
A Pilot Study of Local Innovation in Participating School Boards

Final Report

Submitted to:
Ontario Ministry of Education and Council of Ontario Directors of Education (CODE)

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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, and
- 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 matterwhat 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.
Envisioning the Project Landscape: Introduction to a Metaphor

Metaphors are often used in research (Clandinin & Connelly, 1995, 2000; Lawrence-Lightfoot & Davis, 1997) to help consider and organize data and to outline and title the research itself.

The research team has used a landscape metaphor as a way of providing an overview of the project entitled *Teaching and Learning in a Digital World: Pilots for System Learning Initiative*. We also used the landscape metaphor to help us think about the innovations that school boards have undertaken in order to incorporate new technologies in their teaching and learning with students, staff, and administration in the Provincial Schools Branch and in 34 English-language school boards and 12 French-language school boards across the province.

Like the projects described in this study, landscapes are diverse and changeable. As in each of the 47 projects, differing terrain calls for particular needs and action (Dewey, 1938). Specific circumstances emerge locally, according to topography, population, and a desire for an innovative outlook. Differing visions can provide impetus for change such that given new conditions, multiple elements that comprise a landscape can flourish. In these projects, which are locally conceived, the seeds of innovation can provide the sustenance needed for new learning conditions that can sustain students and teachers in the technological future that is upon us.

In this final report, descriptions are provided that detail individual projects with such information as numbers of participants including students, teachers, and staff; grade levels and the technology being utilized, and any partners engaging with school personnel in individual projects. We provide evidence-based information and outcomes that have emerged from the projects that have enhanced student and teacher engagement and accomplishment in teaching and learning.

In addition to focusing on each project or case, we present information about themes and issues that have emerged from the data among and between projects, and highlights from the projects as a whole.

In the chapters that follow, we describe the purpose and background for the study and the study methodology, and the study processes and themes that emerged from the projects. In our epilogue, we draw conclusions about the pilot study as a whole and identify challenges that lie ahead on the new terrain of teaching and learning in a digital world. It is apparent that designing new landscapes for technological use in teaching and learning in these projects has been of great interest to the participating school boards as this final report on the pilot projects demonstrates.
Chapter 1: Planning New Initiatives for Future Development: Background and Purpose

Purpose

In this report, final data from Teaching and Learning in a Digital World: Pilots for System Learning Initiative are delineated. These projects were designed to support school boards as they initiated and extended digital learning in specific projects over the course of the 2011-2012 school year. The framework designed to collect the final data is based on the project’s primary objectives to:

- investigate and document systematically current practice in selective Ontario school boards, schools, and classrooms around promising technology-enabled teaching and learning practices for student success, within a common research framework that defines and gathers comparative impact evidence where possible and practical
- define and apply agreed upon criteria for identifying a sub-set of local innovation projects that, from a system-wide perspective, merit showcasing and possible deeper investigation in a potential second phase of study, and
- identify potential implications for provincial/or local policy and programming that arise in the opinion of school board participants from the local project activities.

Consistent with the Ministry of Education’s ongoing direction to enquire into successful practices for digital learning in Ontario school boards now and in the future, this collective of local innovation pilot projects follows from both provincial and global investigations into how to equip schools for 21st Century teaching and learning. Topics include student engagement, collaboration and partnership, and assessment strategies that can serve local and provincial audiences in their quest for continued excellence in Ontario schools.

The purposes of this study include:

- Insight into board vision for 21st Century learning including outcomes for the knowledge and digital economy; optimizing learning through collaboration, differentiated instruction, and personal learning; student choice and engagement; providing evidence-based information on strategies that enhance student engagement and accomplishment.
- Building digital citizenship capacity for collaboration, skilled communication, and critical thinking; problem solving and innovation and awareness of healthy use of technology and issues of safety.
- Issues surrounding innovative teaching practice such as knowledge sharing, teacher leadership, evidence-based communities of practice including partnerships among, between, and across jurisdictions, and dedicated collaboration for ongoing improvement with the use of technology.
• Focusing on **student engagement and achievement** in self-learning, student voice, choice, and engagement.
• Noting **learning environments** being implemented using technology for enhancing pedagogy.
• Providing evidence of **parent and community engagement** for both in- and out-of-school collaboration and engagement in digital learning and communication.

**Background on the Pilot Projects for System Learning Initiative**

The following information on the pilot projects is drawn from information provided by the Ministry of Education (2010-2011) and the Council of Ontario Directors of Education (CODE) who, in January of 2011 indicated their intention to work in partnership to support school board interest in participating in pilot projects on effective practices for teaching and learning in a digital world. These projects were to align with the purposes noted above.

In February 2011, school boards submitted an outline of their pilot project idea for consideration. The Ministry and CODE jointly reviewed all submissions and the final project list was shared with participating school boards. Curriculum Services Canada (CSC) was selected by the Ministry of Education to work with participating school boards in documenting their innovative projects and evidence of impact on teaching and learning with a common research framework for all funded projects and to prepare both an interim report in March 2012 and a final report in the summer of 2012.

This pilot project has its roots in a roundtable gathering hosted by the Ministry of Education in June 2010 where educators and students from around the province provided input on the topic of teaching and learning in a digital world. Further meetings followed in 2011, widening the circle to include dialogue with the Partnership Table, CODE, and the Ontario Association of Deans of Education (OADE).

Along with local and provincial visions for technology use in teaching and learning in schools, the landscape for this project is also influenced by an even wider view: that of a whole system change and a more global perspective for continued reform and capacity building for the 21st Century.

**Understanding Underlying Topography before Implementing New Tools: Placing Pedagogy before Technology**

An important distinction applicable to this pilot study is noted in a Ministry letter in December 2010. In that letter, reference is made to the importance of pedagogy as the driving force for technological innovation so that technology does not act as a distraction impeding student engagement rather than enhancing it.
A book published through the Organization for Economic Co-operation and Development (OECD) entitled *Inspired by Technology, Driven by Pedagogy: A Systematic Approach to Technology-Based School Innovations* (2010) emphasized that point among others, as do recent papers and articles in the educational literature. For example, in a recent article by Graham & Richardson (2012), they note that “within the current public education schooling experience, there would still appear to be a distinct emphasis on putting the technology well before the pedagogy. It is certainly the trend in the workshops, in the training, and in the purchase of devices and software related to educational technology that we have noted for several years now as educators and researchers within a large, teacher training facility” (p. 7).

Lin (2007) claims that when the pedagogical link is missing, one is left with no more than “technolust,” a term he coined to describe the unnecessary and unfounded purchasing of technology (p. 416). In line with this pilot study, Lin notes that “… an appropriate performance analysis, which emphasizes the analysis of performance gaps, the learning needs, goals, and identification of underlying [issues], should be conducted to justify which technologies are the best fit and can supplement [the] intervention” (p. 416).

In writing about Assistive Technologies (AT) in particular, Graham & Richardson conclude that, “there is an absolute need for a formalized provincial and/or national thrust which advances a communal approach to education and the use of AT; perhaps utilizing an overall approach such as the one advanced by Wenger, McDermott & Snyder (2002) when they describe ‘communities of practice.’ Also … perhaps developing an online community specific to AT would allow for the convenient and dynamic exchange of information [which could] serve as a key source of inspiration; perhaps providing teachers what Kitchenham (2006) identifies as a truly transformative learning experience” (p. 14).

This pilot study is situated in an important time when clarity and compelling insights into our technological future are needed to continue system reform initiatives that can move teaching and learning forward in the 21st Century. Indeed, in a recent interview about his new book “Stratosphere,” Dr. Michael Fullan (June 15, 2012) noted that we are at the beginning stages of an improvement cycle in education where pedagogy, technology, and change need to be addressed together to connect the “natural affinity” that students bring with them to their studies in schools from their 24/7 world of information for learning.
Chapter 2: Tools for Uncovering New Ground: Research Methodology and Methods

Study Methodology

For the purposes of this study as a whole, we utilized case study methodology as a viable way of gathering data from each of the 47 sites chosen – 34 English-language, 12 French-language boards, and the Provincial Schools Branch – in order to provide insight into the individual projects according to the aims of the study. In this final report, along with detailing the data received from each individual project, we also describe themes that emerged among and between projects and provide issues and highlights from the projects as a whole.

As stated in Chapter 1, the study is designed to investigate the impact of the projects on instruction and student engagement and ultimately, on student learning and achievement, and to make recommendations for how to support teaching, learning, and student success through technology-enabled programs and practices that could influence provincial policy and local decision making.

In terms of methodology more specifically, we have used a collective case study (Stake, 2005) because in understanding each particular project, we can also gain a better understanding of the larger collection of projects as a whole. Because projects vary according to school board, grade level, and type of digital engagement, each project is described in detail in Chapter 3 in order to better understand the unique characteristics and outcomes of each particular case.

In addition, our analysis presents a concise understanding of successful practice across and among projects that includes themes of instruction, student engagement, and student achievement to highlight student success and future initiatives that could influence policy and decision making at both the local and provincial levels.

Case study research is well established in various disciplines such as law and medicine, as well as education (Coles, 1993; Sacks, 1990, 1995, 2010) as a means of gathering and explaining particularities about individual cases, and also about what may be common across cases. Case study research focuses on both the process of gathering data, and on the final report (Stenhouse, 1984). Case study lends itself to analyzing both qualitative and quantitative data such as we received from participating school boards in both phase 1 and phase 2 of this pilot study. The depth and breadth of data is dependent on information received from individual sites.

This methodology allows us to provide a detailed picture of each site or case according to the comprehensive self-reporting guide supplied to project leaders and supported through our webinar sessions and personal interactions by phone and in visits to a selection of school boards where we met and interviewed individuals.
attached to the projects and visited classrooms to see the technology in use. In this final report, the data provides themes and narrative insights that align with the study purposes as well as data that are quantitative in nature.

**Data Collection Methods**

In order to be congruent with the objectives of the study, data was collected using the comprehensive self-reporting template noted in the Framework document and discussed through webinar sessions with project leaders at each site during both phase 1 and phase 2 of the project. We made ourselves available by phone for any questions or difficulties that project leaders were experiencing throughout the project.

The framework data includes a description of each project, numbers of students involved, numbers of teachers and staff, grade levels, curricular focus, and project partners. This final report also includes the outcomes described in each project.

In addition, the data analyzed includes information gleaned from interviews and conversations from site visits to a selection of school boards across Ontario and phone interviews with team members from selected school boards. This set of questions was also shared in our final webinar session where school boards who did not participate in visits or phone interviews were invited to respond to the same set of questions as part of their final reporting. (See Appendix B) From this information, we described particularities noted by project leaders, teachers, and superintendents of education about their projects. We compiled themes and issues that emerged among and between school boards as common concerns and unique features of their projects. Lastly, highlights across projects as a whole are noted.
Chapter 3: A View of Present Vistas across the Digital Learning Landscape: Describing Board Participants and Their Final Projects

Beginning in January 2012, project leaders from participating school boards submitted their interim reports using the reporting template distributed by Curriculum Services Canada. (See Appendix C) The data from these reports culminated in our Phase I Pilot Project Report: “A Shifting Landscape: Pedagogy, Technology and the New Terrain of Innovation in a Digital World” submitted in March 2012.

School boards submitted final project reports by June 30, 2012. The following charts and graphs provide a brief summary overview of the completed Provincial Schools Branch, 34 English-language and 12 French language projects.

What is evident from the analysis of the submitted information is that there is a wide variation in the approaches and areas of focus in the school board projects and therefore, they did not fit cleanly into distinct categories. The following summary data is intended to provide an overview of the scope and nature of the submitted projects.

1. Projects by School Organization

<table>
<thead>
<tr>
<th></th>
<th>English (35 projects)</th>
<th>French (12 projects)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only in Elementary Schools</td>
<td>17</td>
<td>11</td>
</tr>
<tr>
<td>Only in Secondary Schools</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>In both Elementary and Secondary Schools</td>
<td>14</td>
<td>1</td>
</tr>
</tbody>
</table>

Projects by School Organization (totals across English-language and French-language projects)

- Of the forty-seven (47) projects, forty-three (43) projects targeted a specific range of grades or the specific content or skills taught at identified grade levels.
- Four (4) projects stated a system focus that is inclusive of all students JK-12.
- Three (3) projects stated an Early Years focus.
- Six (6) projects specifically directed support to students with special needs.

2. Projects by Level of Student Involvement

<table>
<thead>
<tr>
<th>Level of Student Involvement</th>
<th>English (35 projects)</th>
<th>French (12 projects)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects with 0-30 students involved</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>Projects with 31 – 100 students involved</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Projects with 101 – 500 students involved</td>
<td>13</td>
<td>4</td>
</tr>
<tr>
<td>Projects with 501 – 1000 students involved</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>Projects with over 1000 students involved</td>
<td>11</td>
<td>0</td>
</tr>
</tbody>
</table>

3. Projects by Level of Teacher Involvement

<table>
<thead>
<tr>
<th>Level of Teacher Involvement</th>
<th>English (35 projects)</th>
<th>French (12 projects)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects with 0 – 9 teachers involved</td>
<td>3</td>
<td>10</td>
</tr>
<tr>
<td>Projects with 10 - 30 teachers involved</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Projects with 31 – 60 teachers involved</td>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>Projects with 61 or more teachers involved</td>
<td>9</td>
<td>0</td>
</tr>
</tbody>
</table>

4. Data Collection Processes

<table>
<thead>
<tr>
<th>Data Collection Process</th>
<th>English</th>
<th>French</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects measuring impact on student engagement</td>
<td>23</td>
<td>11</td>
</tr>
<tr>
<td>Projects measuring impact on instructional practices</td>
<td>32</td>
<td>8</td>
</tr>
<tr>
<td>Projects measuring impact on student outcomes</td>
<td>15</td>
<td>5</td>
</tr>
</tbody>
</table>

Percentage of Projects Measuring Impact on Each of Student Engagement, Instructional Practices, and Student Outcomes
(combined English-language and French-language projects)

- Measuring impact on student engagement: 81%
- Measuring impact on instructional practices: 85%
- Measuring impact on student outcomes: 45%

From the total of 46 projects:
- Fourteen (14) projects collected data on all three areas of impact (student engagement, instructional practices, and student outcomes).
- Twenty-four (24) projects collected data on two of the identified three areas of impact (student engagement, instructional practices, and student outcomes).
- Eight (8) projects collected data on one area of impact.

5. Number of School Boards Using External Partners

<table>
<thead>
<tr>
<th>Type of Partnerships</th>
<th>English</th>
<th>French</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number of School Boards</td>
<td>15</td>
<td>4</td>
</tr>
<tr>
<td>with Identified External Partner(s)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Private Sector Technology Partners</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>Private Sector Learning Resource</td>
<td>4</td>
<td>2</td>
</tr>
<tr>
<td>Partners</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post-secondary Partners</td>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

A number of the partnerships resulted in extensive research support that directed data collection and guided data analysis. These research projects are identified in the project summary reports.

6. Number of Projects by Identified Themes

<table>
<thead>
<tr>
<th>Identified Themes</th>
<th>English</th>
<th>French</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use of Mobile Technology</td>
<td>14</td>
<td>2</td>
</tr>
<tr>
<td>Addressing Literacy</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>Addressing Numeracy</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>Learning Environments (blended learning, e-learning, LMS)</td>
<td>5</td>
<td>7</td>
</tr>
<tr>
<td>Technology-enabled Professional Learning (teacher networking,</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>collaborative inquiry)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Teacher Use of Technology (e.g., notebooks, whiteboards)</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>Parent and Community Engagement</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>Digital Citizenship (ethical use of technology)</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>Assistive Use of Technology</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>Virtual Learning Environments</td>
<td>2</td>
<td>0</td>
</tr>
</tbody>
</table>

The list of themes shown above is not meant to be exhaustive. Themes run through the projects, but are not used to separate or categorize individual projects.

There were multiple themes within and across all projects. Except for rare situations, projects had multiple aspects and differing combinations of activities related to the scope, use, training, and pedagogical basis of their technology-enabled project.
7. Examining Next Steps and Future Directions

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.

The following themes emerged as areas of significantly *increased* interest and exploration based on futures actions planned by the school boards. The numbers shown are combined English-language and French-language school board projects.

<table>
<thead>
<tr>
<th></th>
<th>Stated Initial Focus (# of projects)</th>
<th>Stated Future Direction (# of projects)</th>
</tr>
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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.

While there is a pattern to the *intended* future direction, technology evolves rapidly. The project reports and interviews present a very reasoned and thoughtful approach to system next steps. There is no evident ‘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.
It must be emphasized that these themes are what emerged from the reports and interviews. There may be additional participating school boards with similar initiatives that were not linked or identified as part of the pilot study reporting process. The numbers are not meant to accurately indicate all technology-related school board activities, but only to describe patterns of responses that were reported as part of the *Teaching and Learning in a Digital World Initiative.*
### Project Title
Netbooks... A Gateway to Improving Learning, Teaching and Technology Use in the Junior Division

### Brief Description
Netbooks are being introduced to students in Grade 4 to improve the development of keyboarding skills and to enhance cross-curricular use of technology.

### Context
- Number of schools: 33
- Number of classrooms: 45
- Number of students: 1040 (All students in Grades 3/4, 4, & 4/5 classes)

### Impetus
Students are using technology, specifically computers, as a tool in their learning and need to be guided towards efficient keyboarding habits.

### Goals & Priorities
Each school with grade 4 students has been provided with a cart of 10 to 25 netbooks based on the size of the student population. Netbooks will also be used to support student learning and the development of technology skills (i.e. presentations, media literacy, spreadsheets, etc.).
- All students in Grades 3/4, 4, & 4/5 classes will receive at least 15 minutes per day of targeted keyboarding instruction/practice
- Use of ‘All the Right Type’ resource for instruction, practice, assessment and data collection

### Theory of Action
Keyboarding is an essential & life-long skill. Efficient keyboarding skills will allow students to emphasize concept development instead of key location.
The introduction of Netbooks and the use of keyboarding software are the tools for the development of keyboarding skills in the project.

### Standards and Targets
By June 2012, 85% of the students participating in the keyboarding initiative will reach the target of typing 20 words per minute (wpm).

### Phase of Change
Implementation started Feb 2012

### Assessment, Use of Data
Data is being collected to measure the impact on student engagement, instructional practices, and student outcomes.
Student attitudes and engagement related to keyboarding skill development will improve as a result of the introduction of Netbooks. Students will demonstrate improvement in their development of keyboarding skills over the year. Teachers will be provided training to implement the Netbooks and supported in the integration of technology into other curriculum areas. Data will be used to assess overall effectiveness of the project.

