RON CANUEL

One Student: One Laptop

The Eastern Townships School Board (ETSB) is located approximately 100 kilometres east of Montreal, in the province of Quebec, and serves a primarily rural population of approximately 7000 students. The territory covers an area the size of Belgium – presenting a formidable challenge for technological infrastructure. Until 2003, the board had retained the traditional approach to the use of technology in education, with mostly outdated equipment/operating systems and limited use of computer labs by staff and students. In a minority of schools, computer use was impressive, but it was practiced on a very limited scale by teachers. The traditional "field trip" to the computer lab was the prevalent practice at the high school level.

In January 2003, the ETSB announced the implementation of the Dennis McCullough Initiative-Enhanced Learning Strategy (ELS): over a three-year period, starting in September 2003, all students from Grades 3 to 11 (the final year of high school in Quebec) and all teachers, would receive, free of charge, a wireless Apple laptop computer. The deployment proceeded in the following manner: the beginning of the 2003-2004 school year: Grades 5-6 and Grade 11; the beginning of the 2004-2005 school year: Grades 3-4 and Grade 7-8; the beginning of the 2005-2006 school year: Grade 9-10. By October 2005, there were 5600 wireless laptops deployed in the system. This $12.5 million initiative was financed through long-term bank loans and contributions from the Eastern Townships Educational Foundation, established in 2001.

Through this initiative, the ETSB aimed to address two significant and persistent concerns articulated by educators at the local, provincial and national levels: the need to empower teachers in the classroom and the need to engage students as eager participants in their own learning. These two areas and a related specific focus on improvements – with quantitative targets – in literacy, numeracy, dropout rates and grade/cycle retention ultimately created the entire ELS approach.

In order to attend directly to these components, the establishment of the ELS at the elementary school level became the first priority This was a change in the "regular" attitude to introducing change in education; educators know that at the high school level, there is much work on remediation and adjustment to literacy and numeracy. But the board was convinced that, when introducing techniques to improve literacy and numeracy, the elementary school level is the most appropriate level to target first.

Educators have historically demonstrated a conservative approach to change, so adding technology to the educational recipe for learning was daunting. The board began by analyzing other options. However, in all cases the solutions only partially responded to the concerns and issues identified, and in some cases they would have actually exacerbated existing problems in the classroom environment. Among the options reviewed were reducing class sizes, providing more materials, improving infrastructure, and hiring more teachers, non-teaching professionals and support staff. The ETSB noted that all of these more traditional options would benefit only a portion of the students and teachers and were, in some cases, more costly as well.

The board also wanted to avoid the "pilot project" approach. which is often successful in the short term, but rarely results in the systemic change needed to develop capacity and sustainability. Hence, the commitment was made to the ELS.

INITIAL RESPONSES AND EARLY RESULTS

The initial responses of educators (teachers and school administrators) and parents to the ELS ranged from great enthusiasm to great skepticism. Student response was very positive, although some senior high school students expressed reservations at first – based less on their own acquisition of a laptop than on envy that elementary students would be receiving them at the same time.

The implementation was designed to put a laptop in the hands of the students within a matter of a few weeks, once the school year commenced. Students were most anxious to receive the laptops, and they received basic training on the operations; however most students expressed the desire for "accelerated" training.

In December 2004, just one year after initial implementation, the ETSB held a press conference to announce preliminary positive results on reading and writing scores of students in Grades 5 and 6. Using the Wireless Writing approach, first developed in British Columbia, teachers had received intensive professional development, and the results were notable. Students were reading and writing more, writing with greater purpose, and showing more self-reflection and assessment in their writing. High school students in their final year wrote more when using laptops, and the quality of their writing had also improved. In particular, the results showed a positive impact on special needs students.

A research team led by an independent third party, Concordia University, has been conducting ongoing research from the beginning of the deployment. It confirms that ELS has brought about fundamental changes in classroom practices and learning, and that the laptops have had a positive impact in the classroom in both quantitative and qualitative domains.

