integrate in the future in our classrooms. For example, in our Psychology course, we are using the web instead of a specific textbook. Our teacher is helping us gather our resources through the internet. We are learning to look up resources on the internet and learning how to use it effectively with our students. We’ve used digital movies and images to record processes of learning and to highlight content for our lessons. In our POT/COM course, we have had the opportunity to do assignments by either selecting to write a 2-page essay or do a PowerPoint presentation. Now I can tell you, in September we had 3 students who took advantage of using a PowerPoint presentation and in February 16 out of the 19 people took advantage of using PowerPoint. We have learned to be comfortable with ICT and it no longer sits on a pedestal.

The reality now is that we are not learning something that makes us tremble. We have been able to begin to use ICT in all of our courses and have opportunities to study it from an interdisciplinary approach to teaching. This constant exposure and small doses in every course and in everything that we do has helped us feel more confident and more comfortable. In fact some of us have even used ICT in our early practicum experiences, integrating ICT into lesson and unit plans.

Student Voices: Our Teaching/Student Learning

• Templates
• Lesson Plans
• Rubrics
• Tables

Stina: I will be sharing how I used ICT to enhance my preparation for my two-week practicum and how I used it to enhance my teaching practices. First I used
ICT to create classroom forms, lesson plans, rubrics and tables. For example this kindergarten lesson plan was made with a word processing application using the table functions. The form can be used for other lessons or for other grades. Here is an assessment-tracking rubric we used.

**Trinity:** There are always some positive and negative aspects any time you are doing anything. So some positive aspects of using ICT included that it was really easy to make changes to my lessons. I could easily transfer files and other information through the internet, and by using email, information could be readily accessible at school and at home. Changes to documents could be made quickly and these documents were often more aesthetically pleasing than hand written. One problem was that I did not always have the applications I needed at home to create a particular document or change a file format from a word document to a PDF document.

**Stina:** During my two-week practicum experience, one of my lessons was on respect. Students at the school learn about the seven virtues during the year and they are introduced to a new virtue every month. When I was there they were learning about respect. I decided to use respect as a theme and use it to enhance their learning about the theme by using PowerPoint. The 28 grade 4/5 students were somewhat proficient with computers. I checked out 6 ibooks from UBC to use in the class. I divided the students into groups of four or five. I
arranged the laptops on the student’s desks. The children were so excited about using the computers. There enthusiasm was contagious and I got so excited I quickly rushed through respect so that we could use the computers. We did some brainstorming and the students made storyboards. I passed out storyboard handout so they could take notes. As I was walking around, I realized that they hadn't really grasped what the lesson was about because they were so excited about the technology.

After talking with my sponsor teacher, I decided to re do the lesson the next day. I started by telling them a story and spending more time on developing their ideas through brainstorming. We discussed what respect means, how people earn respect, what people say about respect. Instead of focusing on the technology, this approach allowed the students to enhance their understanding of respect by creating a presentation. The students had to make one title slide, 5 information slides. Each slide needed a subtitle and two phrases about respect and either a digital photo or clip art. I took pictures of them while they were working in their groups brainstorming, so we had pictures of them showing respect to each other. I taught one skill at a time and rotated the computers so each child was allowed to use it to complete the task. If there was a problem that I thought the whole class needed to address I asked them to look to the front of the room. I set up a programor and used it to show how to trouble shoot problems as we went along. It was really efficient. Depending on the problem sometimes I went and gave a group individual instruction. From the start I wasn’t sure if I could teach them to use the special effects, animations, and the sound affects. I taught one group how to do a sound effect and before I know it the entire class had every single phrase animated and every single picture was zooming on and spinning around and had sound effects. I was just amazed. They did it in about 10 minutes. Their final assignments just blew me away. I was so impressed and amazed at how fast they caught on and by the end they were teaching me things.

Trinity: So I was at the same school, but in a grade 2/3 class. I did my lesson with about 12 kids. I was doing a unit on community and wanted them to research how people have different roles. I planned for them to use the internet to find information. But as I
was doing my preparation I quickly found that the only information that I could find was way too advanced for their age level. The text was too small and there was way too much navigation involved to find the information. So I created a table my own web pages for each of them to go to and tailor the website using an appropriate sized font and adjust the text and image ratio so that it was not too over whelming for them. I put the information on the webpage that I wanted them to know and created a little booklet for them on what role they were going to research. They used the handout to take enter the web address into the url bar without any problems, except that they had difficulty doing the full colon and forward slashes. Because you have to hold the shift key down and click another button. But they picked up on it really quickly. I gave them a worksheet that they had to fill out while they were doing their research. The criteria included using full sentences and all words had to be spelled correctly. This is an example of the worksheet. The questions were all the same except the visuals were different and the roles they were studying were different. For example the role of the mechanic asked what tools do they use and what do they wear. The main idea that I addressed through out the unit was how do different people in a community contribute to a community as a whole. This is an example of the top part of one of the website that I made for them. They all follow the same format and have text on the right and visuals on the left. As you can see the font is much larger than you would find on a regular webpage so it’s much easier for the kids to read.

The students worked in the computer lab in groups of two or three. They were all really engaged and on task the whole time. Because they were so young, they did not really know about other things they could find on the internet. So I didn’t have to worry about them doing other things. As I do for all my units, I later reflected and assessed the process. This is something we need to do each time that we use ICT just like anything else we do in our classroom. Here are some questions a teacher might ask himself or herself to make sure that they are making the right choice in using ICT.
Stina: For example did the use of ICT enhance or distract from the lesson. Where the students engaged? Students should not feel confused or frustrated because it was something new to them. In both our cases we found that it did increase their engagement in what they were leaning. What classroom management is needed to use the technology? How would I teach the lesson again?

Student Voices: Our Learning and Reflection
Carla: So in conclusion, we have learned to be comfortable so that technology is just another language of learning. This means for many of us overcoming our initial fear and bridging a gap between what we know and what we don’t know about ICT and teaching and learning. It is not enough to only knowledge about ICT skills but more importantly we must be able to use it and teach it to others. So as you can tell from our stories we will need to continue to use what we have learned through the Seeds program in our own teaching experiences in order to successfully integrate ICT into our students learning.

Julie: We also do not believe that technology offers the be all or end all for learning in any classroom. However, ICT needs to be effectively implemented so that our students may acquire the skills that are demanded in our progressive society today. How will we use ICT to enhance student learning and develop our curriculum goals? Please take a moment to view the following video and take this time to reflect on any questions you might like to discuss. (http://www.dkrug.com/westcast/video02.swf) Our journey continues.

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