### Capacity Building in Teaching
Through Program support, teacher capacity will be built to utilize technology in daily instruction and across various content/subject areas. Initial orientation sessions were held in the Fall to support the teachers involved in the initiative. Based on feedback provided by teachers, sessions were offered to help teachers gain knowledge and improve technology skill development.

### Leadership, Sustainability
Clear evidence of support from IT, Program staff, and Administration.
Principals will monitor the targeted, evidence-based strategies at their schools.
Outcomes *(Verbatim as submitted in the Final School Board Report, June 2012)*

**Summary of Data Collection**
- Data was reported and summarized in report with additional details provided in an appendix.

Data included:
- Pre-Survey data
- Post-Survey data
- Student Keyboarding data
- Teacher Feedback

**Highlights of Key Findings/Results**

The goal for the Board was, “By June 2012, 85% of the students participating in the keyboarding initiative will reach the target of typing 20 words per minute (wpm).” The data collected indicates that 32% of the students met this target.

Throughout the course of the year, the percentage of students scoring less than 10 wpm decreased significantly from 39% to 4%. The percentage of students scoring between 10 to 19 wpm increased significantly from 39.5% to 65%. The percentage of students scoring 20 wpm or more increased significantly from 22% to 32%.

Although the goal of 85% of the students participating in the keyboarding initiative reaching the target of typing 20 words per minute (wpm) was not met, the student results show significant improvement in their keyboarding skills. It should be noted that the results include all grade 3, 4 and 5 students in the participating classes. Keyboarding skill development will continue between the three grade levels. The most significant results were noted in the steady decrease in the percentage of students scoring below the 10 wpm benchmark resulting in a steady increase in the percentage of students scoring above the 10 wpm benchmark and 20 wpm benchmark.

Teachers’ comfort level with integration of technology improved throughout the year as they learned alongside students in a co-learning environment.

**Sample of Comments from Participants**

*I liked having the accessibility to use the netbooks whenever we wanted and not having to wait for computer lab time. All classes would benefit from this program.....not just Grade 4.*

*I had great success with the netbooks in my classroom. I found that students’ engagement was increased for writing assignments and tasks. Reluctant writers enjoyed working on the netbooks, and did not feel intimidated when asked to complete work. Editing was a breeze, and students didn’t mind correcting their work. I found that students’ creativity was increased because after their work was complete, they could alter font and text and make it as original as possible. Students also liked their work displayed in the class and in the halls because it was neat and orderly.*

*The children have learned how to manage files (e.g., saving onto their i:drive, copying onto memory sticks and saving files on memory sticks). This was a huge learning curve for many of my students this year.*

*It took me, personally, a little while to wrap my head around the logistics of using them effectively. As time went on, though, they really became an integral part of our daily learning. Both the students and I became quite comfortable with using them, transporting them, sharing them, etc.*

*Some of the challenges were ... technological glitches (we all got good at solving these). I don’t have enough knowledge (but the students were good at sharing their knowledge with me and their classmates).*
**Highlights of Challenges and Unexpected Results**

One of the early challenges was the time involved and the details associated with the initial planning, acquisition and deployment of the netbooks.

The introduction of this technology in the classroom also posed an initial challenge to some teachers. The integration of technology into daily teaching and learning is a culture shift and a change in teaching practice. Over time and with support teachers became more comfortable with the integration.

**Follow-up and Future Directions**

*Direction for future related work*

As a result of this initiative and the positive findings, the Algoma DSB will be implementing another 400 Netbooks in the 2012/2013 school year to support the entire Junior division. A continued focus on the development of keyboarding skills throughout the Junior Division and the enhancement of cross-curricular use of technology Netbooks will be the goals.

*Implications for school board planning*

- The introduction of the Netbooks are linked to our Educational Technology Plan and included in our Board Improvement Plan for Student Achievement. We will be providing further professional development for teachers to support them with the integration of the technology and sharing innovative practices.
<table>
<thead>
<tr>
<th><strong>Project Title</strong></th>
<th>Technology Enhanced Collaborative Teacher Inquiry</th>
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<tbody>
<tr>
<td><strong>Brief Description</strong></td>
<td>Beginning in semester two, each of our nine high schools selected a department to participate in a collaborative inquiry project. The nine departments focused their inquiries around instructional practices, with each school team/department creating its own inquiry question. The Math teachers involved in this project used blended learning in their classroom.</td>
</tr>
<tr>
<td><strong>Context</strong></td>
<td>Number of schools: 9 (Secondary schools) Number of classrooms: up to 40 Number of students: 135</td>
</tr>
<tr>
<td><strong>Impetus</strong></td>
<td>Over the past three years we have been exploring teacher inquiry models as a means of de-privatizing teacher practice, building teacher efficacy and teachers’ collaborative professional skills. We believe this is key to large-scale change to instructional practice.</td>
</tr>
<tr>
<td><strong>Goals &amp; Priorities</strong></td>
<td>If we marry the use of technology to collaborative inquiry, we should be able to augment, or at the very least, enhance professional collaboration, networking and the sharing of promising practices, thereby improving instruction across the Avon Maitland District School Board. Our goal is to capture promising instructional practices wherever they occur across our school board and make them available to all teachers and even to the public.</td>
</tr>
<tr>
<td><strong>Theory of Action</strong></td>
<td>Technology is an essential element to this pilot project because it will allow for the spread of promising practices across our school board. As a geographically large school board, networking teachers and sharing practices is challenging. We want to see if the opportunity to network and the use of networking tools by teachers, translates to similar classroom practices for students.</td>
</tr>
<tr>
<td><strong>Standards and Targets</strong></td>
<td>Inquiry teams will improve at least one ‘level’ in the act/observe area of the collaborative inquiry continuum. Inquiry teams will improve at least one ‘level’ on the networking continuum.</td>
</tr>
<tr>
<td><strong>Phase of Change</strong></td>
<td>Planning began in February 2011 (collaborative inquiry). Purposeful use of technology (networking) began in February 2012.</td>
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<tr>
<td><strong>Assessment, Use of Data</strong></td>
<td>Data is being collected to measure the impact on instructional practices. Most inquiries were connected to improving Literacy/Numeracy achievement. Inquiry team members will identify their beginning positions on a networking continuum which identifies traditional and digital networking activities. Team members will re-evaluate their level of digital networking following the completion of the inquiry cycle.</td>
</tr>
<tr>
<td><strong>Capacity Building in Teaching</strong></td>
<td>The Co-ordinators/Support Teacher will facilitate the team meetings while simultaneously building the facilitation skills of the department head to lead his/her own team. School teams consist of five to seven members of the same department within a school. The teams identify a problem of practice that connects to their department Literacy or Numeracy goal and/or a School Effectiveness Framework indicator (related to instruction). This becomes an inquiry question. The alignment of the inquiry question, the department goal and school goals help teachers see the relevance of the work, as does the connection to an authentic problem of practice.</td>
</tr>
<tr>
<td><strong>Leadership, Sustainability</strong></td>
<td>Clear evidence of support from program staff, and department heads. The department- based collaborative inquiry teams are designed to empower the departments to operate with the mindset of collaborative inquiry, even after central support is withdrawn, thereby sustaining a version of collaborative inquiry within the department.</td>
</tr>
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Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data summarized in report with extensive additional data files provided.

Highlights of Key Findings/Results
Participating teachers followed the “plan, act, observe, reflect cycle” and many brought records of practice to the inquiry team table for the purpose of discussing evidence of improved student learning. Where we implemented instructional rounds as part of the inquiry process, teachers had the opportunity to observe each other teaching, or to observe a curriculum coordinator/curriculum support teacher teaching.

The teams used a variety of protocols for sharing practices, looking at evidence of learning, and for observing classroom practice in action. They focused on meeting norms and structures for building collaboration skills.

The data collected indicates that 56% of the teams moved forward one level on the continuum when considering only the act/observe sections of the continuum. When looking at all sections of the continuum, the data shows that 78% of the teams moved forward one level (detailed in report). The continuum was defined as:

<table>
<thead>
<tr>
<th>Traditional Networking</th>
<th>Digital Networking</th>
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<tr>
<td>forming</td>
<td>considering</td>
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<tr>
<td>exchanging</td>
<td>consuming</td>
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<tr>
<td>requesting and responding</td>
<td>collecting</td>
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<tr>
<td>mutually benefitting</td>
<td>creating</td>
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- When we provide professional development on tech tools, we have to articulate why we are using the tool and how it has added value (over not using the tool at all).
- There is learning to be done by all when it comes to connecting technology to instructional strategies and effective pedagogy. Teachers need time to learn new technologies, and they need to self-select the technology that they will work with so it matches their classroom needs and personal readiness.
- More learning is required around using data and student evidence to inform instruction.
- There is a need to create opportunities for teachers to network outside of their schools in order to increase the contacts that they make with people implementing promising practice.
- A tighter schedule for a professional learning cycle created more momentum for the learning. Having been in each others’ classrooms and having co-planned, co-taught and observed as a team created a greater connection between the theory and the practice. It created a common language and experience which could be reflected on when planning next steps.

Highlights of Challenges and Unexpected Results
- There was a significant variance in teacher background knowledge and willingness to take risks.
- We overestimated how many participants were using technology in their personal lives (e.g., Facebook).
  Thus, the leap into using Edmodo was significant. Some teachers lacked basic digital fluency. Teachers want to be proficient and public use of technology can be a high risk.
- Teachers were not sure how to identify evidence of improved student learning as a result of incorporating new instructional strategies into their classrooms. Additional time and support had to be provided here, as well as co-constructing exit cards and other data collection methods with the team as a whole.
- Teachers are apprehensive about inviting people into their class for observations.
Follow-up and Future Directions

Direction for future related work

- Incorporate more technology into our professional learning, whether this is by modeling its use in presentations or by incorporating it into work we are doing (e.g., collaborating on a Google doc).
- Make explicit connections between technology and pedagogy/instruction and assessment when facilitating professional learning.
- In our efforts to facilitate student learning in these areas, we, as professionals, need to develop as, and model what it means to be, 21st Century learners.
### Project Title
21<sup>st</sup> Century Teaching & Learning Pilot Project

### Brief Description
The project provides the following technology upgrades to ensure all primary teachers have equity of access:
- a Netbook for each classroom teacher of Grades one, two and three;
- infrastructure upgrades to provide wireless network access and LCD projectors; and
- training in terms of technical skills use of Digital Learning Reading Software.

### Context
- Number of schools: 32
- Number of classrooms: 90 (the target group is primary teachers, grades 1, 2, 3)
- Number of students: 1800

### Impetus
In response to recommendations to the BHNCDSD from the Educational Technology Strategic Planning Workshop conducted by IBM’s Education Division in the fall of 2009, a decision was made to implement a pilot project that aligns technology with Student Achievement priorities.

### Goals & Priorities
We will use Information Communication Technology to enhance teacher practice and student engagement to improve student achievement in primary literacy as identified as SMART goals in the Board Improvement Plan.

### Theory of Action
The value in technology-supported pedagogy is two-fold as it has the potential to engage both students and staff in collaborative activities and provides the opportunity for students to express an authentic voice in new and engaging ways. Educators must be given and be prepared to use technology tools and they must be collaborators in learning, constantly seeking knowledge and acquiring new skills along with their students.

### Standards and Targets
All primary teachers have equity of access to a stated standard of technology.

### Phase of Change
Initial implementation started in January 2011, Phase 2 related to this pilot started in November 2011.

### Assessment, Use of Data
Data is being collected to measure the impact on instructional practices.
Data will be used to assess overall effectiveness of project.

### Capacity Building in Teaching
The focus will be based on teacher feedback around the support they need as they continue to use technology in the classroom. The time between sessions will allow teachers to explore and use the technology and digital resources in their classrooms. Ongoing support is provided by a designated IT technician and the IT consultant. Literacy teachers and Special Education Teachers have also received in-service on the digital learning resource to ensure consistency in awareness and implementation.

### Leadership, Sustainability
Clear evidence of support from IT, Program staff, and Administration.
We are working with an external educational consultant who has expertise with using Netbooks and the Destination Reading program.
The District Student Achievement Team then developed a draft proposal to enhance the use of technology in our schools. The proposal includes a business plan, deployment of technical resources, and training connected to the “why” statement.
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection

- Data reported and summarized in report.
- Additional data provided in supporting files.

In addition to the end of day surveys completed at the close of each training session, an ICT Post Skills survey was administered at each of the final sessions in April. A student survey was also distributed to all students whose teachers participated in the netbook project.

Highlights of Key Findings/Results

Key findings and results related to teacher comfort with the technology indicate that:

- 87% of teachers surveyed were comfortable using technology to support learner-centered strategies to meet the needs of learners.
- 82% of teachers surveyed indicated that having a netbook increased the amount of time spent on a computer at school and 76% indicated that it increased the amount of time spent using the netbook at home.

Student survey results indicate the following:

- 71% of students liked learning better when the teacher used the netbook to teach.
- 55% indicated they were more interested in learning when their teacher uses the netbook.
- 59% of students indicated that they were more involved in the lessons when the teacher used the netbook.

Highlights of Challenges and Unexpected Results

- Early and ongoing challenges included providing timely support for teachers with respect to hardware and infrastructure issues. Consequently we established a clearer link to support by identifying the specific contacts for ongoing issues. One IT technician and one IT consultant were identified as the specific project contacts. Timely support was essential to maintain teacher motivation and interest in using the technology.
- An observed challenge which impacted student engagement was the difficulty prep and FSL teachers had in accessing technology in the classrooms. Although the focus of the project was primary teachers the fact that other teachers working in primary classrooms did not have access to a netbook complicated their ability to provide students with technology-based teaching and learning strategies.

Sample Comments from Participants

A key question included in the survey was: Did the Netbook, Destination Reading software and participation in the 21st Century pilot project accomplish what it intended to do: improve teacher practice, student engagement and student achievement?

92% of teachers in the sample of 87 responded yes. The anecdotal comments from teachers involved include:

- The netbook and LCD projector have changed the way I look at teaching and differentiating instruction.
- The students are much more engaged, getting them out of their seats and participating more. It has allowed me to provide students with a more rich teaching and learning experience, as opposed to always doing pencil and paper work. It is a great feeling to see the kids smile and be excited about learning.
- This is exactly what I needed to build my comfort level. My learning curve has been substantial... it has done wonders for student engagement.
Follow-up and Future Directions

Direction for future related work

- As we move our project forward into kindergarten and grades 4 through 8, we recognize that the deployment of the netbook and LCD projector must be connected to curriculum and effective instructional strategies.
- The ICT Skills Post Survey-April 2012 indicates that teachers currently in the project require continued support in the area of the use of technology resources to collect and analyze data, interpret results, and communicate findings to improve instructional practice. Results indicate that only 60% of teachers are comfortable with this skill.
### Bruce-Grey Catholic District School Board

<table>
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<tr>
<th><strong>Project Title</strong></th>
<th>Teaching and Learning in a Digital World – Pilots for System Learning Initiative</th>
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<tbody>
<tr>
<td><strong>Brief Description</strong></td>
<td>As learning teams, teachers and students are paired with IPADs to co-teach the technology and unfold applications to subject and interdisciplinary learning.</td>
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</tbody>
</table>
| **Context** | Number of schools: 9  
Number of classrooms: 18  
Number of students : 25 (Learning disabled students in identified elementary schools) |
| **Impetus** | Students (LD) at the elementary level have previously used laptops to accommodate their literacy needs. It was noted that when these same students reached the intermediate/secondary levels, they tended to abandon their laptops due to the stigma that is attached to specialized equipment. |
| **Goals & Priorities** | Students help teachers overcome their apprehension about new technology learning and teachers help students understand how the technology assists them as learners. |
| **Theory of Action** | For students who have been stigmatized with traditional technological aids, the IPAD and learning partnership with a teacher could help increase the use, and provide the student with a way to use the technology for learning without the current stigma that specialized equipment brings with it in the Secondary environment. |
| **Standards and Targets** | Standards evidenced, no identified targets |
| **Phase of Change** | Early stages  
No dates specified |
| **Assessment, Use of Data** | Data is being collected to measure the impact on student engagement, instructional practices, and student outcomes.  
Surveys of teachers and students have been conducted to obtain baseline data and will be repeated near the end of the current school year to identify the impact of iPads on student and teacher learning. |
| **Capacity Building in Teaching** | Students with LD and their teachers received iPads and are co-learners in their efforts to use the technology to enhance instruction and learning. |
| **Leadership, Sustainability** | Clear evidence of support from IT. Additional supports not identified in report. |
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported.

Highlights of Key Findings/Results
As a result of this project, 50% of schools have ordered sets of iPads for other students to use outside of those involved in the pilot project. This will reinforce the universal design principles and will help to further de-stigmatize the use of assistive technology.
- 100% of the students involved in the project who are continuing on to secondary school stated that they would continue to use their iPads and suggested that their textbooks should be copied to their iPads after their course selections were determined. They did not feel any stigma attached to using the iPads at Secondary School.
- 78% of classroom teachers also felt that this technology was instrumental in allowing students with learning disabilities (LD) to access the Ontario Curriculum. Some parents of students who did not have SEA equipment have also purchased iPads for their children to use.
- 91% of the students felt that their typing skills had improved since first receiving their iPads due to spending more time typing and using Apps for typing to help improve their skills.
- Students who had personal iPods were able to make the transition to using the iPad much more quickly.

Highlights of Challenges and Unexpected Results
None reported.

Follow-up and Future Directions

Direction for future related work
- Continue to build teacher expertise and comfort with interfacing with students with iPads. There is a schedule of ‘Lunch and Learns’ and after school sessions in addition to the ongoing released PD for teachers with students requiring the use of iPads.