Teachers, administrators and parents are reporting that students enjoy school more and enjoy using the technological tool for learning. Initial concerns have evaporated, replaced by an expectation that ELS will continue. Both the level of sophistication in computer usage and the exchange of technological expertise among and between teachers and students is increasing measurably. Elementary school data, soon to be released, will also show that attendance has increased and behavioural problems have dropped significantly.

PROFESSIONAL DEVELOPMENT FOR SUCCESSFUL INTEGRATION

The key factor in the success of this initiative lies in the quality of integration of the laptop into the classroom.

While some teachers have reported that the laptop has had limited impact, upon closer examination the issue appears to be one of integration rather than the laptop itself. There is no doubt that high quality integration of the technology is important; however, integration of the laptop is not so different from integration of a textbook. Should the teacher fail to successfully integrate a textbook into the instructional domain, it too will have a very limited impact on the students. Research based on the classroom use of laptops in many jurisdictions in the United States has found conclusively that ensuring good integration, not simply the presence of the technology, is the key factor in determining educational impact. This means going beyond the simple tasks of teaching students and teachers how to operate the machine and acquiring the basic technological skills.

Good integration of technology is defined by the way the students integrate the technology and related innovations in their learning process, by encouraging the creation of supportive learning environments that allow for the use of technology, and by paying close attention to how the students use the technology. In our school board, when we have witnessed this pattern of integration by the teacher and student, the distinct advantages of technology integration become apparent and successful.

When we had reports of students using the laptops only to play games or to download music, we found it usually stemmed from a lack of integration by the teachers into the classroom context. To correct this situation, the focus of our professional development shifted from basic skills integration to more quality integration components.

The ETSB initially negotiated 225 days of professional development for our teachers into the contract with Apple Canada. In addition, approximately 80 days were taken from an internal PD bank to further underscore the support for teachers, students and school administrators. With over two years of deployment in the classrooms, the board has used almost 180 days, with a substantial balance to be used over the next two years.

The professional development component of the ELS signals one of its key distinctive elements. Teachers play a crucial role in the establishment of pedagogical objectives and the major portion of the PD has been in-class, directly integrated into the classroom practices of the teachers. The board has avoided the traditional large-scale professional development sessions, and our teachers have expressed continued support for the local, decentralized approach.

CHALLENGES FOR SCHOOL BOARD ADMINISTRATORS

When the ESTB announced that we would provide our students with Apple technology, we heard from a group of employees, parents and educators that "our world is PC based" and providing Apple technology to students was ill advised. Readers should know that when we were initially investigating the entire issue of laptops in the classroom, we asked students directly about their views of the PC-Apple debate. Their response taught us a lesson: "What's your problem, who cares!!" The topic has not been discussed for over two years.

Financial considerations are always a challenge. When the ETSB decided to implement the ELS on a system basis rather than as a pilot project, we made a large financial commitment. Yet with long-term loans and contributions from the foundation, the board has avoided a large deficit and has successfully presented a balanced operating budget, excluding the ELS loans. From an administrative perspective, the ultimate question must be: Is education an investment or is it an expense? Of course, this question must be answered from both sides of the ledger.

Some parents have expressed concerns about students being exposed to the dangers of the internet. In my opinion, we need to teach our students the real 21st century skills of media and document literacy, value added knowledge, and information integrity (ability to judge information on the internet as correct, useful, purposeful, helpful, supportive, insightful on the one hand, as opposed to, harmful, racist, stereotypical, incorrect, misleading on the other). Avoiding or seriously restricting access to the internet will only negatively compound the issue. Computers are the tools that we need to teach those skills.

SOME RECOMMENDATIONS

One of the advantages of the ETSB is the size of its student population. With approximately 7,000 students, the board was able to deploy laptops on a systemic basis. Understanding that larger school districts are the norm in Canada, a strong recommendation would be to focus any 1:1 laptop deployment at the elementary school level, preferably from Grades 4-6.

