

How can the learning needs of all young people be met through the innovative use of Technology?

R. Randy McLeod, Regina Board of Education, Regina Saskatchewan Canada
randy.mcleod@rbe.sk.ca

Learning at a distance offers opportunity for a quality, highly interactive and affordable education for all. Due to a lack of local access to a specific subject expert, low student enrollment, remote geographic location, or lack of teacher availability Distance Education was designed and grew to level the educational playing field for all schools and all young people in the province of Saskatchewan.

In September 1990 through a joint venture between the Government of Saskatchewan and three school divisions, broadcasting of classes in an interactive televised nature—referred to as ITI (Interactive Televised Instruction)—began. At the onset, two classes were offered French 9 and Algebra 11. Algebra 11 was my introductory ITI course. The ITI course delivery mode taught students strictly in a Synchronous mode via satellite distributed television, supported by Saskatchewan Communications Network (SCN), as in face-to-face teaching with a scheduled time each day.

Shortly thereafter, due to student absenteeism, requests were made for us to produce a VHS copy of the class and to send it to student(s) so they could remain current or review key concepts. As a result, the Asynchronous portion of the class began ... allowing students to view the tape at home or at a time more convenient during the school day. This Asynchronous mode was found to be necessary, although ineffective and costly because the postal system took a minimum of three days for delivery, resulting in the student still falling behind. We then approached the schools to videotape the classes to save delivery delays and any mailing charges associated with the return of the tape. In addition, the schools had the tapes, saving the huge inventory (multiple copies) and costs to us. This solution also posed a problem if the facilitator forgot to tape the class or multiple students were away and multiple copies were required. Even with these minor problems/growing pains, a “classroom chemistry” was created which ensured all children developed independent learning skills, became actively engaged in their own learning while developing technological literacy in preparation for possible post-secondary education.

Due to the program’s success, expansion was inevitable. The following year French 10, 11, 12, Calculus, and Entrepreneurship were added to the course offerings. In the years to follow, the program offerings grew to include General Math 10, 11, all grade 12 Math classes, grade 11 and 12 Physics and Biology, Computer Science, Psychology, Law, and Driver Education. Along with course expansion came internal school division expansion as we offered “Short Distance Education” within our own school division to other schools where insufficient student enrollment did not warrant a separate class. This highly interactive model, while extending the classroom walls, offered an attainable quality educational environment which was vibrant, engaging, and fun filled.

The addition of a Course Management System (CMS) in September 2000 created an extensive learning community with limitless boundaries as students and teachers now had access to each other, course information, web resources, additional course resources, assessment tools, and assistance anytime of day, from anywhere, through discussion boards and virtual chat. The advent of Video Streaming or Video on Demand in 2000-2001 allowed students (on vacation, at home or in hospital, elite athletes, shift workers) to continue their education live or in an archived mode. These students remained current and were able to review key concepts anytime of day from anywhere. With the CMS, students now had one location to find and retrieve information, to work in a Synchronous or Asynchronous mode, and to discuss topics while working in a simple, easy to use, and ideal learning environment.

Currently, I am teaching Calculus and Trigonometry via Distance Learning and, as educators, we know the importance of interaction whether verbal or non-verbal to illustrate and clarify understanding of concepts. As Distance Educators, the non-verbal means of communication does not exist since we are unable to see our distance students as we do our face-to-face students. We must work harder to ensure verbal communication lines are open in multiple forms. Since all students are not strong verbal communicators, the CMS gives all students the avenue to interact via email, message/discussion boards, virtual classroom and chat. In distance education, we must strive to encourage and to expect all students to use every form of communication available to interact during classes. A stimulating environment must be created where a genuine interest in all students must exist while making everyone feel comfortable and safe to communicate, whether with each other or the instructor.

Further communication is encouraged in my teaching/learning environment when students are required to submit homework regularly, send photographs of themselves, their school, their community, their curricular and extra-curricular activities, and even their vacations via a postcard being sent to my classroom (electronically or via the postal system). All of this information is presented to the class and posted on the CMS for the entire class (throughout the province) to experience and enjoy. In addition, students are required at least once a week to call or email me regarding problems, reporting absences (prior to and reason), stating what is happening in their life, or just saying, "Hello."