Implications for school board planning
- We are also implementing the infrastructure and policies for a “use your own device” strategy system-wide.
- We will continue to support the schools that are acquiring iPads as part of the universal design for instruction with capacity building support to further embed the technology for student achievement.
- The teachers’ use of assistive technology for teaching and learning will continue to be an expectation that is required to be commented on as part of the TPA.
<table>
<thead>
<tr>
<th><strong>Project Title</strong></th>
<th>Projet de collaboration en salle de classe [Collaboration in the Classroom]</th>
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<tbody>
<tr>
<td><strong>Brief Description</strong></td>
<td>Using tools such as the Learning Management System (LMS), Google Apps, and the resources available through e-Learning Ontario, we want to try three different ways of using technology to make interactions between staff and students more dynamic and motivating. We believe that this will have a significant impact on student engagement and, therefore, on student achievement.</td>
</tr>
</tbody>
</table>
| **Context**          | Number of schools: 2  
                       | Number of classrooms: 4  
                       | Number of students: 100 (estimate)  
                       | 1 elementary school (K to Grade 8) – 1 class  
                       | 1 secondary school (Grades 9 to 12) – 3 classes |
| **Impetus**          | This project will be used to identify winning practices for implementing blended learning in our schools. Each of the schools involved in the project will use a different approach to the use of technology and the resources recommended by e-Learning Ontario so that we can determine their impact and make more informed decisions around our plans to implement e-learning in our Board in the future. |
| **Goals & Priorities**| In this project, technology will have three main functions:  
                       | 1. It will ensure access to the resources at all times;  
                       | 2. It will help the students to develop independent work habits and initiative;  
                       | 3. It will motivate the students. |
| **Theory of Action** | We are very aware that there are several possible approaches to the implementation of e-learning in the classroom. We want to evaluate the pros and cons of three approaches, so that we can make informed decisions around implementation in the future. |
| **Standards and Targets** | The students will be engaged in their learning. There will be an improvement in their achievement, in terms of their independent work habits and initiative. |
| **Phase of Change**  | École élémentaire publique Coeur du Nord – Grade 8  
                       | • The teacher will plan using LMS, with tools such as Google Docs for support  
                       | • The resources will be available to the students on the platform  
                       | • There will be learning sessions with the technological tool and collaboration in the classroom  
                       | École secondaire publique Écho du Nord  
                       | • Students will be encouraged to bring their own work tools (portable computers, etc.)  
                       | • The work tool recommended for sharing and collaboration will be Google Apps  
                       | • The teacher will use LMS and the Ontario Educational Resource Bank (OERB) to support learning  
                       | • There will be learning sessions with the technological tool, as well as collaboration in the classroom |
| **Assessment, Use of Data** | The Board will provide each student with a work tool (such as a netbook). The Board will facilitate access to resources from the students’ tools (in the Cloud). We have identified two databases:  
                       | 1. Report card results for learning skills and work habits – initiative and independent work  
                       | 2. Student engagement in learning (discussion groups) |
| **Capacity Building in Teaching** | We will develop partnerships with the e-Learning Ontario Consortium and CFORP. These partnerships will enable our staff to receive training and support, and to access the resources that are available through our partners. |
| **Leadership, Sustainability** | Support from the following staff:  
                       | • Assistant Superintendent  
                       | • Director, Pedagogical Services  
                       | • Director, IT  
                       | • Educational Consultant |
Outcomes (Verbatim translation from Final School Board Report, June 2012)

Summary of Data/Outcomes
The data collection process involved two steps. First, there was a meeting with the students of the two teachers targeted to discuss the impact of a technology-based approach on student motivation and success. Here are a few comments from the students.

Grade 8 class:
- They really liked the opportunity to use IT tools in the classroom.
- They really liked having the information for the course available at home. Posted on Google Apps.

Grade 9 class and Grade 10 class:
- They really liked the opportunity to use IT tools in the classroom.
- They liked the flexible schedule that virtual learning makes possible.

Second, we analyzed the report card data and marks for learning skills and work habits, in particular, independent work, initiative, and self-regulation.

Method:
Grade 8 class
Comparison of student marks on the three skills and habits being targeted in both terms of Grade 7 and both terms of Grade 8. We noted that 40% of students experienced an improvement in independent work; 17% experienced an improvement in initiative; and 27% experienced an improvement in self-regulation.

Grade 9 class and Grade 10 class
Student marks on the three skills and habits being targeted in the technology-based course are compared to students marks for the same skills and habits in the students’ other courses.

Results
Independent work
- 69% had a higher mark in ICS20 (Introduction to Computer Studies) than in their other courses.
- 36% had a higher mark in MBF3C (Foundations for College Mathematics) than in their other courses.

Initiative
- 92% had a higher mark in their ICS20 course than in their other courses.
- 9% had a higher mark in their MBF3C course than in their other courses.

Self-Regulation
- 92% had a higher mark in their ICS20 course than in their other courses.
- 9% had a higher mark in their MBF3C course than in their other courses.

Main Results
Clearly, the type of course has a bearing on the results. The students in ICS20 demonstrated more initiative, independent work, and self-regulation than the students in MBF3C. This is not necessarily linked to the use of technology; rather, it is linked to the subject being taught.

Main Challenges and Points of Interest
Right from the outset, we realized that the greatest challenge would be infrastructure. It was also apparent that one winning aspect of the project was our teachers’ very strong skill sets.

Follow-up and Next Steps
For next year, we would like to develop a start-of-session survey and an end-of-session survey to chart each student’s actual progress. At the secondary school, the principal and staff are discussing the possibility of becoming a paperless school. We are now much more aware that we need to invest in our wireless network infrastructure. We also need to develop simple, effective procedures for when this project is expanded to include other schools.
### Project Title
Apprentissage hybride 7e et 8e années [Blended Learning in Grade 7 and Grade 8]

### Brief Description
Participants access the Learning Management System (LMS) on a portable computer or in a conventional computer lab. In taking part in Projet CODE, we want to engage students in their learning, developing their learning skills and work habits. In order to do this, we need to use pedagogical practices that enable students to develop independent work habits, initiative, and self-regulation. The connection between student engagement, the development of these skills and habits, and improvements in student achievement will be assured through the implementation of assessment for learning.

### Context
- Number of schools: 5
- Number of classrooms: 8
- Number of students: 160
- Students taking Mathematics, French, and Art

### Impetus
Through this project, we want to engage students in their learning, developing their learning skills and work habits.

### Goals & Priorities
To provide pedagogical practices that enable students to develop independent work habits, initiative, and self-regulation.

### Theory of Action
Through this project, we hope to bring our teachers into the 21st Century; this will enable them to reach our students more effectively.

### Standards and Targets
Student progresses from N or S to G or E (Needs Improvement or Satisfactory to Good or Excellent)

Thanks to Observatoire (which is a CEPEO project), we can track the development of learning skills and work habits. Student engagement in learning will manifest as an improvement in learning skills and work habits, in particular, independent work habits, initiative, and self-regulation.

### Phase of Change
We are proposing a three-part training plan. The first training session is a presentation of the provincial LMS. The second training session will support the teachers with development and adaptation of the courses. The third training session, offered two months later, will be an opportunity to discuss efforts to date and find solutions to any challenges encountered. All of this training is supported by the provincial trainer and Pierre Sarazin.

### Assessment, Use of Data
The connection between student engagement, the development of these skills and habits, and improvements in student achievement will be assured through the implementation of assessment for learning.

### Capacity Building in Teaching
We want to encourage our innovative teachers and, at the same time, present a new pedagogical practice to our more traditional teachers.

### Leadership, Sustainability
Ms. Bianca Girard from Destination Réussite II will help us to develop tools for measuring the impact of the project on student engagement.
Outcomes (Verbatim translation from Final School Board Report, June 2012)

Summary of Data/Outcomes
A teacher who is already familiar with Moodle and D2L and who is already using blended learning.

Main Results
Where teachers have been able to implement blended learning:
- There has been a remarkable increase in student engagement.
- The students’ IT skills have had a positive impact on their other courses and this has affected the quality of their assignments (e.g., use of Excel).

Main Challenges and Points of Interest
- Lack of technology
- The speed of the provincial platform
- The relevance of the pre-developed content
- The difficulty of supervising students, given the freedom that comes with the blended approach
- Cyber-bullying

Follow-up and Next Steps
- In some cases, the project has attracted the attention of the participants’ colleagues. We have received additional requests for access to the blended platform.
- The project will evolve. We hope to focus on the more motivated and resourceful teachers.
- We have noted a significant need for technical support; we are planning to explore the District School Board of Niagara’s S.W.A.T.T. (Software Workshops and Technology Training Team) concept.
<table>
<thead>
<tr>
<th>Project Title</th>
<th>Utilisation efficace des tableaux interactifs au service de l’apprentissage [Effective Use of Interactive Whiteboards for Learning]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief Description</td>
<td>We want to increase student engagement in learning through the use of interactive whiteboards, and technology in general, in various courses. We want to meet the students’ needs. We want to encourage students in difficulty, who would benefit from the use of technology, to use it. If technology is integrated into various subjects, students who have a technological device subsequent to being identified will not feel excluded or different from the other students.</td>
</tr>
</tbody>
</table>
| Context | Number of schools: 2  
Number of classrooms: 2  
Number of students: 60 students  
2 Grade 7 and Grade 8 classes in two different regions. One Grade 7 and Grade 8 class is in a Grades 7 to 9 school and the other class is in a K to 8 school. Courses targeted: French, Mathematics, Art. |
| Impetus | In the pilot project, we want the two classes to be able to use the interactive whiteboard for more than one subject. |
| Goals & Priorities | We also want to increase student use of the IWB (interactive whiteboard) for learning. The two target classes will test some of the on-line course modules, modifying them to meet their needs. |
| Theory of Action | The project is designed to allow teachers and students to use the technology in different contexts for different types of learning. We want students and teachers to be familiar with the software. |
| Standards and Targets | 100% of the students in the class will have an opportunity to use the interactive whiteboard during a lesson. 100% of the students in the class will use at least two new programs in the context of different lessons. The teachers will plan the lessons and use the interactive whiteboard and technology in their French, Mathematics, and Art courses (for one school). |
| Phase of Change | On a student survey in 2010, 74% of the Board’s students reported that they had access to a device of some sort. We want to increase this percentage by 5%.  
- In June 2011, all of the elementary schools with Grade 7 and Grade 8 students received an interactive whiteboard and a cart of portable computers.  
- In June 2010, all of the secondary schools received several interactive whiteboards and carts of portable computers.  
Here are the steps for implementation:  
1. Training with the Consortium  
2. Conference call with the teachers  
3. Planning Session 1  
4. Planning Session 2  
5. Updating Meeting  
6. Meeting with Curriculum Services Canada consultant |
| Assessment, Use of Data | We want to maximize the use of whiteboards to support learning for all students, from K to 12. First, technical training will be provided. A 3-day training network is planned for 2 teachers per school. More individual support will be available upon request. |
| Capacity Building in Teaching | The pilot project will affect two of the Board’s classes. Training will also be offered in all Board schools on use of the interactive whiteboards for learning. At the Board level, we want to offer technical support on the use of the interactive whiteboards for teachers, by elementary or secondary school, who never got the training. We will also offer a 3-day pedagogical training network for teachers, at a rate of 2 teachers per elementary or secondary school. All of the schools received interactive whiteboards last year. |
| Leadership, Sustainability | Educational consultant: support and training for the teachers. Blended learning coach: support and training for educational consultants and teachers on the use of the technology in Mathematics. IT technician: technical support and installing the software required. |
**Outcomes** *(Verbatim translation from Final School Board Report, June 2012)*

**Summary of Data/Outcomes**
The students learned about technology and about the subject being taught. In addition to gaining a better understanding of file management, the students learned rules of conduct for participating in on-line forums and respecting the opinions of others. In on-line forums, the students answered questions and responded to posts by other people in an authentic sharing of ideas. The on-line forums were also an opportunity for students who would not have spoken up in class to participate. Through the report, several students made discoveries about their learning style and became aware of which learning strategies work best for them.

**Main Results**
During implementation of the project, the teachers monitored the students’ work closely through the log and the blogs. This made it possible to identify the learning they had acquired and the skills they had developed; it also made the strengths and challenges of using technology in the classroom apparent. The results of the assessment of learning and related aspects during the learning provided a significant source of data, which made it possible to determine whether the tool and the model were valid for the students. In a reflective thinking exercise, the teachers also shared facts and impressions of their experience with the project. This made it easier to modify the interventions: modifications to the initial steps, adjustments in the support and coaching provided, adding or deleting steps to meet the needs of the community (based on observations, demonstrations, tools for collecting data on the use of technology, collecting plans). In addition, these steps made it possible to check:

- The students’ ability to use the new software effectively
- The teachers’ use of the technology in the subjects being targeted
- Lesson planning that reflected the students’ profile (strengths, challenges, learning styles)

**Main Challenges and Points of Interest**
Foster differentiated instruction and inclusion by:

- Varying the types of activities (not just reading and answering questions; not just individual activities)
- Providing differentiated contents that address the same knowledge, habits, and skills
- Giving students a choice of activities
- Breaking tasks down, particularly when there are a lot of steps
- Creating enough flexibility in the system to accommodate different paces of work

The skills that the students needed to work on the platform had to be taught explicitly by means of PowerPoint presentations or Notebook presentations. The students were also given checklists.

**Follow-up and Next Steps**
Good management is essential: provide very clear instructions and organizational tools or checklists to encourage independent work and build capacity for self-regulation.

Integrate assessment for learning and as learning:

- Use an electronic portfolio to help with assessment for learning and the assessment of learning
- Plan use of the Viamonde portal to support blended learning, feedback, and the portfolio.
<table>
<thead>
<tr>
<th><strong>Project Title</strong></th>
<th>Apprentissage hybride en 7e et 8e années [Blended Learning in Grade 7 and Grade 8]</th>
</tr>
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<tbody>
<tr>
<td><strong>Brief Description</strong></td>
<td>Our blended learning project is for Grade 7 and Grade 8 students. We wanted to create an experimental situation, selecting classes in a variety of different environments (rural, urban, enriched, regular). Each teacher personalized his or her unit according to the students’ needs, during system-wide support days on which collaboration was encouraged.</td>
</tr>
</tbody>
</table>
| **Context** | Number of schools: 6  
Number of classrooms: 7 Grade 7 and 8 classes  
Number of students: approximately 300 |
| **Impetus** | We are hoping that using technology and giving students autonomy through blended learning will increase their engagement in their learning. |
| **Goals & Priorities** | The project will help to enhance the motivation, skills, and habits of students and teachers in the following ways. It will make blended learning appealing by:  
- Demonstrating that blended learning improves engagement  
- Demonstrating that several groups of students would benefit from it: enriched, regular, rural  
- Demonstrating that blended learning is an excellent practice for inculcating and measuring engagement  
- Identifying the conditions for optimal use of on-line courses  
The project will make it possible to foster leadership and social influence:  
- The leaders will experience, and can encourage peer collaboration through virtual and other networks  
- The leaders can share success stories  
The project will enhance the technological infrastructure in some schools:  
- Encouragement, e.g., seeing students put their technological skills to work  
- The school received portable computers  
- An evaluation framework that will help to assess learning skills and work habits already required by the Ministry of Education |
| **Theory of Action** | Technology makes it possible to increase the students’ ability to work independently on several levels. It allows a greater degree of self-regulation in daily activities and access to a wider range of courses. Course offerings from a wide range of specialized providers become accessible. These more adequately prepare students for a globalized labour market. |
| **Standards and Targets** | The project has an impact on skills by eliminating:  
- Technological limitations, by creating a pedagogical rationale for milestones or wireless, where possible  
- Pedagogical limitations, by allowing students to explore and use customizable courses developed by CFORP  
- Limitations on knowledge, by offering targeted on-line training  
The project builds social strength by:  
- Increasing the number of teachers who have the skills to use LMS and technology  
- Encouraging collaboration in a virtual community  
The project changes the environment by:  
- Creating a more flexible and autonomous learning environment  
- Adopting a blended learning formula, which makes it possible to create a technological environment that meets teens’ need for social interaction |
### Phase of Change

Creation of a team of “21st Century Educators” that includes:

- A call to school principals, accompanied by an explanatory document, to generate interest in blending learning and encourage them to recruit teachers who might be interested.
- A visit to schools that want to explore the subject. The teacher on special assignment does a presentation on blended learning, the goals, and the engagement we are looking for. The presentation explains the benefits for students and teachers.
- A consultation with IT to find out which responsibilities their staff could take on; includes loading images onto computers and providing regular or wireless connectivity, based on the anticipated demand.
- Analysis of proposals for projects with IT.
- Approval of the most relevant projects.
- Ordering equipment with grant agreement using a 50-50 split of costs between the Board and the schools.

### Assessment, Use of Data

Data such as emotions will be recorded in a personal journal; individual and situational interest, value, and self-effectiveness will be recorded on observation charts and self-assessment charts.

By measuring a variety of indicators relating to engagement, it will be possible to differentiate between things that engage students and things that could, potentially, cause them to disengage. With these data, we will be able to address the things that cause students to disengage and reinforce the things that are found to be engaging.

This will make our explanation to future participants very convincing; every teacher is looking for proven, effective techniques for more fully engaging students in their learning.

### Capacity Building in Teaching

- Two days of training (Consortium) on blended learning, the LMS, mailbox functions, and on-line forums
- Two days of support (from the Consortium officer and teacher on special assignment [TSA]) and collaboration amongst the participants to plan the first unit
- To come:
  - 1 day of support on planning the second unit (for those who do two units) (Consortium and TSA)
  - A 1-day reflective sharing process to analyze and share best practices; the members will be invited to participate in a blending learning network next year (TSA)

### Leadership, Sustainability

A visioning committee made up of teachers, principals, community members, students, and parents looked at how to address the challenge of applying the science of learning, new pedagogies, and new technologies. Some skills were identified, including literacy, mastery of information and technology, self-direction, and flexibility. Blended learning creates an environment conducive to acquiring these skills.

Thus, we have created a system-wide environment for experimentation that will enable us to test multiple hypotheses on the optimal conditions for learning with support from technology.
Outcomes (Verbatim translation from Final School Board Report, June 2012)

Summary of Data/Outcomes
Initially, they were encouraged to use on-line courses as-is (during the training on LMS), with the hopes that adjustments would be made with the second unit. The teachers modified the platform and the content of the courses to personalize the activities and make them more relevant. However, only one teacher was able to do the second unit because of the delay in accessing the on-line courses that had been selected. He was the only one to have the full experience that we were looking for and who was able to measure the influx of traditional teaching and the ideal areas to check, for him and for his class profile. He was able to define the term “blended” in a context in which it was possible to provide both initial supervision and feedback after a group of modules.

Main Results
Here are our data:

Student engagement
- We had suggested logging data such as emotions in a personal journal; however, this was not done. The teachers preferred using the student self-assessment charts.
- We measured individual and situational interest, value, and self-effectiveness by means of observation charts and self-assessment charts.
- By measuring a variety of indicators relating to engagement, we hope to differentiate between things that engage students and things that could, potentially, cause them to disengage. With these data, we will be able to address and correct the things that cause students to disengage and repeat the things that are found to be engaging.
- Develop hypotheses and indicators.
- We consulted the teachers before, during, and after the project and collected their feedback.
- We got them together in groups and visited them on-site; the teachers’ comments are from these numerous conversations.
- To more fully corroborate and test factors that contribute to student engagement, we consulted the students directly.

Use of the engagement chart described in Part 3 of this document yielded some very interesting data. It should be noted that charts reflecting the research of Marzano (Robert J. Marzano, Debra J. Pickering, Tammy Heflebower (2010), in The Highly Engaged Classroom, Solution Tree, 240 pp.) were only used for one unit and did not take into account the teaching styles of the different teachers or the subject or content of the on-line courses.

We used percentages because one of the teachers was not able to record the results for their class during the unit.