The reasons for this recommendation are numerous. First, elementary school teachers are more focused on the development of the child, in a more holistic context, and this allows for a greater degree of quality integration in the classroom. Second, although literacy and numeracy truly commence at the kindergarten and early primary levels, intermediate elementary school levels can immediately respond and adjust to the new skills that the children have acquired. Third, children at the elementary school level enjoy and prefer project-based learning models, and this presents a better alignment with the introduction of a laptop into the learning process. Four, focusing on the elementary school level provides a better platform to integrate the changes in instruction and learning that will evolve under such an approach. Finally, beginning at the elementary level will provide time for the secondary school system to modify and prepare for the cohort of students who will be demonstrating advanced usage and integration of technology.

It is also important to ensure that the professional development sessions for teachers and school administrators take place three full months before deployment. This will emphasize the importance of the deployment and the need to begin planning integration of the technology into the classrooms. It is absolutely essential that professional development target all school administrators, as well as teachers. Too often, the school leadership teams are not directly included in such professional development, yet study after study indicates that a principal strongly committed to such an initiative plays a very significant role in its ultimate success.

Educators contemplating such an approach need to appreciate the diversity of opinion and skepticism towards technology in classrooms. HAL, the computer featured in the movie 2001: A Space Odyssey, truly fostered a widely

held belief among baby boomers in education, that technology can be helpful, but is ultimately very harmful. Curiously enough, none of us would consider buying a 1990 car versus a 2005 model for the same price; none of us would visit a dentist who still uses technology and practices developed in the 70's, 80's or 90's; none of us would have a cardio vascular surgeon use 90's technology in the operating room; yet for some reason, technology in education is still characterized as a potentially negative element in the classroom. When we ask our students about technology and the place that it should play in their learning, the vast majority support it.

The ubiquitous deployment of laptops breaks through the traditional barriers to learning and teaching. Student results should be based not only on the acquisition of traditional academic skills, but also on 21st century skills such as "knowledge application" and creativity that will truly serve the Canadian and international contexts of the future. Current standardized tests simply measure the knowledge, not the application, and exclude any measurement of creativity. As such, the major challenge for educators is becoming more and more evident: becoming relevance to the future society that we are supposedly preparing our students for. It is on that front that research should focus greater attention. Technology should never be a surrogate for the crucial relationship between a student and the teacher. Rather, the laptop should become the catalyst of innovation in learning and teaching.

For more information, I invite readers to the Enhanced Learning Strategy section of the ETSB's website – www.etsb.qc.ca/en/EnhancedLearningStrategy/default.shtm – or come visit our schools during the upcoming International ELS Showcase, slated for March 27th –29th, 2006. This Showcase will provide registrants with a first hand opportunity to visit our classrooms and speak directly to the teachers, administrators and most importantly, our students.

EN BREF **En janvier 2003, la Commission scolaire Eastern Townships, au Québec, a mis en œuvre une stratégie d'apprentissage amélioré devant permettre, sur une période de trois ans, à chaque membre du personnel enseignant et à chaque élève, de la 3e année jusqu'à la fin du secondaire, de recevoir un ordinateur portable Apple à raccordement sans fil. L'initiative avait pour but d'appuyer le travail des enseignants en salle de classe et d'engager les élèves afin qu'ils deviennent des participants enthousiastes de leur propre apprentissage. On voulait ainsi améliorer les aptitudes en lecture et écriture et réduire les taux de décrochage et de redoublement. Au terme de la première année, la Commission scolaire a été en mesure d'annoncer des résultats préliminaires positifs. Elle notait que le personnel enseignant avait reçu un perfectionnement professionnel intensif et que les élèves lisaient et écrivaient davantage et avec plus d'intérêt, et que leurs écrits reflétaient un plus grand degré d'introspection et d'analyse. La Commission scolaire soulignaient aussi l'impact particulièrement positif de l'initiative sur les élèves ayant des difficultés d'apprentissage.**

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