



A REVIEW OF NEW BRUNSWICK'S DEDICATED NOTEBOOK RESEARCH PROJECT

EXECUTIVE SUMMARY

The Canadian Education Association (CEA) was commissioned by Hewlett-Packard Canada to create a case study describing the development, implementation and outcomes of *New Brunswick's Dedicated Notebook Research Project*. The New Brunswick Department of Education designed its research project to assess impacts on teaching and learning of dedicated access to notebook computers by students in the specific context of New Brunswick's schools. Similar initiatives are usually referred to as one-to-one (1:1) laptop programs. An external research team of faculty members from Mount Allison and St. Francis Xavier Universities was contracted by the Department of Education to evaluate the initiative. This review is based on the available research reports, documents provided by the New Brunswick Department of Education and interviews with provincial staff, participating school district staff, as well as principals and teachers in New Brunswick's Anglophone sector.

ONE-TO-ONE COMPUTING – A COMPELLING CLASSROOM-CHANGE INTERVENTION

The dedicated notebook initiative has been highly successful with a wide range of evidence to support the conclusion that student learning and improved teaching and pedagogy has been the direct result of this new technology in participating classes.¹

The goal of the New Brunswick Department of Education is to have the best education system in Canada. Among a number of initiatives, the *Notebook Research Project* tested how dedicated computer access enriches teaching and learning practices in support of the skills required to succeed in the global knowledge economy; improves both teacher and student ICT competencies; affects student motivation and achievement; and increases parental and community involvement in education and lifelong learning.²

PROJECT DESIGN

The research project was organized to leverage contributions to the project by private sector partners. Hewlett-Packard Canada supplied notebook computers for students and teachers; Microsoft Canada supplied core software and other resources; Aliant provided Internet access and other resources; and other partners provided various contributions as well. Researchers from Mount Allison and St. Francis Xavier Universities were contracted to undertake the project evaluation. All teachers of grades 7 and 8 throughout the province and students in six schools (three English, three French) received laptops.

RESEARCH FINDINGS

The researchers reported: “By any measure, the changes and improvements to the learning environment... have been dramatic and overwhelmingly positive for all involved with the project.”³

- Students consistently demonstrated effective research, analytical and evaluative skills in the digital environment enabled by dedicated computer access both when engaged in individual or group-based projects.
- Students wrote more, producing work of greater length and higher quality than they had previously.
- Student engagement with the learning process across various subject areas was consistently high, with students, parents and teachers reporting that school became more enjoyable for students and individual motivation levels were raised.
- Teachers reported improvement in the work of all students. Of particular note was the increased confidence and quality of work by students with special needs.
- In most subject areas, students emphasized improvement in their grades, a greater awareness of how to improve the quality of their work and researchers observed an increase in student’s meta-cognitive understanding.
- Increased student involvement in their French second language studies because of enhanced opportunities to communicate and use French in multimedia presentations was noteworthy.
- Students’ work became more meaningful to them as they composed music, simulated the human heart and wrote for class newspapers.

CRITICAL SUCCESS FACTORS

The level of satisfaction with both the experience and the outcomes of the New Brunswick Dedicated Notebook Research Project was quite extraordinarily high. The key contributing factors were:

- Supportive, collaborative and committed leadership by the New Brunswick Department of Education.
- The Departmental Advisory Committee that included the project partners – suppliers, districts, teacher representatives.
- Extensive background research including site visits that informed the design of the project.
- Dedicated human resources for pedagogical and technical support.
- Selection of schools according to prior school and teacher experience.
- Effective communication strategies that engaged teachers, parents and students.

LESSONS LEARNED

- Professional learning opportunities should be provided before deployment of the computers and become a consistent feature of programs until teachers’ confidence in new practices is secured.
- The computer installation and networks need to be robust and technical support is best provided on an as and when needed basis.
- Technical support requirements drop after the early implementation phase as teachers and students gain experience in troubleshooting many technical issues as they arise.
- Initial fears about loss of or damage to computers did not materialize. Generally students’ computers needed no more repair or replacement than those used by adults.
- Students and teachers generally desire that students be allowed to take their laptops home. (Considerations of insurance, the potential for damage, and the reality of unequal access to the Internet at home

resulted in the decision to limit use of the laptops at the level of the school.)

- Communication with teachers and parents facilitates acceptance and commitment. Class and teacher blogs, wikis etc. enable parents to know what is expected and what their children are doing in school.
- Demonstration of effectiveness through evaluation research stimulates demand for expansion to all schools.

THE CHALLENGE OF SCALE

With the right instructional practices, dedicated computer access produces learning environments that increase student's agency for learning. They do more and better work and are more likely to develop conceptual understanding when learning is supported by multimedia. Cost is the most often cited barrier to full scale implementation of ubiquitous computing. But these costs are expected to continue to fall as technology companies realize the promise of low-cost laptops. It may not be cost of technology nor even the required investment in teaching practice that determines whether or not students are provided with the essential tools of learning in the 21st century. It may depend on whether our vision for academic achievement encompasses the evidence that social, academic and intellectual engagement in the work of learning is the foundation on which children and youth become experts at learning for the whole of their lives.

Notes

- 1 Michael Fox and Jim Greenlaw. *The New Brunswick Dedicated Notebook Research Project. Final Report*. November 2006. <http://www.gnb.ca/0000/as/pdf/DedicatedNotebookProjectFinalReport2006.pdf>. This final report also includes a review of the research literature.
- 2 New Brunswick Department of Education Programs and Services Branch. *Call for Participation: Dedicated Notebook Computer Research Project*. May 6, 2004
- 3 Ibid. p.116

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