Here are a few data:
- The teachers modified the platform and the content of the courses to personalize the activities and make them more relevant. This is where the teachers discovered the potential of the D2L tool.
- The definition of blended learning is evolving; teachers are appropriating this new pedagogy bit by bit.
- During “reinvestment” days, the teachers collaborated and connected with each other to improve their professional practices.
- The advent of technology is a catalyst for the project and is motivating the teachers involved.
- The creation of a group in an internal Board network is making it possible for the members of the pilot projects to share information.
- The teachers are developing more professional confidence in the work of their peers.
Main Challenges and Points of Interest
The initial message, i.e., the ability to deliver an on-line course in the classroom, does not meet the criteria for blended learning. In reality, blended learning needs to be much more flexible. The students were exasperated by the laborious process of the on-line courses (navigating and the large volume of reading). They said they preferred traditional teaching.

Follow-up and Next Steps
The teachers involved in the project want to carry on next year, not just to integrate technology into the classroom, but also because these new strategies offer potential for collaboration. We have already created an internal Board on-line network to promote sharing and dialogue.
**Project Title** | ÉTApe – Environnement technopédagogique d’apprentissage personnalisé électronique [A Technology-based Pedagogical Environment for Personalized e-Learning]
---|---
**Brief Description** | The primary goal of this project is to support teachers in their pedagogy to improve student achievement, recruitment, and retention, while increasing student and parent satisfaction, through the use and integration of electronic resources and tools.
---|---
**Context** | Number of schools: 3  
Number of classrooms: 6  
Number of students: 100  
The target group is students in the Intermediate Division, i.e., 3 Grade 8 classes, 2 Grade 7 classes, and a combined Grade 7-Grade 8 class at three different schools.
---|---
**Impetus** | The goal of ÉTApe is to make use of the infrastructure created with ASL (Apprentissage sans limites) [Learning Without Boundaries] in order to refocus on pedagogy. ÉTApe could not have come into existence without the ASL project and the ASL project cannot continue without an injection of new pedagogy.
---|---
**Goals & Priorities** | With this goal in mind, we are providing touch screen laptops to Grade 7 and Grade 8 students in the participating schools. The teachers involved in the project will also have these “Netbooks,” in addition to a laptop computer and an interactive whiteboard.
---|---
**Theory of Action** | Small laptop computers and other technological tools are crucial to achieving this goal. The contribution that this project will make to the achievement of the objectives in CSGNNO’s strategic plan depends upon the integration of technology. It is, of course, possible to improve student achievement, recruitment, and retention and to increase target client satisfaction rates without technology; however, the integration of technological tools in this project acts as a catalyst for the achievement of these goals. For example, the mere presence of these tools requires the teacher to re-invent or, at the very least, re-visit his or her traditional pedagogy. This type of experience imposes changes in the direction being advocated by the project. Consequently, technology is essential to the project.
---|---
**Standards and Targets** | In schools participating in the project, we are analyzing whether the following numbers remain level, increase or decrease:  
- The number of students retained from Grade 6 to Grade 7  
- The number of students retained from Grade 8 to Grade 9  
- The number of students recruited into Grade 7 and Grade 8
---|---
**Phase of Change** | Over eight years ago, CSGNNO launched a project entitled Apprentissage sans limites [Learning Without Boundaries]. High school teachers and students were given laptops in a ratio of 1:1. The priority was universal access to technology. We created an entire infrastructure so that every high school student had a laptop and wireless access to the Internet. This was of benefit particularly to high schools in small communities where high-speed Internet access was limited. However, because the focus was on access to technology, pedagogy was somewhat overlooked.
---|---
**Assessment, Use of Data** | The primary focus is the Intermediate Division (Grades 7 and 8) across the Board. We plan to gradually and systematically deploy the project in every Intermediate Division school in the Board by June 2014. This project will gradually impact the five subjects being targeted: Mathematics, French, Science and Technology, and Art.
---|---
**Capacity Building in Teaching** | The 3 non-teaching staff members were the school principals. Two educational consultants were associated with the project to provide support in the form of coaching and training in the acquisition and use of these technologies. Over 25 different people received training through the program as follows:
- 7 of the 8 teachers in the ÉTAPe project and 2 educational consultants received 2 full days of training from Consortium d’apprentissage virtuel de langue française de l’Ontario (CAVLFO) [Ontario French-language e-Learning Consortium] on blended learning and the Learning Management System;
- All 8 teachers from the ÉTAPe project, 5 coaches, and 10 educational consultants received training leading to Symbaloo certification (http://www.symbalooedu.com/certification/);
- 10 educational consultants and 5 coaches received 3 full days of training from CAVLFO on pedagogical leadership in the 21st Century, WEB 2.0 tools, and OSAPAC software programs.

| Leadership, Sustainability | Consortium d’apprentissage virtuel de langue française de l’Ontario (CAVLFO) is one of our partners. CAVLFO provides support in the form of training on the D2L learning management system (LMS) for teachers in the ÉTAPe project. |
Outcomes [Verbatim translation from Final School Board Report, June 2012]

Summary of Data/Outcomes
A year-end survey was administered to the teachers involved in order to quantify the first three indicators:

- Number of IT resources and frequency of use:
  - 33% of respondents reported that their students used IT “every day, several times a day;” 50% reported that their students used IT “1-2 times a week;” 17% reported that their students used IT “1-2 times a month.”

- Number of subjects into which IT is incorporated (on a scale of 1 to 4 where 1 = “never” and 4 = “often”):
  - French was the subject in which IT was most often integrated (33% at 4 and 17% at 3), followed by Mathematics (17% at 4; 33% at 3)
  - Science and Technology finished in last place (0% at 4 and 17% at 3)
  - There were no questions on the use of IT in Art courses because this subject is often taught by designated teachers; however, during the survey, one teacher reported using “the Internet for art tutorials.”

- Number of presentations in the form of lectures:
  - 50% of respondents reported that, over the past year, their lecture-type presentations had “decreased in number.”

Each of the teachers in the project participated in 3 days of training: 2 days of training on the LMS and 1 day of training for Symbaloo certification.

Main Results
The teachers all confirmed that their role had had to change; to varying degrees, they were all moving from a traditional lecturing role to a “coaching” role.

Main Challenges and Points of Interest
- Bandwidth is often an obstacle to the effective use of technology.
- Access to Technology: it is more difficult to share and manage Notebooks in the high schools. We are currently considering the BYOD approach.
- Teaching versus use of IT: in spite of the fact that most students are comfortable with technology, there are always some basic skills that they need to learn. The strategy of letting students learn as they go, instead of being “taught” how to use the technology, is now considered appropriate. Educators become what Marc Prensky would call “guardians of quality and rigour.”
- Gravitation to a new pedagogy: the shift from a traditional, lecture-style approach to a participatory, hands-on approach.

Follow-up and Next Steps
The next step in this project is the harmonization of efforts and initiatives in order to make better use of financial and human resources. Wherever possible, we will try to incorporate the pedagogical approach developed in this project into other Ministry initiatives, such as Littératie chez les garçons (7 à 10) [Boys’ Literacy –7 to 10]], Stratégie provinciale en numératie [Literacy and Numeracy Strategy], Différentiation pédagogique [Differentiated Instruction].
### Project Title
Le rôle de la technologie (iPod/iPad) pour appuyer l’apprentissage des élèves souffrant de troubles du spectre autiste (TSA) [The Use of Technology (iPod/iPad) to Support Learning in Students with Autism Spectrum Disorder (ASD)]

### Brief Description
Give students greater autonomy through the use of technological and visual supports. Facilitate access to the curriculum through the use of applications that allow for differentiated instruction. Facilitate data collection to ensure that the goals are achieved and that the strategies being used are supported by the research and the evidence. Focus on motivating students. Clarify the curriculum expectations and the routine.

### Context
- Number of teachers: 20
- Number of non-teachers: 25
- Number of students: 16
- Students with ASD and students with behavioural disorders

### Impetus
We hope to improve the achievement of students participating in the project and their engagement in their learning.

### Goals & Priorities
The specific goals of the activities and work with each student or child will be based on the student’s IEP.

### Theory of Action
Replace direct instructions from the teacher or worker; the iPod targets independent work, because the student responds to stimulus from the device rather than the teacher or worker. Provide a specific, constant motivator. Applications can relate specifically to a student’s interests. Facilitate data collection by teachers and workers. Applications reduce the need for several pages and documents. They make it easier to share information with the team via email and in the Board’s collaboration space. Introduce difficult situations for the student so that he or she can practice strategies learned. Provide teachers and those working with the student with strategies for differentiated learning.

### Standards and Targets
- Increase
  - A skill
  - Independent work
  - The ability to function independently during class routines
  - Fluid execution of a skill that has been identified
- Reduce
  - An unpleasant behaviour that has been identified

### Phase of Change
1. In co-operation with the school team, select a specific goal for the student.
2. Complete the “Steps to Complete” form to ensure that there are answers to the questions Who? When? What? And Where? in relation to the data collection.
3. Collect data, using the Board’s criteria for testing assistive technologies, before, during, and after introduction of the iPod or the iPad.
4. Review the data with the school team at least once a month.

### Assessment, Use of Data
Depending on the goal, data will be collected by the special education technician during use of the iPod. Incentives used with the student before use of the iPod will also be noted.

### Capacity Building in Teaching
Educators, special education technicians (SETs), administrators, behaviour management consultants, members of the Board’s technical team
Thames Valley Children’s Centre – to facilitate data collection

### Leadership, Sustainability
Support from Board staff:
Director, Technology and Pedagogy
Behaviour Management Consultant, ASD
Outcomes (Verbatim translation from Final School Board Report, June 2012)

Summary of Data/Outcomes
Up-to-date results are in anecdotal form. The schools shared what worked and what was challenging and their desire to help with implementation next year.

Main Results
A reduction in the amount of time required to complete a task and refusal to work.

Main Challenges and Points of Interest
Formal data collection has been suspended since the New Year. The plan that we developed to improve the challenges being experienced includes changing the staff allocation for some of the tasks of our SETs. Instead of requiring data collection, we decided to encourage educators to practise using, and become more familiar with, the tool.

Follow-up and Next Steps
- In-depth SET training on data collection and the use of an iPad.
- Training, by region, on using the tools.
- Development of a specific plan for follow-up and data collection.
- Follow the same technological testing process (Kurzweil, WordQ ...) for this project, in order to ensure consistency within the Board.
<table>
<thead>
<tr>
<th>Project Title</th>
<th>Apprentissage hybride en 7e et 8e années [Blended Learning in Grade 7 and Grade 8]</th>
</tr>
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<tbody>
<tr>
<td>Brief Description</td>
<td>Student engagement is visible everywhere. They love technology. We need to adapt to young people, not the other way round. Our teaching practices are changing; we don’t have a choice, because if we ignore Facebook, Twitter, texting, etc., we will lose many of our teenagers. We can see that students are into it and succeeding. With the integration of Antidote, we no longer need ‘paper’ books such as dictionaries or the Bescherelle. We can find lots of information in just a few clicks.</td>
</tr>
</tbody>
</table>
| Context                               | Number of schools: 4  
Number of classrooms: 4  
There are four teachers; one teacher teaches art  
Number of students: 59  
Two multi-grade classes, i.e., Grade 7/8. A third single-grade Grade 8 class. The majority of students in the Grade 8 class are boys. |
| Impetus                               | Students are already using technology every day at home, so it is easy for them to make a connection with their prior knowledge. Computers are everywhere and are growing in popularity; students will be working with this technology for years to come. |
| Goals & Priorities                    | With the integration of Antidote, we no longer need ‘paper’ books such as dictionaries or the Bescherelle. We can find lots of information in just a few clicks. |
| Theory of Action                      | We want students to become more tech-savvy; we also want to support them to work independently in the intermediate division. We know that technology is increasingly used in education and an increasing number of courses are delivered on-line or through videoconferencing. Another aspect is paperless homework, for two reasons: the environment and future generations. |
| Standards and Targets                 | Comparison of January report card marks and June report card marks in subjects taught on the platform.  
The frequency with which students use the platform. |
| Phase of Change                       | We spoke with the teachers; they agreed to participate. We held one day of training on the platform, courses, and modules with a trainer from the Ontario e-Learning Consortium. |
| Assessment, Use of Data               | Use of the software supporting several subjects, e.g., Antidote for literacy  
Short questionnaire on Antidote  
Exercises using the software |
| Capacity Building in Teaching         | We chose four teachers (one man and three women) who are already tech-savvy. Two multi-grade classes (i.e., two Grade 7/8 classes) and one class, mostly comprised of boys, which is known as a class with several problem behavioural cases. |
| Leadership, Sustainability            | Support of the pedagogy information technology leader |
Outcomes (Verbatim translation from Final School Board Report, June 2012)

Summary of Data/Outcomes
Data collection was very difficult. For example, we found that management was much easier because the boys worked more easily. We did not compare the number of times that the teacher had to do management before and after the project.

The data collected compared marks in French and Mathematics from the Ontario report card.

Main Results
Mark in French
- 63% of students (in both classes) increased their mark from the first to the second report card
- Comparison between the marks on the first and second report card

Mark in Mathematics
- Comparison between the marks from the first and the second report card

Main Challenges and Points of Interest
- The class of boys with several problem behaviour cases is much easier to manage, because boys are very tech-savvy, experience success, and love this project. They don’t feel that they are working when they are on the computer.
- Bandwidth in northern Ontario is very slow and very costly.

Follow-up and Next Steps
- The teachers who were involved with the project this year will serve as resource people. They will also present the best practices.
- We will have fibre optics, which will be much faster. The ‘promotion’ of the platform will be done in early September so that other teachers are shown the possibilities of the project.
### Project Title
L’apprentissage hybride dans le cadre des carrefours en numératie en 7e/8e [Blended Learning in the Grade 7/8 Numeracy Hubs]

### Brief Description
The platform will be presented through the numeracy hubs.

### Context
Number of schools: 1  
Number of classrooms: 1  
Number of students: 20  
Grade 7 and Grade 8 Mathematics teachers working in schools operating on the K-8 model and participating in the hubs.

### Impetus
Improve results on the Grade 9 EQAO PMT:  
Integrate the Web 2.0 tools and use existing electronic resources to fit the profile of a 21st Century learner.

### Goals & Priorities
First, we simply want to explain/model how to access existing resources in the Ontario Educational Resource Bank (OERB). Second, we will explain/model how to access the D2L platform and some of the functionalities and units on it.

### Theory of Action
At this stage, we are looking for improvements over the medium term in the results on the PMT and the acquisition of mathematics concepts generally, rather than integrating the technology.

### Standards and Targets
1. 100% of teachers who participate in the Grade 7/8 numeracy hubs will receive training on the OERB and the D2L platform.  
2. 25% of teachers who receive training on the OERB and the D2L platform will integrate these tools in the classroom at least once a week.  
3. 50% of teachers who receive training on the OERB and the D2L platform will integrate these tools in the classroom at least once a month.

### Phase of Change
The project will only begin around the end of February 2012. Consequently, it is difficult to add training days and take teachers out of the classroom. This is why we integrated this project into existing activities in our training plan. The platform will be presented through the numeracy hubs. The issue of monitoring by the principal has not been addressed in this project this year.

### Assessment, Use of Data
N/A

### Capacity Building in Teaching
Support from the following staff:  
- Numeracy coach/teacher  
- Director, Curriculum Department

### Leadership, Sustainability
We are providing a phase to explore these tools and will suggest that a school receive coaching more formally, if interest is expressed. At this stage, we will provide financial support to the participating school to purchase equipment.
Outcomes *(Verbatim translation from Final School Board Report, June 2012)*

**Summary of Data/Outcomes**

We believe that the best approach is to integrate blended learning into our coaching on differentiated learning and numeracy hubs.

**Main Results**

- The plan consisted of offering K-8 schools the opportunity to access the pilot project during a presentation in the context of numeracy hubs. One (1) school was interested (St-Philippe, Burlington).
- With the approval of the school principal, the teacher was trained by the Consortium trainer on April 23, 2012, in Hamilton.
- The Curriculum Department and the IT Department purchased a cart of portable computers with wireless terminals. The equipment was delivered to the school at the end of April.
- The teacher used the blended learning modules in her Grade 6/7 multi-grade class during the month of May.
- The teacher and the director of the Curriculum Department participated in an interview with a CSC consultant on May 18.

**Main Challenges and Points of Interest**

- Technical challenges, i.e., reliability and speed of the wireless network in the school.
- Some of the students in the class lacked basic knowledge (e.g., knowing how to save data).

**Follow-up and Next Steps**

- Continue and improve collaboration between the Curriculum Department and the IT Department.
- Continue the thought process by the pedagogical steering committee and the Board with respect to strategic implementation in 2012-2013.
### Project Title
L’apprentissage hybride en 7e et 8e année [Blended Learning in Grade 7 and Grade 8]

### Brief Description
Blended learning in five multi-grade classes (Grades 5 to 8) to allow team work with students in the same grade (and/or same gender) in different schools.

### Context
- Number of schools: 6
- Number of classrooms: 8
- Number of students: 70
- Grade 7 and Grade 8, French

### Impetus
In order to allow our students to work as a team on blended learning projects with students in other small schools and thus break the students’ isolation. (Enable them to work on occasion with other students of the same age and/or gender).

### Goals & Priorities
Blended learning in five multi-grade classes (Grades 5 to 8) to allow team work with students in the same grade (and/or same gender) in different schools.

### Theory of Action
Introduction to blended learning in Grade 7 and Grade 8 in multi-grade classes while promoting differentiated instruction.

### Standards and Targets
Teachers say they are more comfortable integrating technology into their teaching. Teachers find that their programs have been enriched due to the content of the units. The number of students working in e-learning increases.

### Phase of Change
Purchase of the equipment required for the project.
- Initial training in November 2011: operation and potential of the Learning Management System (LMS).
- Videoconference in December 2011: planning of the project.
- Initial meeting for students by Skype before beginning the LMS and blog. Work on the LMS, blog, and Skype with the French course units.
- PLC meeting via videoconference with staff (support). Survey for the teachers.

### Assessment, Use of Data

### Capacity Building in Teaching
Increase the capacity of the teachers to effectively use the electronic resources and educational technologies that are at their disposal.

### Leadership, Sustainability
Support from an IT technician
Outcomes (Verbatim translation from Final School Board Report, June 2012)

Summary of Data/Outcomes
The only collection of data, other than quantitative data, was collated when the survey was administered to the participating teachers. This survey was administered at the end of the project. We chose to administer a survey that was more qualitative, which enabled us to draw more conclusions.

