

A Shifting Landscape: Pedagogy, Technology, and the New Terrain of Innovation in a Digital World

A Pilot Study of Local Innovation in Participating School Boards

Final Report

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Executive Summary

In this year long pilot study, 34 English-language school boards, 12 French-language school boards and the Provincial Schools Branch embarked on projects to determine the use and impact of technology on student engagement and achievement and on instructional practices for 21st Century teaching and learning. Given the diversity between and among projects, the research team used a landscape metaphor as a framework for the report and to present the results.

During the school year 2011-2012, participating school boards implemented diverse projects across grade levels (K-12), subject areas, and special interests. Some projects focused within their school board, some involved other school boards, and still others interacted with community partners. A brief description of each project is contained in Appendix A. To support the collection of data, each project was required to submit both an interim report and final report that described their focus and outcomes.

We used a collective case study method to highlight the data from each project and to reveal emergent themes, challenges, tensions, and highlights between and among projects. During the analysis phase, we interpreted the data based on these themes calling upon insights from the project participants through site visits and responses to interview questions. While the quantitative data provided information about the scope and involvement for the initiative, the project reports tended to capture details for a rich qualitative description related to teaching and learning in a digital world.

Three main themes emerged from the projects that coincide with what Fullan (2012) regards as necessary considerations as education moves into a new cycle for the 21st Century – Pedagogy, Technology, and Change. Under Pedagogy sub-themes addressed are: student engagement and achievement; teacher training and teacher practice; and pedagogical engagement with the larger community. Under Technology the themes are: learning environments and digital citizenship. Lastly, under the theme of Change, sub-themes are: school board vision for 21st Century teaching and learning and implications for programming and policy.

The tensions and challenges that emerged from the study are clustered around the following issues as noted in Chapter 5: Selecting Devices; Bring Your Own Device (BYOD); Infrastructure (networks and hardware); Equity; Security and Safety of Wireless Networks; Technical Support; Digital Citizenship; Training and Professional Development; Exploiting Technology in a Crowded Curriculum; Blended Learning; and Developing 21st Century Skills.

In general, there was a repeated and accepted acknowledgement that the education community is at a new crossroads of incorporating technology effectively into pedagogical understanding in teaching and learning. Overall, it became apparent that these projects have acted as catalysts for school boards to explore significantly new tools and processes to strengthen the alignment of technology and pedagogy. This represents a positive move forward in thinking about student engagement, student achievement, teacher development, and board-wide systems thinking. It appears clear that, through the work of these projects, school boards are exploring new organizational strategies that push aside more fragmented approaches to using technology that were evident in the past, and are establishing structures that cross departments and jurisdictional responsibilities to focus on the tools and 21st Century skills that students require.

In the final reports, school boards were asked to state their key findings and identify their next steps and planned directions based on their experiences and learning from the pilot project. Analyzing and comparing the school boards' initial focus with their stated next steps provided insight into possible patterns or themes of discovery that may point to short-term and intermediate-term directions on the use of technology in Ontario schools. These themes are discussed in Chapter 3, with Education/Promotion of Digital Citizenship emerging as the theme with the greatest growth between initial focus (4 projects) to stated future directions (24 projects). Of primary importance across and among projects was the issue of students using technology safely and effectively in schools.

The pattern that emerges suggests there is an evolving new approach to how technology can be or should be utilized in school settings. School boards appear to be anticipating a future with:

- technology that is decidedly more classroom-focused rather than lab-focused
- increasingly wireless classrooms that are more 'cloud-based' than hard-wired
- training that places more emphasis on digital literacy and digital citizenship and less emphasis on using hardware and software manuals
- use of more personal mobile devices with more intuitive user interfaces rather than shared devices with limited access and log-in requirements
- more attention to equitable access and less attention to scheduled access.

Many projects provided data to support the positive effect that the use of mobile devices had on student engagement. Project reports consistently indicated three empowering advantages to the use of mobile devices:

- on-demand accessibility to tools and information at the point of teaching and learning
- increased ease of use through increasingly familiar and interactive user interfaces, and
- opportunities to bridge in-school and out-of-school learning experiences.

From the project data, it is clear that:

- there are still teachers to convince about the value of connecting to the world beyond the walls of the classroom that are important for teaching and learning
- students must be kept safe as their understanding of the information highway develops 21st Century skills
- new directions in professional development are crucial, and
- school boards are reviewing policies regarding ethical use of technology.

As for the highlights, the research team noted the following: across projects there seems to be a sense that students who participated in these projects were more engaged and were achieving more successfully than they would have been otherwise; projects consistently avoided making the technology the centre of attention, but instead focused their actions on teaching and learning; many projects identified next steps and future directions that were clearly linked to and aligned with their school board's strategic plan; and there was evidence reported from many school boards of extensive outreach to the broader community and stakeholders – parents, post secondary institutions, business and community partners. Overall, it appears that connections to the community beyond the walls of school and school board were an exciting aspect of technological use across and among many projects no matter what the grade level or focus.

The pilot study marked a significant touchstone that is guiding an expanded role for technology-enhanced teaching and learning within a school board's broadened vision of innovation and excellence. When sharing their perspectives on student learning, participants in many school boards spoke about these projects opening more global connections and providing choices that students have not had previously. Embracing a spirit of inquiry through increased interaction among students and teachers was noted as a positive step toward 21st Century skill development in several school boards. School boards reflected on the importance of integrating professional development initiatives and curricular directions

so that they were not splintered, fragmented, or approached in an isolated way. Project leaders used their results as a means for informing and guiding future system directions related to the effective use of technology. The project reports and interviews present a very reasoned and thoughtful approach to system next steps. There is no evident technology 'bandwagon' effect taking place but rather a series of well-planned explorations that are well-positioned for additional collaborative interactions between jurisdictions with similar directions.

Now that this initial pilot study is completed, a deeper investigation may be warranted to focus on some of the new roots that have been planted on the changing landscape of innovation begun in these uniquely individual projects. From this further investigation, comparative data could be gathered that could pinpoint and detail progress and issues in specific areas of student achievement, pedagogy, curriculum, change management and leadership strategies, and that incorporate technology use by teachers and students. Such a study could help school boards and the province to develop policies and procedures for going forward in the digital world of 21st Century teaching and learning.

Taken together as a whole, the echoes heard across the landscape of the projects constitute a shift in thinking on multiple levels that resound with changes in regard to the use of technology in teaching and learning, school board policy development, and the world beyond school that is increasingly available to enhance school learning environments for the 21st Century.