Interactive Whiteboard Technology (or a Smartboard), the next piece of the puzzle, arrived in 2003-2004. This highly interactive board allowed us to use preprogrammed information, create documents or lesson plans for future use, and engage student creativity to expand our learning experience. We explored the internet together, played, had fun, archived class notes for students who can verify the accuracy of information heard or recorded, and retrieved notes anytime. With notes archived, students had less pressure to record every single aspect of class which, in turn, lead to increased class discussions, deeper understanding of concepts, increased awareness of the instructor's expectations, fewer difficulties outside of class time, improved test results. The students solved problems faster or in more creative ways, and became more actively involved in their learning rather than a passive participant.

These tools (Course Management System, Video Streaming, Smartboard) allowed students to stay current, assisted in reviewing course content, and helped with remedial or enrichment while allowing students to move at their own pace. Online testing created immediate feedback while providing students with timely information for seeking assistance from anyone in the class, if required, or to proceed. In other words, we were creating an extensive learning community that was unbound by time or location.

Course offerings are limitless in Distance Education. The most recent course offering has been the Visual Art component of Arts Education supported Computer Processing Technology (CPT), students. Again, this course provided a service within our school division where subject experts were not readily available at the elementary level. This combination connected a practicing artist, grade 7/8 students, and secondary CPT students to produce a quality program while giving practical, hands-on experience, combining multiple and different subjects/grades, resulting in benefits to everyone.

Not only are course offerings limitless, but also other applications of the system. Guest speakers who smaller school divisions are unable to attract, special broadcasts, staff professional development, healthcare broadcasts or presentations, and workshops, have all been offered. These presentations enable everyone to receive the same quality information while participating in the same workshops at the same time as the rest of their colleagues. These presentations also allow interaction at all levels while giving everyone the same opportunity to hear messages from speakers only the large centers/cities would normally have access to, due to cost.

We have discovered:

In the beginning:

- 65-70% of participants were male
- few were elite athletes and, therefore, travel was limited
- our population stable, not very transient
- jobs were fairly stable and easy to find
- post-secondary course offerings via distance learning were low
- technology primarily meant a computer
- professional development in technology and distance learning was sparse and limited
- home schooling was starting to grow and looking for ways of obtaining quality educational information from a specialist, whether in print or in broadcast mode
- the courses were treated and taught in a traditional manner, with all correspondence between teachers and students during the "regular" school day
- we all worked in relative isolation – teachers were on their own to learn new course material if a growth in population was evident

Now:

- 65-70% of participants are female
- lots of elite athletes (due to travel/training) requiring course information to stay current and to meet graduation requirements with their peers
- our population is very transient, creating strains on the educational system as we currently know it

- as jobs vanish, advancement in an organization is limited and newer employment requires higher levels of education/training
- post-secondary institutions offer most of first-year courses via distance learning
- adults are returning to school in increased numbers
- advancements in technology are leaving some educators and adults on the outside while our students are diving in and driving change
- professional development is a must in all aspects of technology and distance learning, but it is difficult to keep pace with the current advancements
- home schooling has increased drastically along with their requirements
- working outside the classroom/building, regardless of the time of day in order to correspond with students or to assist them, is essential
- As educators, we are each others' resource – assisting each other with difficulties no matter where our colleagues reside or their teaching requirements. We have trained numerous teachers to teach new courses due to their school's predicting a growth in student population

In conclusion, we have learned that one delivery mode unto itself will not replace all others. Timely interaction (preferably immediate) is critical, technical and learner support is necessary, and professional development is a must when technology is expanding exponentially. As well, students need to develop independent study and time management skills in order to succeed today. Educators need to take risks, embrace change, stimulate their students and become flexible in how, what, and when they teach. Students want to be taught by subject specialists who teach them like "coaches." Above all, we require educators with a passion about this new, non-traditional way of teaching. New technologies are great for adding flexibility and meeting diverse needs, but need to be adapted to the realities of the learner and their environment in order to be practical and effective. We cannot leave older technologies behind but incorporate them together to provide a learning environment or community where students are successful no matter where they are, who they are or what hurdles they need to overcome.