Main Results
• Based on the survey responses, our teachers said that they were comfortable with the integration of technology into their teaching. What was interesting in their responses was the fact that they all viewed the use of technology as something that required preparation, guided by the teacher. In addition, they emphasized the benefits of using these tools to improve the quality of their students’ learning, specifically in multi-grade classes. They also found that students worked better as a team and were more motivated to write when using a computer.
• According to our teachers, this project developed our students’ ability to work as a team.
• Teachers indicated that they needed to be better prepared in order to guide their students’ learning more effectively. They had to prepare in advance and visited the websites recommended in the units in order to better pinpoint the work that the students would be doing. They also recommended adding this technology as a means of increasing student motivation in the classroom.

Main Challenges and Points of Interest
• During the initial training, some of the teachers who were not part of this project expressed a desire to participate. We therefore provided additional coaching so as to adequately support this project.
• The challenges were mainly technological, i.e., the capacity of our wireless network. In addition, some of the teachers quickly discovered that they needed to be better prepared in order to better support their students’ learning.

Follow-up and Next Steps
Our next steps for this project are to improve the quality of the wireless network for our students in each of our schools in order to enable this type of work in the classroom, and also to look at limited access to certain sites such as YouTube, because many blended learning unit activities refer to them and we do not currently allow access to these sites.
## Project Title
Apprentissage hybride en 7e et 8e [Blended Learning in Grade 7 and Grade 8]

### Brief Description
With the help of IT tools that are already available within their respective schools, teachers will use the Grade 7 and 8 online content modules, integrating the tools on the provincial platform (the Learning Management System or LMS) in order to:

- Enrich learning in the classroom through the use of **new digital age teaching practices** that support student engagement;
- Increase their ability and their students’ ability to make effective use of available electronic resources;
- Respond to various learning styles and types of intelligence (**differentiated instruction**) in order to improve **student achievement**;
- Increase collaboration and sharing between schools through in person and virtual meetings;
- All while developing **21st Century skills** in their students.

### Context
Number of schools: 4, two schools withdrew from the project before the end of the year. They will rejoin the project in September 2012.

Number of classrooms: 4

Number of students: 76

The schools listed in the table below were targeted based on the following criteria:

- Small remote schools;
- One Grade 7 and Grade 8 multi-grade class per school;
- Opportunities for networking and collaboration between Grade 7 and Grade 8 teachers (to break the isolation);
- Targeted teachers demonstrate a strong interest in integrating emerging technologies into their students’ learning;
- Schools that had participated in the pilot projects offered to students of French-language school boards: **S’unir pour réussir and Appui en tout temps**
- Schools that were not participating in the provincial Literacy and Numeracy Strategy.

### Impetus
With the help of IT tools that are already available within their respective schools, teachers will use the Grade 7 and Grade 8 online content modules, integrating the tools on the provincial platform (LMS).

### Goals & Priorities
Using emerging technologies, develop **21st Century skills** in students related to the learning skills and work habits on the report card.

Support the implementation of the principles of differentiated instruction in a Grade 7 and Grade 8 multi-grade class with the goal of better responding to the students’ various learning styles and interests.

Increase student achievement in the subject or subjects targeted by each teacher based on the Grade 7 and Grade 8 course units currently available on the LMS.

### Theory of Action
As a result of the project, **Initiatives TIC du CSCNO**, in which the Board installed a wireless network in each of its schools and gave a PC tablet to each teacher over the last three years, the technological infrastructure required for the success of Projet CODE is already in place. In addition, since receiving initial training on the tablet, the teachers have developed the basic skills required to integrate these IT tools and the media resources that are available. At the Board level, the systematic deployment of the tablets and the related training represented the first phase of our plan to integrate technology into the students’ learning at CSCNO.
Participation in this pilot project on blended learning in Grade 7 and Grade 8 is, therefore, the natural next step in support of more effective use of the technologies that are available through the new LMS resources.

We also hope to develop our teachers’ ability to use strategies for the digital age in order to increase student motivation and engagement with their learning and enable them to develop better work habits and learning skills.

In addition, the development of a vision for IT pedagogy is one of the priority actions in the 2011-2012 AEP. Participation in this pilot project will facilitate this visioning process.

### Standards and Targets

**Student Engagement**
By the end of June 2012, all of the students in the classes involved will have independently chosen and used at least one of the media resources suggested by the LMS (e.g., online course modules, OAI, SOS Devoirs, OERB, TFO, OSAPAC software) in the context of a task assigned by the teacher.

**Teaching Practices**
By the end of June 2012, the nine teachers participating in Projet CODE will have used at least two Grade 7 and/or Grade 8 digitized modules of the LMS courses (in the subject of their choice) in the context of their teaching.

By the end of June 2012, the nine teachers who participated in Projet CODE will have participated in at least one virtual exchange session on the LMS tools and resources.

### Phase of Change

**Planning (January and February 2012)**
- Participation of the Board team in training offered by the Consortium
- Presentation of Projet CODE to the Board’s Education Committee and IT Department
- Reflection, consultation, and preparation of the preliminary report (choice of schools with the help of data, development of SMART objectives, identification of the desired outcomes)
- **Planning training and coaching (with the support of the Consortium)**
- Organization and holding of an initial meeting via videoconferencing with the teachers and principals involved (information session – providing a context, goal of the project, SMART objectives, and anticipated measurable outcomes)
- Organizing and holding of initial training (LMS) offered by the Consortium for the teachers involved following a session to plan the next steps of implementation.

**Note:**
- The next steps of implementation will be determined in collaboration with the teachers in question as mentioned above.

**Planning – Steps taken between February and June 2012**
- The educational consultants in charge of IT integration met the Consortium trainer to plan the rollout of the project and learn more about the LMS tools in order to more adequately support the teachers.
- Support – registration of teachers from Projet CODE on LMS
- Participation by the majority of teachers from Projet CODE in the e-Learning Ontario symposium (*April 2012*) – careful choice of workshops made jointly by the educational consultants and the teachers, all of whom participate in the Introduction to LMS workshop
- Each teacher involved received a copy of Marc Prensky’s book *Teaching Digital Natives*
- Customized coaching offered by educational consultants (*April-May*)
- Support – student registration on LMS and choice of units
- Full-day of training offered by the Consortium trainer (*May 3*) – in-depth knowledge of the advanced tools in LMS (specifically, how to modify a unit)
- Teachers were granted days with supply teachers paid for out of the funds for Projet CODE in order to explore LMS and make use of the resources available in the units.
### Assessment, Use of Data

Using *Coffre*, a data management tool developed by the Board, teachers can easily track student progress and analyze their achievement, learning skills, and work habits. The data are represented in graph form for effective analysis.

### Capacity Building in Teaching

**Director of Learning Support – Grade 7 to Grade 12**/ person responsible for the implementation of e-Learning Ontario (Danielle Venne)
- coordination of the implementation of Projet CODE with the support of the Executive Director of Learning (Nicole Sonier) and the Education Committee (other department heads)
- coordination of pedagogical support

Educational consultants on IT integration (Mélanie Lamarche and Micheline Lacoste)
- support for the development of the implementation plan
- coaching (e.g., IT training, modelling, preparation of resources, support for the development of pedagogical scenarios)

**Consortium trainer (Daniel Doucet)**
- delivery of Consortium training, based on the needs that are identified
- support of the Board team and teachers involved

**Director of the IT Department (Robert Bégin)**
- coordination of the IT support required to support the implementation of the project

**MISA Pedagogical Coordinator (Stéphane Charbonneau)**
- support in terms of the use of data collection and analysis tools available in Coffre, CSCNO’s data management tool

### Leadership, Sustainability

Support virtual exchanges and collaboration between teachers of Grade 7 and Grade 8 multi-grade classes in our small remote schools.

Facilitate, possibly, the implementation and sharing of new digital age teaching practices within all of our schools.

Develop the teachers’ IT skills with the goal of increasing support for integrating emerging technology and digitized resources for teaching and student learning.

Make optimal use of the technological tools and infrastructures that are already in place within our Board (*wireless access, PC tablets, IWB, etc.*).
Outcomes (Verbatim translation from Final School Board Report, June 2012)

Summary of Data/Outcomes
The project only began in April, so it was difficult to collect enough data to ensure that the results were valid. However, a virtual survey was sent to the teachers involved in order to get their feedback: http://www.surveymonkey.com/s/DVTQD92.

Main Results
With respect to the data collected on the students’ learning skills and work habits, we note a slight improvement in Spoken French and in Co-operation. These data are available.

Main Challenges and Points of Interest
- Participation by most of the teachers involved in the e-Learning Ontario symposium, and by the members of the pedagogical and IT team who support them, made it possible to develop a relationship of trust right from the start of the project and connections that resulted in a nice level of collaboration amongst all of the stakeholders. The provincial symposium ensured that all of the stakeholders received the same key messages, which in turn created a good starting point. The themes addressed by the speakers and moderators were very thought-provoking; they informed several exchanges/conversations, not only on integrating technology, but on the shift in paradigms around the teaching/learning strategies to employ to support the development of our students’ skills for 21st Century.
- Amongst the teachers involved, there was a greater openness to the principles articulated by consultant Marc Prensky. One specific example: several teachers involved asked the Board to grant wireless Internet access to their Grade 7 and Grade 8 students through their personal mobile device. In one school, nearly all of the students are using their own iPod Touch in class for educational purposes.
- We have also noted increased sharing and use of Web applications that support remote communication and collaboration, (e.g., Edmodo, Twitter, ClassDojo and YouTube).
- In sum, the project is going well. A nice level of collaboration has developed amongst the teachers involved; people are increasingly engaged.

Follow-up and Next Steps
- The introduction to the LMS enabled the teachers involved to learn about the tool’s full potential and to more effectively integrate it into teaching and student learning in 2012-2013.
- Thus, this initiative will continue in our board. Other training by the Consortium trainer is planned for 2012-2013. The Board’s educational consultants will continue to provide customized coaching and differentiated support in 2012-2013.
- The IT team will work on improving the bandwidth in our rural schools in order to make it easier for students to use personal mobile devices in the classroom.
Conseil scolaire de district catholique de l'Est ontarien – CSDCEO

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Apprentissage hybride [Blended Learning]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief Description</td>
<td>Demonstrate that e-learning, i.e., blended teaching and learning, is beneficial. Identify areas and actions that support integration and structures that support collaboration.</td>
</tr>
<tr>
<td>Context</td>
<td>Number of schools: 2</td>
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<tr>
<td></td>
<td>at Pavillon Intermédiaire La Citadelle [Intermediate Division at École secondaire catholique La Citadelle]</td>
</tr>
<tr>
<td></td>
<td>Number of classrooms: 5 Grade 8 classes</td>
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<tr>
<td></td>
<td>at Pavillon Intermédiaire Embrun [Intermediate Division at École secondaire catholique Embrun]</td>
</tr>
<tr>
<td></td>
<td>Number of classrooms: 2 classes (1 Grade 7 class and 1 Grade 8 class)</td>
</tr>
<tr>
<td></td>
<td>La Citadelle - 118 students</td>
</tr>
<tr>
<td></td>
<td>Embrun - 53 students</td>
</tr>
<tr>
<td>Impetus</td>
<td>We would like to determine whether blended learning would increase student motivation and participation in learning.</td>
</tr>
<tr>
<td>Goals &amp; Priorities</td>
<td>Using a blended learning model (within which technology supports existing instructional practices), we want to focus on our students’ collaboration, communication, creative thinking, and critical thinking.</td>
</tr>
<tr>
<td>Theory of Action</td>
<td>Using portable computers, students will access and collaborate on the LMS platform. Because each teacher will have access to an IWB, modelling and guided practice will allow for immediate follow-up with the student. Our objective is to have students become more actively involved in their own learning through the use of technology as a means and a tool. Students will experience a process.</td>
</tr>
<tr>
<td>Standards and Targets</td>
<td>Engagement – questionnaire:</td>
</tr>
<tr>
<td></td>
<td>Students explain their motivation, what they understand, their process.</td>
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<td></td>
<td>Interest – questionnaire:</td>
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<tr>
<td></td>
<td>Students explain what interests them and why and how they plan to get there.</td>
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<tr>
<td></td>
<td>Student evaluation on learning skills and work habits.</td>
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<tr>
<td></td>
<td>Higher evaluations on the report card scale.</td>
</tr>
<tr>
<td>Phase of Change</td>
<td>A system-wide committee will explore the integration of 21st Century skills into learning and teaching. We believe that blended learning supports this integration to the extent that the context of a classroom and the curriculum allow it. Through this project, we will work with teachers in order to build on the processes underlying our curricula and that enable students to become engaged. These processes will enable us to contextualize, model, clarify, and document learning skills and work habits.</td>
</tr>
<tr>
<td>Assessment, Use of Data</td>
<td>The project will be implemented through the collaboration of four teachers; the skills to be developed by the students will also be worked on by the teachers: collaboration, communication, critical thinking, and creative thinking.</td>
</tr>
<tr>
<td>Capacity Building in Teaching</td>
<td>Pedagogical services – team of educational consultants who provide support in the form of training and coaching Destination Réussite – Bianca Girard, who provides support on the component that measures student engagement Consortium d’apprentissage virtuel de langue française de l’Ontario [the French-language e-learning consortium] – support in the form of resources and training</td>
</tr>
<tr>
<td>Leadership, Sustainability</td>
<td>Pedagogical services – team of educational consultants who provide support in the form of training and coaching Destination Réussite – Bianca Girard, who provides support on the component that measures student engagement Consortium d’apprentissage virtuel de langue française de l’Ontario [the French-language e-learning consortium] – support in the form of resources and training</td>
</tr>
</tbody>
</table>
Outcomes (Verbatim translation from Final School Board Report, June 2012)

Summary of Data/Outcomes
Some learned that they were responsible for their own learning. They gained confidence in their ability to learn, given that the students had to learn more independently; i.e., by using technology instead of waiting for the teacher to give them the information.

Main Results
- The data collection methods used were mostly those suggested on the platform. Since February, the students have been assessed by means of projects, discussion groups, questionnaires, or simply by filling out forms prepared in advance. They were assessed using formative or summative methods at different points in time. Students handed the majority of their assignments into their teacher’s mailbox on the platform.
- The project was initially presented to the students as a new way of learning and working with technology. We familiarized ourselves with the platform. We did a few exercises in order to understand this new way of communicating. The students then had to learn to trust themselves and organize what they were learning in order to reach the course objectives and meet the deadlines.

Main Challenges and Points of Interest
- The technology did not meet the requirements of the blended program (did not have WORD software). Not every student had the tools to perform this work at home.
- The availability of the IT lab was a problem.
- Initially, the students had some concerns about this new way of learning. For some, having a teacher who, instead of speaking a lot, would ask them to work, read, look at, research, or organize their work was a challenge. Some students felt that blended learning meant working harder.

Follow-up and Next Steps
The next steps will definitely be to pursue our research on the use of the platform. Then, I will need to perform an in-depth analysis of how it was used and find solutions or methods for maximizing student interest and taking them further in their learning.
Conseil scolaire catholique Franco-Nord – CSCFN

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Intégration de la technologie [Technology Integration]</th>
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<tbody>
<tr>
<td>Brief Description</td>
<td>This approach favours the use of differentiated instruction (DI) in the classroom through the use of technology and other tools. We want students to become engaged in their learning; we do this by offering them ways of learning that are as close to their learning style as possible. In this way, they will feel better equipped to succeed. The use of an IWB is common because all of the classes have one. If needed, IWB training is available every month (we have an electronic site that stores lessons by grade…). Our coaches also offer training on technological tools (joysticks, iPod touch – all of the schools have iPod touch or iPad devices). Follow-up is available if needed. In addition, in accordance with our action plan, the Consortium is training the team so that it knows how to use the Learning Management System (LMS).</td>
</tr>
</tbody>
</table>
| Context | Number of schools: 9  
Number of classrooms: 12  
All of our Grade 7-8 schools are participating. Number of students: 400 |
| Impetus | The project began a few years ago with the MEO’s Grade 7-8 pilot project in differentiated instruction, following which a blended learning team was created. Today, the team is working to integrate technology. |
| Goals & Priorities | We need a systematic approach to the growing need for technology in the classroom and we must train our teachers in this area. |
| Theory of Action | This approach calls for the use of differentiated instruction (DI) in the classroom through the use of technology and other tools. |
| Standards and Targets | The frequency with which the resources are used.  
Every month, the team must try a new practice and share it at the next meeting, at which there is a discussion on what did and did not work. |
| Phase of Change | The team was trained in early September with an initial meeting in September 2011. Afterwards, meetings were held on a monthly basis. |
| Assessment, Use of Data |  |
| Capacity Building in Teaching | Superintendent, Effectiveness Framework leader, Assessment leader, 2 technology integration coaches, Student Success coach, Literacy coach (7-12), Numeracy coach (7-10) |
| Leadership, Sustainability | Our coaches also offer training on technological tools (joysticks, iPod touch – all of the schools have iPod touch or iPad devices). Follow-up is available if needed. In addition, in accordance with our action plan, the Consortium is training the team so that it knows how to use the LMS. |
Outcomes (Verbatim translation from Final School Board Report, June 2012)

Summary of Data/Outcomes
We have offered training on the IWB, joysticks, iPod, iPad, and the most current web software.

A questionnaire was handed out to the teachers on their use of technology and resources within their teaching practices.

Main Results
The project provided the participating teachers with the opportunity to learn about and master the best ways to meet the needs of each student using technology.

Main Challenges and Points of Interest
- Access to technology that is compatible with what the province is asking of us is not always easy.
- Computer labs are not accessible on an as-needed basis in the elementary division, so the use of technology using a computer is limited.

Follow-up and Next Steps
- The system-wide project will continue in Grade 7 and Grade 8 and with the Secondary Division team in order to ensure continuity. Next year, we plan to have a similar team for Grade 4, Grade 5, and Grade 6 teachers.
- Wireless access will be available to teachers and students in all of our schools.
## Durham District School Board

### Project Title
Grade 3 iPod Project

### Brief Description
Each school with the DDSB had the option of preparing a proposal to a central steering committee of how they might use a class set of iPod touches within a wireless environment in their classroom and school.

### Context
Number of schools: 5 Schools  
Number of classrooms: 5 Classrooms  
Number of students: 100 (Grade 3 students, Literacy focus)

### Impetus
Our district has, traditionally, focused on a technology model that has relied on 3 or 4 desktop computers hard-wired to drops at the back of classrooms. It is believed that this structure has hindered students from actively using available technology and instead created less authentic experiences.

### Goals & Priorities
The iPod project is an opportunity to provide mobile technology to students when and where they need it. This technology will be available to them throughout each day and throughout the entire school. (At the point of Instruction and Learning.)

### Theory of Action
Project is intended to explore how hand-held technology can be leveraged to improve student engagement and achievement at the Primary level.

