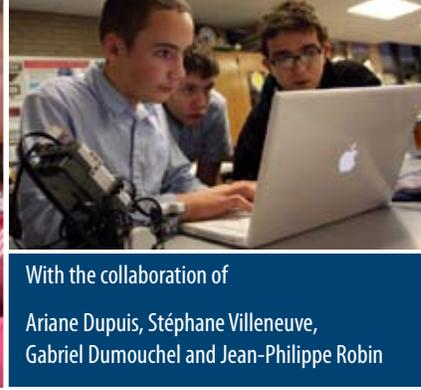


HIGHLIGHTS

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Benefits and challenges to using laptops in elementary and secondary school: Results of the second investigation at the Eastern Townships School Board

Context

The Eastern Townships School Board appeared to provide a highly favourable setting for a study on the benefits and challenges of using laptops in elementary and secondary schools. Ten years ago, the board's student dropout rate stood at 42%, and they were ranked 67th out of 69 in the province of Quebec. This pitiful performance forced the entire education community at the Eastern Townships School Board, including directors, school principals, teachers, and commissioners, to undertake a major rethinking of how their students were being taught. They then did what no other school board in Quebec or Canada had done before: they bought 4,500 laptop computers and gave one to each student at the board, from grades 3 to 11. Now, ten years after changing its pedagogical approach through this wide-scale technological implementation, the Eastern Townships School Board has leapt from 67th to 23rd position in the province. In addition, the dropout rate has been cut almost in half, from 42% to 22%. This is one of the most dramatically improved dropout rates among all the school boards in Canada. Furthermore, far from being resolved, the dropout problem has been getting worse in Quebec over the last ten years. In this respect, Quebec has shown one of the poorest performances of all the Canadian provinces, according to Statistics Canada. Against this background of climbing dropout rates throughout Quebec, the Eastern Townships School Board has achieved the opposite trend. Although this study did not aim to establish a correlation between improved academic outcomes and the use of technologies in the classroom, we considered this a particularly opportune context in which to seek a better understanding of the role of widespread integration of information and communication technologies into education.

Objectives

This second investigation in teachers and students at the Eastern Townships School Board had eight objectives. We wanted to determine, according to the perceptions of the students and teachers, the role of information and communication technologies (ICT) in: (1) writing skills, (2) creativity, (3) communication and cooperation, (4) effective work methods, and (5) critical judgment. We also wanted to identify the main (6) benefits and (7) challenges inherent in regular use of technologies in the classroom, as well as the (8) equipment and access that was available to the teachers and students at the school board.

Participants

In all, 2,712 students (in grades 3 to 11) and 389 teachers participated in the study.

Main results: contributions of a carefully considered pedagogical use of technologies in education

The overall results of this investigation revealed 12 positive contributions to student learning, which may be attributed in part to the teachers' carefully considered pedagogical use of technologies for teaching and learning:

1. Higher motivation
2. Extended and simplified access to information
3. Improved writing skills
4. Increased feelings of academic competence
5. Greater creativity
6. More effective work methods
7. Facilitated communications
8. Enriched teamwork
9. Better critical judgment
10. Better quality of students' work
11. More readily accessible individualized learning
12. Better preparation for students' future social and professional lives.

It is important to note that the collected data underscore how the teachers succeeded in giving technologies a central role in their pedagogical strategies and teaching activities in order to develop their students' writing skills: the students wrote more, faster, and better, and they enjoyed the process. This result is all the more significant given that mastery of writing skills in elementary and secondary school is vital for academic success.

Main results: challenges to using technologies in education

The integration of ICT into education also comes with a number of challenges. In general, we may group the challenges faced by the educators at the Eastern Townships School Board into four categories:

1. Universal access to good quality equipment
2. The time required to properly prepare pedagogical uses of technologies
3. Classroom management
4. Students' information literacy skills.

With respect to the equipment, the vast majority of the surveyed teachers and students said that in order to achieve their teaching and learning objectives, it was essential for each person to have equipment that functioned properly and was always available. The teachers also reported being frustrated because they did not have the time they needed to plan for the best use of the technologies in class. Finally, we must emphasize that the students' information literacy skills were a constant source of concern for teachers and students alike.

Conclusion

In view of the results of this preliminary study, we may suggest that this massive educational initiative to implement technologies at the Eastern Townships School Board has contributed to the improved academic outcomes. Although it is practically impossible to conclude a direct cause-and-effect relationship between the pedagogical use of technologies in class and students' academic performance, and this was not the primary objective of the study, the results of this second investigation clearly show that a well-considered pedagogical use of technologies by both teachers and students improved the educational context, which would in turn have an overall positive effect on student performance. In other words, this richer educational context, created through teachers' and students' use of technologies, contributed to substantially reduce the dropout rate by almost 50% over the past decade. There is no doubt that these improved academic outcomes would not have been possible without the complete commitment and outstanding skills of the teachers, the school principals, and the other education stakeholders at the Eastern Townships School Board. Finally, in this investigation, the factor that appeared to play an instrumental role in the students' academic success was the laptop, one for each child and one for each teacher, which enabled an enriched educational context that could be adapted to teaching and learning needs.

12 Recommendations

1. Enable the Eastern Townships School Board to continue implementing education innovations through well-planned and pedagogically sound programs that incorporate a "one laptop per child" approach.
2. Continue to assess the impacts of the "one laptop per child" program through rigorous studies in order to gain a deeper understanding of the benefits and challenges inherent in this particular educational context.
3. Conduct longitudinal assessments of the impacts of this pedagogical formula ("one laptop per child"), for example, in graduates from the Eastern Townships School Board.
4. Extend the use of laptops in class to all students at the school board, including elementary grades 1 and 2.
5. Promote a return to the "one laptop per child" model for classes that have adopted other approaches.
6. Foster the development of information literacy skills in students and teachers.
7. Follow up on all efforts related to students' capacity to "write better."
8. Continue the outstanding efforts to promote teachers' professional development, and continue to ensure that the programs offered meet their needs.
9. Raise awareness in students, teachers, and other education stakeholders, including parents, of the many benefits of using laptops in the classroom.
10. Find ways to provide Internet access at home for the 9.6% students who do not have it.
11. Extend the experience of the Eastern Townships School Board to other school boards so that Quebec can become a leader in innovation through well-planned and pedagogically sound uses of technologies in class.
12. Raise students' awareness of appropriate and educationally beneficial uses of technologies, both at school and outside school, so that social media, instead of posing an obstacle to academic success, become allies.