### Standards and Targets
Standards evidenced, no identified targets

### Phase of Change
Initial project completed over 2011-12 with planning for a continuation that will be informed by study findings

### Assessment, Use of Data
Data is being collected to measure the impact on student engagement, instructional practices, and student outcomes.
- Improved attendance and participation (anecdotal)
- Teacher reports broadened repertoire and confidence while integrating technology (survey)
- Improved achievement in literacy skills (common assessment)

### Capacity Building in Teaching
Board technology facilitators were given 1 and ½ days training by Apple Canada on use of the devices in order to assist with support. Board technicians were given ½ days training to assist with the preparation of the units and for support. Teachers were given one full day of training to learn about the devices in their classroom and one full day of training with an Apple instructor in the classroom.

### Leadership, Sustainability
Clear evidence of support from IT department at system level. Training Support has been offered by Apple Canada
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported.
- Data summarized in report.
- Pre-assessment surveys were completed by teachers and students to create baseline of information for tracking.
- Teachers were brought in for mid-point sharing session and interviews on the use of the product in the classroom for one half-day.
- Mid-point (post) assessment survey completed online by teachers and students.
- Year-end structured interviews were completed for each classroom teacher focusing on successes, barriers, achievement in numeracy, reading and writing activities.

Highlights of Key Findings/Results
- After 1 year, all teachers were pleased that the devices were no longer considered a novelty and were used regularly and in a relevant manner by their students.
- All teachers reported that social engagement with the devices was high and students regularly mentored and assisted one another while using the devices. One school remarked that students often challenged one another when completing numeracy activities using the devices and this motivation demonstrated higher results in basic math strengths of the students.
- Teachers report that the device had a significantly positive impact on classroom culture and discipline. Students took “ownership” of their devices, cared for one another’s devices when they were left out on desks and maintained them well. The devices worked best in a 1:1 atmosphere where each student always used the same device. It would suggest this is a nod towards students using their own personal devices in the classroom rather than shared lab devices.
- All teachers reported that the devices allowed them to change their instructional practices in a positive light. They all expressed pride in their own 21st Century teaching achievements. These included personal achievements such as better use of student email, cloud based student storage, using the district Moodle, and integrating the product into Guided Reading. The results of many of our findings lead us to believe that the power of these mobile hand-held devices is found in the personal ownership or 1:1 nature of the device.
- “Lab” or classroom environments for the devices provided management difficulties that in many cases interfered with the opportunities that these powerful hand-held devices provided.

Highlights of Challenges and Unexpected Results
Syncing the devices in a 1:1 cart has proven to be the greatest challenge for teachers.

Though the Apple device is a thoroughly intuitive device for student use, the highly personalized nature of the Apple devices has slowed our district-wide implementation as central management of apps in the device can be a costly and difficult. The device’s restrictive app agreements, lack of Flash and inconsistent syncing will require further study in future pilots.

梢encing of apps on the iPods has proven to be a problematic barrier to implementation. Apple Canada’s written agreement requires that each device have its apps purchased independently using individual email addresses and iTunes accounts. This has proven to be a challenge from a scalability standpoint.

Typing skills on the device were an early barrier, but teachers report that the students improved as the pilot progressed. 53% of students reported that they did not enjoy typing with their thumbs, however sixty-eight percent of students reported that the iPod touch assisted them with their writing and sixty-four percent reported that they liked writing more with an iPod touch.
Teachers agreed that the device improved achievement of the student in writing, but two reported that in order to prepare for EQAO, a gradual drawback from the technology was necessary to focus on hand-writing and pencil editing.

All teachers reported that the smaller form factor of the device made reading web resources a challenge for some students. Teachers reported that students were often zooming in and sliding the screen when reading and that this did appear as a distraction to a more focused reading time. All teachers reported that using the devices for research and inquiry was by far the best reading opportunity for use of the device.

Additional Statements Made in the Report

- Our district has, traditionally, focussed on a technology model that has relied 3 or 4 desktop computers hard-wired to drops at the back of classrooms. It is believed that this structure has hindered students from actively using available technology and instead created less authentic experiences. Students likewise interact with technology and the internet in library computer labs which are timetabled. This too has led to learning experiences which are less relevant or connected to the everyday teaching in the classroom.
- The proposal process was an exceptionally powerful motivator for schools to consider how they might use mobile technologies in their school as well as technology in general. We received more than 40 proposals from grade 3 teachers to participate in the project.

Follow-up and Future Directions

Direction for future related work

- Teachers report that the device is very much a primary or junior device and best seems to suit the needs of these students and have expressed a desire to continue using the devices in their classroom environments. Some would like to spend more time “loaning” the devices to other classrooms in a more structured environment.

Implications for school board planning

- Senior administration will meet to discuss how the IPods will be used in the pilot schools prior to September.
Greater Essex District School Board

<table>
<thead>
<tr>
<th><strong>Project Title</strong></th>
<th>Innovative Teaching Practice – Blended Learning/ Digital Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief Description</strong></td>
<td>Our Board is testing the new Enterprise Portal / School Bundle with a group of Power Users. A group of teachers, administrators and students (Power Families and Power Schools) will be piloting the technologies within the Enterprise Portal from March – June. The Enterprise Portal consists of an array of varying technologies. The three main areas of the Portal which will impact engagement and practice are the Internet (School Web Sites), the Intranet (Team/PLC sites) and MySites (Student collaboration sites). At this point the team elected to focus on the internet part of the Portal. For schools, that meant a focus on transferring and creating content on the public School Web Sites and creating a virtual presence for common areas such as the Learning Commons.</td>
</tr>
<tr>
<td><strong>Context</strong></td>
<td>Number of schools: Tentatively 10–12 Power Schools, on-call with all (85 schools in the system for school web page creation assistance) Number of classrooms: to be determined Number of students: very limited due to delays</td>
</tr>
<tr>
<td><strong>Impetus</strong></td>
<td>There is an increasing recognition that educators and schools need to employ digital technologies, not because there is necessarily a link to traditional forms of how student achievement is measured, but because technologies are increasingly a part of children’s lives in a 21st Century society. New window on the world … improved communication between home and school. Need identified – staff and students need to be trained in how to use the technology and how to incorporate/embed the technology into their daily practice. The Portal provides a safe and controlled environment for student online interaction promoting digital citizenship and responsibility. The Portal will also provide a vehicle for improved home/school communication.</td>
</tr>
<tr>
<td><strong>Goals &amp; Priorities</strong></td>
<td>The impact of what is learned from the pilot schools will be important for the teaching and learning potential during the roll out of the Enterprise Portal functionality for the entire Board in the fall of 2012. Embedding this technology into teachers’ daily practice will impact the effective use of technology within our classrooms and positively impact the engagement of students. Impact public perception and confidence in the creation of new school web pages and virtual library pages.</td>
</tr>
<tr>
<td><strong>Theory of Action</strong></td>
<td>The Enterprise Portal School Bundle project firmly embeds technology into everyday practice for teaching and learning.</td>
</tr>
<tr>
<td><strong>Standards and Targets</strong></td>
<td>Standards evidenced, no identified targets</td>
</tr>
<tr>
<td><strong>Phase of Change</strong></td>
<td>Delays due to software enhancement and development. January 2012 start of implementation. The narrowing of the focus in the implementation plan pushed back the Board roll out for all areas of the Portal. In September 2012, the MySite area of the Portal will be piloted in several Power Schools. The MySite portion of the Portal is now projected to be the final piece of the Portal to have enhancements/changes applied to the software.</td>
</tr>
<tr>
<td><strong>Assessment, Use of Data</strong></td>
<td>Data is being collected to measure the impact on student engagement, and instructional practices. Effectiveness of a teacher training program related to the Enterprise Portal Mysites, Enterprise Portal Collaborative tools, and Enterprise Portal webpage/site publishing Impact on Student Behavior in regard to Digital Citizenship</td>
</tr>
<tr>
<td><strong>Capacity Building in Teaching</strong></td>
<td>The school Bundle portal solutions makes it easy for teachers to create personalized communications, post homework and extra credit assignments, develop blogs, photo galleries and podcasts to share ideas and information with students, parents and each other.</td>
</tr>
<tr>
<td><strong>Leadership, Sustainability</strong></td>
<td>Clear evidence of support from IT, and Administration. Ongoing interactions with our Community of Practice Cluster : Near North DSB, Northwest Catholic District School Board, Simcoe Muskoka Catholic DSB, St. Clair Catholic District School Board and the development company Concept Interactive/School Bundle Inc.</td>
</tr>
</tbody>
</table>
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported, but significant portions needed to be delayed.

Highlights of Key Findings/Results
The detour in focus mid project (due to the speed of software development) brought to the forefront the need for current and relevant content on school web sites. The narrowing of the focus in the implementation plan pushed back the Board roll out for all areas of the Portal. In September 2012, the MySite area of the Portal will be piloted in several Power Schools.

This alternate way of looking at the use of technology in schools shows the potential for teaching and learning from virtually anyway. By having the courage to dig deep and expand our thinking, educators can have a tremendous impact on student engagement through the window of this software.

In terms of broader influence, the public perception and confidence, community and parent involvement, feedback on the new school web sites has been positive with the staff and public consistently commenting on the consistency and relevancy of the content on the new school web pages.

Highlights of Challenges and Unexpected Results
- The greatest hurdle continues to be the software development timeline. The project has morphed into the technology learning with the future target being to apply this technology learning to classroom practice through the MySite portion of the Portal.
- Our initial ventures into this project found our resources spread too thin, and as a team elected to contract our project to narrow our Professional Development opportunities to the Internet portion of the Portal. As we move forward into the Fall of 2012, the next focus will be on the use of team sites to collaborate in Professional Learning Communities. These team sites will allow staff to collaborate on a collaborative inquiry based on student need.

Follow-up and Future Directions
Direction for future related work
- The continuation of the project will contribute to the building the life skills necessary for living and learning in a digital world by focusing on digital citizenship skills with our students as they begin to explore their MySites and class collaboration sites.
- As the project continues, this platform will be instrumental in the creation of digital portfolios to bring the learning to the extended families outside the walls of the school.
- Physical learning environment focus shifts as mobile laptops are utilized for small group instruction. The culture of the classroom is beginning to change in anticipation of the new software potential.

Implications for school board planning
- This technology based project enhances our Board vision for 21st Century teaching and learning by bringing the need for current and relevant online content to the forefront.
### Halton District School Board

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Bring I.T.! - Encouraging Personal Devices in Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief Description</td>
<td>With the expansion of wireless network availability in our board and the cancellation of a board-wide ban on such devices, schools being encouraged to embrace the use of this student and staff-owned technology within schools and classrooms by allowing students to ... Bring I.T.!</td>
</tr>
</tbody>
</table>
| Context | Number of schools: 15  
Number of classrooms: 36  
Number of students: 900  
Geographical and division-specific sample of grade 4-12 students in a variety of programs and schools across our board |
| Impetus | Encouraging the use of personally-owned technology and applications  
Some other boards have launched “BYOD” programs or policies which has fuelled momentum for our project. Underfunding of base computer infrastructure at the board level has also driven this initiative. |
| Goals & Priorities | The desired impact of this pilot (ultimately) is to encourage the use of personally-owned technology across a wide variety of classrooms across our board students will learn to be more responsible and effective in their use of personal technology to enhance the classroom learning environment; a broader range of opportunities for differentiation and student engagement is provided; The goals include: increased student engagement and a wider range of instructional practices with technology in classrooms as well as increased opportunities for differentiation. By allowing students to bring personal devices to the classroom (within a continuum of implementation), and implementing strategies to support these devices both prior to and during the initiative, and where teachers are provided with a combination of co-planning, co-teaching and professional collaboration, then our goals will be achieved! |
| Theory of Action | The research focus for this initiative is to determine if the acceptance of personal devices in classrooms will lead to enhanced learning and improved access to technology If we allow students to bring personal devices to the classroom (within a continuum of implementation), and we implement strategies to support these devices both prior to and during the initiative, and teachers are provided with a combination of co-planning, co-teaching and professional collaboration, then our goals will be achieved |
| Standards and Targets | Standards evidenced.  
Target: Board goal (set June, 2012) to have 60% of classrooms embrace a Bring I.T. approach by 2015 |
| Phase of Change | December 2011, early stages of implementation |
| Assessment, Use of Data | Data is being collected to measure the impact on student engagement, and student outcomes.  
Data is being used to answer:  
Does allowing students to use their personally owned technology devices and applications support achievement and engagement? Is overall access to technology increased for all users as demand for board-provided technology is eased and augmented by personal devices? |
| Capacity Building in Teaching | At our kick-off session in December teachers shared the way their students were already using their own devices for learning. Teachers added 17 lessons to our ICT Classroom Activities database which is available to all teachers in the board. In addition, teachers identified which uses of technology they intend to implement with their students first. The document created to assist teachers in getting started with having students use their own devices in class is being used as a resource by other schools not involved formally with the project. |
| Leadership, Sustainability | Clear evidence of support from IT, Program staff, and Administration. Comprehensive system-wide initiative involving all partners in the process |
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported and effectively summarized in report.

Highlights of Key Findings/Results
- Willing participants in the Bring I.T. program tended to be schools which already had a greater baseline of technology present in the school.
- There was no significant policy difference between the classrooms/schools which participated in the pilot and those which did not at the outset of the pilot. By the end of the pilot, the policies in most classrooms/schools was largely unchanged except that there were significantly more “student self-regulated” approaches in the Bring I.T. participant schools than at the outset.
- There was a significant increase in the use of certain devices by the Bring I.T. schools as measured by percentage of respondents who reported usage per month of 3-5 times or more (79% of laptops, 68% of handheld devices versus 62%, 57%. The frequency of phone usage did not change significantly).
- There were significant increases in appropriate use of the devices (combination of “always”, “mostly” or “half and half” responses), not only when comparing willing to non-willing schools (at the outset), but also when comparing the participating schools at the end of the initiative vs. the outset.
  - Non-Participating Schools (Outset) 56%
  - Participating Schools (Outset) 66%
  - Participating Schools (Final) 93%
- At the end of the pilot, the following overall benefits were reported (combination of agree/strongly agree).
  - 95% of respondents from participating schools felt that student-owned devices contributed positively to learning in the classroom (up from 72% at the outset).
  - 79% of respondents from participating schools felt that Bring I.T. had helped students to become more responsible and effective in their use of personal technology.
  - 84% of respondents indicated that Bring I.T. had contributed toward a broader range of opportunities for differentiation and student engagement.
  - 80% of respondents indicated that Bring I.T. improved the overall access to technology at the school.
  - 86% of teacher respondents indicated that Bring I.T. positively changed their classroom practice.
- We observed that pilot participants were a willing minority, most teachers are neutral or negative on the idea of “Bring I.T.” but the survey data shows that (where appropriate strategies are followed), this trend can be reversed.

Highlights of Challenges and Unexpected Results
- Key challenges observed were:
  - inappropriate use and need for clear policy
  - inequity between schools in terms of what students can bring
  - helping staff understand positive/effective uses of the technology (based on solid pedagogy)
- Key benefits observed were:
  - immediate access to information and resources
  - increased access to ICT
  - students taking ownership of their learning
Additional Statements Made in the Report

Understanding the impact on schools of BYOD: We have not had any one school buy-in completely, but rather pockets of teachers in each school. Part of the discussion at our kick-off session related to communication with staff members who are not involved so they would understand what is happening and why, and to try to prevent the project from having a negative effect on other staff. (i.e., staff not involved in Bring I.T. having challenges with students expecting to use personal devices in their classes as well.)

Equity issues: The schools which initially expressed interest were mostly from demographically advantaged areas. Expanding the pilot to all types of schools is important to show that the concept of “Bring I.T.” can be scaled across the region. In order to do this, some Superintendents worked within their families of schools to identify additional participant schools.

Follow-up and Future Directions

Direction for future related work

- Continue to support schools in the implementation of student-owned technology by sharing the Bring I.T. document which guides implementation, and by sharing examples of successful programs which can be used as a model for other schools.

Implications for school board planning

- Develop a coherent and progressive regional policy (during 2012-13 school year) around student-owned devices that can be implemented by all schools.
- Address inequity concerns by implementing a +0-25% adjustment to base ICT allocations to schools which is inversely proportional to average income in the school’s boundaries.
- Revise and refine norms of acceptable use for more broad adoption and more appropriate use.
- Achieve board goal (set June, 2012) to have 60% of classrooms embrace a Bring I.T. approach by 2015.
**Hamilton-Wentworth Catholic District School Board**

<table>
<thead>
<tr>
<th><strong>Project Title</strong></th>
<th>iPads in Education</th>
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</thead>
<tbody>
<tr>
<td><strong>Brief Description</strong></td>
<td>Implementation of iPads as a teaching and learning device in three schools (two elementary/one secondary).</td>
</tr>
<tr>
<td><strong>Context</strong></td>
<td>Number of schools: 3 (2 elementary/1 secondary) Number of classrooms: 15 Number of students: 150 Grade 3, Grade 7-8, Grade 9 Applied English</td>
</tr>
<tr>
<td><strong>Impetus</strong></td>
<td>Board-wide initiative to have all schools with WiFi access; Introduction of Bring Your Own Device policy; Purchase of 3 iPad carts (30 iPads in each)</td>
</tr>
<tr>
<td><strong>Goals &amp; Priorities</strong></td>
<td>These devices will be used to enhance the integration of technology as an instructional tool and provide a tool that will support greater student engagement.</td>
</tr>
<tr>
<td><strong>Theory of Action</strong></td>
<td>This project will examine the possible impacts of tablet technology in the classroom in order to better inform future purchases of technology.</td>
</tr>
<tr>
<td><strong>Standards and Targets</strong></td>
<td>Standards evidenced, no identified targets</td>
</tr>
<tr>
<td><strong>Phase of Change</strong></td>
<td>Introduction fall 2011, First use began Dec 2011</td>
</tr>
<tr>
<td><strong>Assessment, Use of Data</strong></td>
<td>Data is being collected to measure the impact on student engagement, instructional practices, and student outcomes. Board did not have the capacity to conduct a more formal qualitative/quantitative evaluation of the use of the iPad in the classroom. At this time two researchers from Brock University and Fanshawe College approached one of the participating schools and made inquiries about conducting a research study of the impacts of an iPad infused classroom. This research proposal received approval from the Board’s research advisory committee and will take place in the 2012-2013 school year.</td>
</tr>
<tr>
<td><strong>Capacity Building in Teaching</strong></td>
<td>In-service training provided to staff</td>
</tr>
<tr>
<td><strong>Leadership, Sustainability</strong></td>
<td>Clear evidence of support from IT, Program staff, and Administration. Support from Apple Canada</td>
</tr>
</tbody>
</table>
Outcomes [Verbatim as submitted in the Final School Board Report, June 2012]

Summary of Data Collection
- Data reported and summarized in report with extensive additional data files provided.
- Full and extensive additional report also provided as appendix (including Report to Trustees, iPad Presentation, student samples).

The following Research Study has been approved by the HWCDSB by Investigators from Brock University and Fanshawe College.

Title of Study: “An iPad-Infused Classroom”

Description of Study: The purpose of this research is three-fold, to: (1) describe details of the use of iPads utilized for all students in one classroom; (2) clarify the perceived value of iPads utilized for all students in one classroom; and (3) examine the effectiveness of an iPad-based electronic scheduler for a student with Autism Spectrum Disorder (ASD)

Research Questions:
1. How are iPads being utilized in a Grade 3 classroom for the purpose of student instruction?
2. How often are iPads being used in a Grade 3 classroom for the purpose of student instruction?
3. What is the perception of the value of iPad use in the classroom community (i.e., students, staff, etc.)?
4. Is the use of an electronic scheduler (Autism Scheduler) effective in creating successful transitions across the day for a Grade 3 student with Autism Spectrum Disorder (ASD)?

Highlights of Key Findings/Results

Three high level findings from our participation in this project:
1. Participant teachers and principals all reported much greater levels of student engagement with their work when using the iPad.
2. Students reported greater engagement with their school work when using the iPads.
3. WiFi, Bring Your Own Device (BYOD) and increased use of personal digital technology is a viable direction for technology in the Board.

Highlights of Challenges and Unexpected Results

Originally it was viewed that the iPad carts could be shared amongst multiple classrooms. It became evident that these devices are intended to be in a 1:1 environment. This narrowed the pilot to fewer classrooms.

The largest single unintended consequence as a result of this iPad project has been a dramatic increase in the number of requests from schools to purchase iPads and be involved in using these devices in instruction.

Additional Statements Made in the Report

Given the proliferation of personal digital devices and increasingly ubiquitous WiFi access, we are likely entering, or are currently in, the post-PC world that many commentators on technological advances have suggested. Students will increasingly use personal digital devices (such as the iPad) as their main source of digital information and connectivity to the digital world. In addition with increasing demand for Bring Your Own Device (BYOD) opportunities.

At the introduction, and throughout much of the project, the iPad was a brand new tool in the classroom. Within the Board there were no administrative iPads so there were no program supports and even minimal support available from Information & Communication Technology personnel. The teachers involved in this project, out of necessity, had to create a learning community amongst themselves.

The iPad (and other personal digital devices) are designed to be personal devices (i.e., unlike a traditional classroom computer that is shared by many students the iPad is for one person). Given budget constraints getting to a 1:1 iPad school is very challenging. File sharing material created on the iPad to other classmates, the teacher etc. continues to
be a challenge. Third-party solutions (e.g., cloud computing: DropBox, FirstClass, Google Apps etc.) provide a non-
secure method for sharing and transferring student materials.

Traditionally the HWCDSB has had a very standardized technological environment. The infrastructure of the school
board has traditionally focused on PC computers and all hardware purchases had to be from a pre-approved list.
This level of standardization has: i) led to a very secure environment, ii) resulted in easier and lower cost for support
and maintenance calls, and iii) has made teacher professional development easier as all teachers were working on
standard equipment.

This project came at a time when this level of standardization was being re-examined. The iPads were the first non-PC
material allowed into the environment. The project also coincided with the introduction of WiFi in our schools (the
project schools were the first to have WiFi access). While this project allowed us to examine the impact of a tablet
computer within the classroom and the impacts tablets have on engagement and learning for students it also was
the initial examination of a Bring Your Own Device (BYOD) opportunity for our staff and students.

Follow-up and Future Directions

Direction for future related work

- Despite budget limitations and cutbacks to funding for computer technology the Board of Trustees of the HWCDSB
  has strongly supported the use and expansion of technology and computer use in the classroom. This project will
  continue and expand within the two pilot schools and out to more elementary and secondary schools in the 2012-
  2013 school year.

Implications for school board planning

- These devices became the test case for BYOD. This project came at a time when this level of standardization was
  being re-examined. Reports from the school regarding ease of use, increased levels of student engagement and
  positive reports from the students all suggest that it is worthwhile to continue to pursue this type of technology in
  the classroom.
- As a result of participation in this project and the recognition that there will be an ever increasing need to allow
  more personal digital devices in the school and the classroom, a new Board policy is being developed. The report
  includes the Board Policy related to the use of digital devices.
<table>
<thead>
<tr>
<th>Project Title</th>
<th>Digital Citizenship: Living, Learning and Leading in Digital Spaces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief Description</td>
<td>HWDSB’s pilot project has a working title of <em>Digital Citizenship: Living, Learning and Leading in Online Spaces</em> and focuses on what it means to be an ethical, socially responsible citizen on the internet and in today’s digital world.</td>
</tr>
</tbody>
</table>
| Context | Number of schools: 15  
Number of classrooms: 15  
Number of students: 436  
The pilot is focused on grade 4 – 6 students (grades 7-12 in year 2) |
| Impetus | Increasing number of requests from principals for presentations re: digital citizenship with a focus on grade 4 – 6 (as well as leading into grades 7 – 12 in year two)  
Our preliminary work with the HWDSB Commons, board-provisioned collaboration and blogging learning space, highlighted the need for a focus on digital citizenship. The initial need that triggered this project was one reacting to how the inappropriate use of Digital Tools was having an adverse effect on the learning environment. The resources born out of this project are intended to proactively influence how technology is utilized in learning environments, and help start the conversation around how technology can influence the learning environment in negative ways when an appropriate understanding of what it means to be a good citizen in the digital world is not taught and understood. |
| Goals & Priorities | This pilot will also inform and guide our 21st Learning Policy development which is in progress this year. The overall goals are to educate, engage and empower students to be active, ethical and responsible digital citizens reflecting in an ongoing way how they participate and contribute in our digital world The project is intended to impact student outcomes related to inquiry-based learning, collaboration and communication and have a positive impact on student engagement as students will be partners in the conversations about the five core themes: participation, identity, privacy, credibility, authorship and ownership.  
Key Questions:  
- What Do You Know About Digital Citizenship?  
- How Are Your Teachers in Your School Going to Learn About Digital Citizenship?  
- How Are Your Students in Your School Going to Learn About Digital Citizenship?  
- How Are Your Parents Going to Learn About Digital Citizenship? |
| Theory of Action | Systemic focus in grade 4 – 6 where Digital Citizenship becomes a part of our school culture and the lessons are not delivered in isolation but integrated as appropriate to the learning task in a relevant. How do you inspire, drive and lead staff to ensure that learning conditions create, promote and sustain a digital-age learning culture that is relevant, engaging and connected to the real-world? |
| Standards and Targets | Standards evidenced |
| Phase of Change | Implementation began Fall 2011 |
| Assessment, Use of Data | Data is being collected to measure the impact on student engagement.  
Students can articulate the importance of personal responsibility for online ethical participation  
Students reflect on how to be a good citizen in a world where the on-line environment is just as important as the on-ground environment |
| Capacity Building in Teaching | A team of teachers and consultants will develop a toolkit that offers choice in rich, diverse lessons around five core themes. The students will learn alongside with staff (teachers, principals, support staff) how we all need to think habitually about online life in ethical terms develop a toolkit of activities / lessons based on the five core themes where educators can choose the most appropriate lessons. |
| Leadership, Sustainability | Clear evidence of support from IT, Program staff, and Administration. Additions to the project meant to reach parents / community as well as P/VPs and staff in terms of their learning and participation as citizens in the digital world. Session offered: “Parent Engagement & Digital Citizenship” There is a focus on working with the leaders (principals / vice-principals) in each of the schools discussing how Digital Citizenship is a part of school culture and weaved into the Learning Skills and Character Education in the day to day learning and teaching in the school. School-based requests from Principals to 21st Century Fluencies principal & consultants for presentations on digital citizenship to specific grades and classes Scenario-based learning session with 60 principals / vice-principals Engagement of 30 parents in the process and 12 Community Partners (nurses, City of Hamilton employees...) |
Outcomes *(Verbatim as submitted in the Final School Board Report, June 2012)*

Summary of Data Collection
- Data summarized in report with additional data files provided.
- A comprehensive and extensive resource document/Wiki, Digital Citizenship Toolkit, (approx. 150 pages) has been developed by HWDSB as a result of this project.

Highlights of Key Findings/Results
It is clear that teachers and parents are looking for guidance and coaching in Digital Citizenship. It is important to note that Digital Citizenship is best taught in an embedded real way and not as an aside or add on.

Digital Citizenship connects to character education, (e.g., ‘netiquette,’ bullying) and how we should present online. Digital Citizenship is learning for all - students, staff and parents.

Highlights of Challenges and Unexpected Results
Understanding of what it means to be a positive digital citizen is hindering adoption. Before teachers can teach the topic, they need to be mindful of the need to teach the topic. Change takes time, and this too will take some time. Teachers are slowly realizing, with more and more technology within their classrooms, that they need to be teaching the students how to properly use the equipment in an ethical manner.

The original CODE submission involved a peer mediation approach to digital citizenship where intermediate/senior students would mentor younger students on digital citizenship similar to WECDSB’s initiative, “Getting Along Digitally.” However, we quickly realized that we didn’t necessarily have the foundational knowledge of digital citizenship across our system. We then determined that a digital citizenship toolkit that could be accessed /implemented/owned by teachers and principals would be the most logical and effective strategy to begin with.

Additional Statements Made in the Report
This project acts as a bridge to bring together the gulf between teachers that "buy in" for the need to teach these concepts and those who don't. Teachers who are reluctant to move forward due to concerns about student behaviour have now been provided a series of lessons to help guide them with bringing forward the teaching of Digital Citizenship in an integrated way. Many teachers felt that there was a tremendous need for our project, but never really understood how to get started with teaching Digital Citizenship. The field testing of the lessons allowed them to learn about the different lessons that will be available to them, and will allow them to start embedding digital citizenship into their programs.

Our social, technological and educational landscapes are quickly and dramatically changing. They are becoming so embedded within one another that it is important to accept and educate our students about the things they themselves are engaged in all while promoting good citizenship across the board.

This project helps start the conversation within classrooms around the teaching required once technology integration begins within a learning space. The board’s focus on Achievement is recognized when we teach students how to appropriately utilize tools that enhance their learning space when used purposefully. The board’s focus on Engagement is recognized when teachers feel comfortable integrating technology, taking their teaching practice out into the World Wide Web, and creating learning tasks that are authentic, connected to the real world, and that meet the students’ interests. The board’s focus on Equity is recognized when a comfort level about interacting on the internet leads teachers and students to an understand the options available to them to differentiate learning tasks, and where all students have access to digital tools out of virtue of teacher comfort level, and better understanding from a student level of what appropriate, acceptable use looks like. *The Digital Citizenship Toolkit* will be a proactive and responsive strategy that will support blended learning.
Follow-up and Future Directions

Direction for future related work

- Yes, the project will continue into 2012 – 2013 school year with a communication plan, in-service plan (learning session & job-embedded) and DIY learning in our collaboration space called HWDSB Commons.

Implications for school board planning

- This project will very much inform the HWDSB 21st Century Learning and Technology Policy connected to the Digital Citizenship focus:
  - HWDSB believes that citizenship in the 21st Century has a digital dimension where there are long-lasting implications to how one participates and contributes online. Digital citizenship is a key component to creating the conditions of a respectful working and learning environment and includes responsible and safe personal conduct within the online environment
  - Share with all principals and vice-principals in early September 2012.
  - Examine how this resource can be adapted to younger grades. How can digital citizenship be addressed in the primary grades?
### Project Title
Cast Your Net

### Brief Description
Our “Cast Your Net” initiative is intended to provide mentorship for all students in their use of social media and technology.

### Context
- Number of schools: 18
- Number of classrooms: 715
- Number of students: 4500 (grades 1 to 12)

### Impetus
Huron-Perth Catholic District School Board believes that a glaring need exists to mentor all our students in the world of social media, both in and beyond the school walls.

### Goals & Priorities
Our 21st Century Learning Committee has developed a blueprint for the implementation of 21st Century teaching and learning strategies to support and enhance Catholic education in the Huron-Perth Catholic District School Board. Our goal is to create greater awareness of social media and other forms of electronic communication by students, teachers, and parents, to ensure appropriate educational use of these technologies in our Catholic schools.

### Theory of Action
We believe that social media can serve as the ultimate toolkit for the teacher to differentiate curriculum. Research has led us to conclude that use of social media and web tools in the classroom offers significant advantages to students and teachers. Students can be linked and a personal network can be created, where a child’s interests, abilities and limits, are taken into consideration to create the “most suitable” education for all.

### Standards and Targets
All students received instruction on Ethical and Responsible Use of Information and Communication Technology during the week of April 10 to 13. As well, a Board-wide Catholic Student Leadership Forum was held on February 28, designed to promote and communicate the Student Voice in the use of Social Media in our schools.

### Phase of Change
Feb 2012 start
Initial stage has been completed

### Assessment, Use of Data
Data is being collected to measure the impact on instructional practices. Observed: teachers using social media and digital mentoring in their instructional practices. Students using social media in the classroom, as a part of project-based learning. Number of teachers that have been trained.

### Capacity Building in Teaching
Teachers and parents need to have the necessary training and exposure to new technologies in order to be in an appropriate position to fulfill the mentoring role of our digital youth. Professional Development will be provided on Ethical and Responsible Use of Information and Communication Technology. Teachers will be supported to teach their students how to use digital communication ethically and responsibly, for educational purposes.

### Leadership, Sustainability
Clear evidence of support from Program staff and Administration.
We are working with the Catholic Curriculum Corporation, OPHEA, and the Ministry of Education.
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported.
- We gathered all classes’ contributions to the Create Our Board’s AUP (Acceptable Use Policy) for ICT.
- We solicited feedback from teaching staff, principals, and parents.

Highlights of Key Findings/Results
- Students use social media with little or no mentorship from the adults in their lives. We believe that we have begun the conversation with all stakeholders in our system into how we can begin and continue to mentor all of our students in their digital lives.
- Parents and teachers are very interested in how they can mentor students and expressed gratitude for the training resources we provided.

Highlights of Challenges and Unexpected Results
- Overcoming “fear” of social media within both the teaching and parent communities.
- Inadequate skills in teaching staff – all materials were made available to teachers in a variety of easy to download ways so that they could use any format to deliver the training, including but not limited to, paper-based presentation and discussion.

Additional Statements Made in the Report
- Implementation of CCC’s “qualifying” units in all classrooms enabled principals to confirm, on behalf of their staff, that all students have been taught “Responsible Digital Citizenship” based on the OCGE’s.
- With this confirmation, internet access in the school will be “opened up” to personal devices, without password, to the extent that our bandwidth will allow.

Follow-up and Future Directions
Directory for future related work
- Complete and implement the AUP on all system computers used by students.
- Consider annual CYN training and resource development.
- Present our work at Canadian Association of School Administrators, at Educational Computing Organization of Ontario, and When Faith Meets Pedagogy.
<table>
<thead>
<tr>
<th>Project Title</th>
<th>Use of a Learning Management System (Blended Learning) within Secondary Programming</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief Description</td>
<td>Provided in a face-to-face classroom environment, the Learning Management System (LMS) will act as a web portal for students and teachers. This model of instruction has recently been referred as Blended Learning.</td>
</tr>
</tbody>
</table>
| Context | Number of schools: 2 (secondary) Number of classrooms: 20  
Number of students: 400 (grades 9 – 12)  
Secondary English, Math and Social Science programming |
| Impetus | There are three motivating factors identified at our board: Limited use the Learning Management System  
Laptop programming (present “Laptop Program” involves only a small number of students (mostly high achieving).  
Board wide Professional Activity session on “21st Century Learner Digital Learner” presented by Ian Jukes |
| Goals & Priorities | The use of the LMS is essential, as the following benefits may be provided to our students:  
Differentiated instruction provides learning opportunities for the different types of learners within our classroom and during after-school hours.  
Students may become more engaged in their learning.  
The LMS can provide students with immediate feedback.  
Students may be more motivated to edit/revise work before peer review.  
Using the LMS may facilitate student led discussion.  
Parents can be more actively engaged in the learning activities of their child. |
| Theory of Action | Blended learning is a model of differentiated instruction that employs online tools within a “face-to-face” classroom environment. The LMS will contain the tools that are essential in creating an online learning environment |
| Standards and Targets | Standards evidenced, no identified targets |
| Phase of Change | Most implementation started Feb 2012 |
| Assessment, Use of Data | Data is being collected to measure the impact on student engagement and instructional practices.  
Student Engagement  
Are digital learners familiar, comfortable and interested in the use of online environments?  
Instructional Practices  
Does LMS provide additional instructional strategies to teachers? |
| Capacity Building in Teaching | Initial training session with teacher involved in the pilot project:  
The initial training will provide teachers with an understanding of the tools.  
Continued classroom-embedded training:  
The classroom embedded training/coaching will provide teachers personalized one-on-one training and support on the LMS.  
Post-training session:  
The post-training session will provide an opportunity for teachers to share their experiences and best practices. |
| Leadership, Sustainability | Clear evidence of support from IT, Program staff, and Administration.  
The eLearning Contact position has been funded by the Ministry of Education. |
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection

- Data reported.
- Data summarized professionally in report.

Data collection focussed on three areas:

- Teacher survey on the use of technology within their classrooms.
- Data collection tools within the LMS have provided our board with user statistics.
- Teacher survey conducted to provide some feedback on their experiences.

Highlights of Key Findings/Results

Overall, most secondary teachers are comfortable with allowing students to bring in their own laptop computers or other devices. Furthermore, most teachers feel that integrating technology into the classroom may improve student achievement. As per personal growth and development, a majority of teachers plan to explore and implement new technologies within their classrooms.

Overall the number of users on the LMS has increased; this is true among teachers and students. It should be noted that ‘Number of Teachers logged in’ includes those who have logged in during training sessions.

Teacher respondents to the survey indicate they find using the LMS to be beneficial in classroom instruction and in preparations for instruction. All respondents found the training and support to beneficial in their integration of the LMS. Furthermore, all respondents strongly agree or agree that by integrating the LMS into their classroom, they have noticed an increase in: quality of student work, student independence, student engagement and student motivation.

Highlights of Challenges and Unexpected Results

One of the early challenges experienced by teachers, and a challenge that continues to be addressed, is the lack of computers for student and teacher use. In some schools teachers have found access to computers to be limited, as all teachers have used the infrastructure heavily. Allowing students to use their personal devices, including mobile devices and computers, has overcome the challenge for some teachers. However, the mobile devices do not provide the level of interaction as one would experience on a personal computer.

In the initial stage of implementation of the LMS/Blended Learning, there was a lack understanding and awareness of the Blended Learning and the Learning Management System.

The time to train teachers on the LMS was also noted as a challenge to our board. This was overcome by providing release time to interested teachers to attend training sessions.

Additional Statements Made in the Report

Unintended results include the growth in the use of the LMS by teachers at the intermediate and senior levels. Teachers have embraced the technology and for some there has been a shift on their view on the use of technology in education. This had led to a ‘cultural’ shift towards increased use of technology and for many the realization of the benefits of technology.

- Teachers are finding that students who are absent for extended periods of time are able to access course materials.
- The use of multi-media learning objects through ministry provided content provides instructional resources to students to review materials as needed.
- Teachers are providing homework solutions through the LMS, therefore, less time is required to review the solutions during classroom time.
It is felt that the use of the LMS has aligned education and technology with the expectations of today’s students. By integrating an LMS into classroom instructions, students have access to their education in a variety of mediums, virtually anywhere in the world and at any time of the day.

**Follow-up and Future Directions**

*Direction for future related work*

- Expand usage of the LMS.
- Use of the LMS in junior and primary divisions.
- Identify programs they may benefit through the use of the LMS.
- Development of Teacher Networks.
<table>
<thead>
<tr>
<th>Project Title</th>
<th>Supporting Innovative Teaching Practice with Interactive White Boards and one to one Netbooks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief Description</td>
<td>Within the 3 pilot schools, we have provided interactive whiteboard technology in each instructional space, laptop and desk docking for all teachers, mobile netbook labs for Early Learning to Grade 4 students (shared) and netbooks for each individual student grade 5 through 8.</td>
</tr>
</tbody>
</table>
| Context | Number of schools: 3 elementary schools  
Number of classrooms: approx. 45  
Number of students: 1100  
All students and teachers Early Learning to Grade 8 in each of the three schools |
| Impetus | We had already begun a process around 21st Century learning in 2010-11 |
| Goals & Priorities | We are trying to create an understandable link between digital tools and relevance for students and teachers. The pilot schools are focused using technology as an additional lever to impact student learning in the areas of critical thinking, collaboration and communication. Technology also provides a creative medium for student work and allows students additional opportunities to demonstrate achievement of curriculum expectations. |
| Theory of Action | Our initiative is designed to allow opportunities for all teachers in the three pilot schools to effectively embed interactive whiteboard and one-one technology to improve student engagement and achievement. We are hoping to achieve significant progress in embedding technology effectively into instruction to help meet the goals of our Board Strategic Improvement Plan. This will assist us in decision making and moving forward with the initiative across other schools in our Board. |
| Standards and Targets | Standards evidenced, no identified targets |
| Phase of Change | Started implementation fall 2011 |
| Assessment, Use of Data | Data is being collected to measure the impact on student engagement, instructional practices, and student outcomes. We have received permission from EQAO to conduct our grade six assessments in these schools using technology for all students completing the test. We have also designed some survey instruments to capture before, during and after perceptual data from students, teachers, parents and caregivers and IT staff. At present, we are looking at some basic achievement indicators coming from school year end report cards and will report to trustees again in the Fall. |
| Capacity Building in Teaching | Professional learning opportunities are designed to improve teacher fluency in the use of digital tools to improve student learning. Teachers are supported by a 0.5 FTE technology support teacher each school, who also has a 0.5 teaching timetable at the same school. |
| Leadership, Sustainability | Clear evidence of support from IT and Administration. There are financial resources to support both teachers and their school leaders. School leaders in the three pilot schools are also beginning work in evaluating the impact of this work on parent engagement and school operations. The IT manager and staff are involved in supporting this work from a hardware perspective at the at the school level. Contained in our plan is administrative and staff supports for technology for special needs students, senior staff are members of Board steering committee that oversees this work. Thoughts around e curriculum, blended e learning and so on helped create early partnership work with Pearson Strategic Partnerships, Apple Canada (Education). |
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported.
- Full and extensive additional reports also provided as appendix. PowerPoint presentation was also provided.
- Initial quantitative study is expected to be completed over the summer of 2012. A preliminary report was available at the end of March and a final report by the middle of July. This study will look at student achievement data and a variety of other qualitative indicators to measure improvements in engagement of students and teachers, as well as examining student achievement improvements.

Highlights of Key Findings/Results
At present, we are looking at some basic achievement indicators coming from school year end report cards and will report to trustees again in the Fall. This report can be made available when completed.
- Technology must be viewed as a further vehicle/additional tool to reach the broader student achievement goals within schools as per the Board Strategic Improvement Plan and School Improvement Plans. It needs to be completely integrated into the instructional learning agenda.
- Teachers and students have various entry points and require appropriate levels of coaching and support.
- Embedding technology changes the role of IT within the historical board context.
- Principals, as lead learners, are often on the same teacher journey with this work.
- There is huge potential to impact student learning via instruction in using technology for formative assessment, supporting differentiation for students, personalizing instruction.
- Technology (when supplied to all) helps level the socio economic/demographic playing field and provides additional equity for all students and teachers.
- Inclusiveness for Special Education students as all students are now using similar technology.

Highlights of Challenges and Unexpected Results
- The work changes the historical role of IT within the Board from supporting Board operations and school labs to supporting a real time mobile learning environment for all stakeholders. It was necessary to ensure that continual and consistent messaging around the linkage of this work to furthering the broader goals around student achievement within the context of the Board Strategic Improvement Plan is made within schools, school communities and within the Board itself.
- The expenditures required to support a scaled-up technology environment require discussions within the Board around changing the “ways” that business is traditionally done. In this sense we have learned that there are transformative aspects to the work that bring challenges around change in a variety of contexts.

Additional Statements Made in the Report
- Early successes of the work are evidenced by the level of both staff and student engagement. There was clearly a level of excitement created and early anecdotal survey work that indicates that an overwhelming number of students, parents and teachers are excited about the work and see that it brings both relevance and change to existing practises.
- Meeting teachers at their entry point was crucial in developing the relationship necessary for tech support teachers to further their skills as the work moved quickly from early technical support to supporting instruction with embedded technology.
- The netbook, used by junior and intermediate students, is an effective tool to expand student learning and engagement with web-based applications, software and communication devices. At the primary level, our youngest learners benefit greatly from touch-capability, which is appropriate for this stage of development.
- Desktop computers labs will be phased out over time except in circumstances where they are deemed necessary and a better alternative to netbooks and tablets.
Many parents also felt that their child knows a lot more than they do when it comes to trouble shooting technology issues and could navigate far more effectively than the parent. In general, they indicated that technology in school is a positive and necessary requirement for the future, whichever road their child may choose.

Tablet technology was identified by primary teachers as a preferred hardware platform for younger students.

Follow-up and Future Directions

Direction for future related work

- 2012-13 - we will be moving forward to further develop, clarify and communicate 21st Century learning goals for all stakeholders.

Implications for school board planning

- Trustees approved a further expansion of a technology-enhanced learning plan within the Board. Beginning in 2012-13 we will implement a broader 21 Century Learning Plan across all grades and schools in the Board.
Lakehead District School Board

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Increasing Student Engagement and Teacher Efficacy through Innovative Practice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brief Description</td>
<td>All grade 1-8 classrooms in the board have been equipped with an interactive whiteboard. The project is focused on training teachers to utilize this technology.</td>
</tr>
</tbody>
</table>
| Context             | Number of schools: 25 Schools  
Number of classrooms: 150 classrooms  
Number of students: 2000 (Grades 1 to 8) |
| Impetus             | The decision to move forward with interactive whiteboard technology in all elementary classrooms was made after significant research and stakeholder input. |
| Goals & Priorities  | The technology is essential to the project as it is the means by which teacher practice will change to include integration of educational technologies. Interactive whiteboards represent a technology that is intuitive, user-friendly, and affordable over the long-term. There will always be a need for projection and sound in our classrooms, and the interactivity greatly increases student interest and engagement. |
| Theory of Action    | It represents the “first step” many teachers will take to engage students with IT and thereby make learning meaningful and relevant to their students. We are cognisant of the fact that technology alone does not directly impact student achievement, but we are equally aware that technology engages students. We are taking the approach that by introducing engaging technology in our classrooms and combining it with significant investment in teacher training and development; we will thereby improve student achievement. There was an intended focus on Literacy. |
| Standards and Targets | Standards evidenced, no identified targets |
| Phase of Change     | No specific dates identified but training began Spring 2012 |
| Assessment, Use of Data | Data is being collected to measure the impact on student engagement and instructional practices.  
Increase student engagement in all areas of instruction, with a particular focus on literacy.  
Improve teacher efficacy with respect to research-based literacy practices.  
Increase the use of resources that are current, engaging and relevant to students.  
Training occurred in 3 half day sessions. Teachers were surveyed pre and post training to record their confidence with, efficacy and use of the interactive white board. |
| Capacity Building in Teaching | Training will begin with Smart Board and Notebook basics, but will then move to sessions that are more content-focused, blending technology and effective literacy pedagogy. |
| Leadership, Sustainability | No specific references |
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported.
- Additional data files provided.

Highlights of Key Findings/Results
- A significant increase in teacher confidence in using the interactive whiteboard (92 percent increase).
- A significant increase in student use interaction and engagement with the interactive whiteboard (107 percent increase).
- A significant increase in student and teacher co-learning (70 percent increase).

Highlights of Challenges and Unexpected Results
- Some teacher’s technical knowledge presented considerable challenges beyond starting with use of an interactive whiteboard. Often non-instructional topics had to be confronted early or through pre-training (e.g., login information, email, file management).

Sample Comments from Participants
- Technology helps me reach students in a way that they respond to best.
- If you are NOT using technology, you are NOT helping your students to the best of your ability.
  The resources you have provided us to help with literacy are amazing.
- I’m looking forward to including more tech in my classroom! I do find it overwhelming but the training has helped.

Follow-up and Future Directions
Direction for future related work
- Mentor staff on the effective use of IT to support student success, student engagement as well as effective assessment and evaluation practices.
- Assist staff in the move to 21st Century teaching technologies and blended learning, emphasizing communication, collaboration, creativity, problem solving, critical thinking and digital literacy.
Near North District School Board

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Blended Learning</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief Description</strong></td>
<td>The NNDSB Teaching and Learning in a Digital World initiative will develop a series of web-based diagnostic math activities designed to increase student engagement and improve student achievement, credit accumulation and EQAO results.</td>
</tr>
<tr>
<td><strong>Context</strong></td>
<td>Number of schools: 13 schools Number of classrooms: 15 classrooms Number of students: 300 (Grades 7 to 12)</td>
</tr>
<tr>
<td><strong>Impetus</strong></td>
<td>The success of previous blended learning pilot has inspired the strategic use of the LMS System to support student success in mathematics,</td>
</tr>
<tr>
<td><strong>Goals &amp; Priorities</strong></td>
<td>Goal: Improve Grade 9 Applied level achievement in mathematics. The NNDSB is motivated to improve engagement, achievement and credit accumulation in Grade 9 Applied Mathematics and EQAO results across the grade 9 cohort. Create diagnostic tools in the LMS to identify gaps prior to reporting periods and EQAO, Grade 9 Mathematics testing Develop strategies to help teachers to close the gaps Make interactive, cross-mediated and differentiated resources universally accessible to all students, parents and teachers Build Capacity within teachers to employ the Blended Learning tools to engage learners and improve achievement</td>
</tr>
<tr>
<td><strong>Theory of Action</strong></td>
<td>Teachers have begun to think strategically about how they could use the learning management system to improve student achievement. One of the key features of the LMS is its ability to render specific data related to student achievement. The progress tool enables teachers to monitor student participation, time spent reading specific content, responses to open-ended questions posted in the discussion forum, or quiz responses that indicate individual knowledge and understanding related to specific curriculum expectations.</td>
</tr>
<tr>
<td><strong>Standards and Targets</strong></td>
<td>A comprehensive multi-stage process with clear targets has been established by the action team.</td>
</tr>
<tr>
<td><strong>Phase of Change</strong></td>
<td>Project builds effectively on previous efforts and experiences with blended learning.</td>
</tr>
<tr>
<td><strong>Assessment, Use of Data</strong></td>
<td>Data is being collected to measure the impact on student engagement, instructional practices, and student outcomes. Teachers will use the data generated by the diagnostic assessments to inform planning, differentiate instruction and align teaching and learning resources with individual student needs. Data has been extensive and well planned, and will be used to inform each and all steps of process.</td>
</tr>
<tr>
<td><strong>Capacity Building in Teaching</strong></td>
<td>Teachers are central to all stages of the project through training, providing input, and sharing learning and experiences with colleagues.</td>
</tr>
<tr>
<td><strong>Leadership, Sustainability</strong></td>
<td>Clear evidence of support from IT, Program staff, and Administration. Central staff and administrators will use the LMS to generate diagnostic data, inform instruction and strategically employ math resources.</td>
</tr>
</tbody>
</table>
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported.
- Data summarized in an extensive and comprehensive report.

Highlights of Key Findings/Results
- Students responded positively to using the technology to access math resources/diagnostic activities.
- The Playbook tablets were very effective when they were paired with a dedicated/secured WiFi access point.
- Student engagement seemed to be enhanced. Although students did not indicate they would like to access the resources from home (51% disagreed or strongly disagreed), 47% agreed or strongly agreed they would like to access the resources again in class. An additional 39% of students indicated “neutral.”
- There is a substantial learning curve when students have to learn to use new hardware/software (tablets) and the LMS. Some students expressed a preference for accessing the resources from a desktop or laptop device.
- Teachers responded positively, though it remains to be seen if they would undertake this without the same in-class support. During video interviews, teachers repeatedly expressed/emphasized the value of the tech integration coaches.
- Teachers require additional support to adjust their teaching strategies or target individual student needs based on the data from the LMS quizzes. Evidence-based instructional strategies will continue to be a professional learning focus for cross-panel math teams and math PLTs.
- Having supports available within the quizzes (hints, help videos, etc.) were a key component. Although not all students used them, those that did were able to access resources quickly, without feeling vulnerable, and worked at their own pace.

Highlights of Challenges and Unexpected Results
- Teachers attempting to have all of their students access the LMS synchronously often struggled to do so. In some cases WiFi infrastructure was inconsistent. In others instances, it was often difficult to access/reserve a computer lab. One teacher planned to utilize iPod Touches to enable the students to individually login and navigate online learning modules. Unfortunately, the ministry developed interactive learning content requires Adobe Flash Player, not compatible with iPods. However, the iPods, and subsequently iPads, were an effective means to access the online tools, e.g., discussions, static content, quizzes.
- Using the RIM Playbooks as the technology tool for answering questions at times did pose some problems as well. We found that some of the content (videos in particular) were too large and took too much time to deploy. Students would sometimes get frustrated over the time it would take to watch a video and then get “turned off.” This led us to believe that we needed to really minimize the size and time of videos. In the future, keeping videos short, concise and to the point will be the focus.
- Another challenge has been the inconsistency of network infrastructure from school to school. Although we have grouped each class set of Playbooks with a wireless router, there have been issues with connecting this router to the wired network due to disconnected network ports, etc. This is an issue that can be fixed relatively easily once identified, but can cause significant “headaches” for students and teachers at the time.
- We also need to develop strategies to effectively engage students and parents to access resources at home.
- Parents need to be informed that this diagnostic work is taking place, and then access their child’s results at home.
**Additional Statements Made in the Report**

- Teachers really bought into this project. They saw first-hand student engagement and success. Students were encouraged to use the on-line help resources (videos, steps for solving, interactive objects) if they were having difficulty answering a question, thus “empowering” them to discover and take control over their own learning.
- Students saw they were able to achieve success and it really boosted their confidence. At first students would walk into the room without a smile, but at the end of the sessions I saw students walking out with a smile on their face. They had achieved success, on their own. They felt good about themselves.
- In most cases, blended learning classes at the Near North District School Board do not provide a student/computer ratio of 1:1. Most blended learning classrooms are closer to a 2:1 - 3:1 student to computer ratio. Interestingly, our blended learning teachers have turned this challenge into an opportunity, implementing differentiated instruction strategies such as short-term flexible groupings, strategically pairing student strengths and weaknesses. Some teachers have suggested that they prefer this model because it enables students to benefit from peer-to-peer discussion and problem solving.

**Follow-up and Future Directions**

*Direction for future related work*

- Work with teachers who are less confident with technology. Some teachers only began to gain an understanding and confidence using the technology near the end of the school year.
- Build teacher capacity to respond to the data from the diagnostic assessments using appropriate evidence based instructional strategies and gap closing tools/resources.
- Continue building capacity in Student Success teachers/teams to use the LMS diagnostic tools to support grade 9 math students.

*Implications for school board planning*

- Work with NNDSB IT to improve network infrastructure in certain schools where tablet technology failed to work effectively due to network issues.
- Explore avenues to ensure that ALL schools have access to the technology and technical support required to implement the diagnostic assessments.
Niagara (District School Board of Niagara)

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Innovative Teaching Practices</th>
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</thead>
<tbody>
<tr>
<td>Brief Description</td>
<td>To determine to what extent does an evidence-based protocol customized for Niagara’s culture and context impact teachers’ skills, attitudes and instruction practices around the purposeful use of technology. How does the use of a laptop, LCD projector and Student response systems help students’ engagement, conceptual understanding of math.</td>
</tr>
<tr>
<td>Context</td>
<td>Number of schools: 5 Schools</td>
</tr>
<tr>
<td></td>
<td>Number of classrooms: 10 grade 9 math classes. Number of students: 300</td>
</tr>
<tr>
<td></td>
<td>Grade 9 math students (academic, applied and locally developed) in 10 classes at 5 schools.</td>
</tr>
<tr>
<td>Impetus</td>
<td>DSBN, like many districts in Ontario, understands that success in mathematics is a key indicator of likelihood of high school graduation. Improving the confidence, work ethic, engagement and interest in Applied Mathematics for struggling students can contribute to more students meeting provincial standard in mathematics and contribute to higher graduation rates.</td>
</tr>
<tr>
<td>Goals &amp; Priorities</td>
<td>The single most important goal of this action research project is to help teachers personalize learning for the purpose of impacting student achievement. Student achievement is measured not just by the EQAO scores but also by a student’s ability to develop higher order thinking skills (such as collaboration, creativity) and the ability to applying their new learning meaningfully to real life situations.</td>
</tr>
<tr>
<td>Theory of Action</td>
<td>The purpose of this action research project is to determine the sustainable and scalable professional learning protocols, structures and processes required to empower teachers as they design, introduce and support technology rich learning environments for the purposes of increasing student engagement, supporting different learning styles and impacting student achievement. Our team believes that technology is powerful learning tool to enable both the personalization of learning and the skills of collaboration, higher order thinking skills and creativity.</td>
</tr>
<tr>
<td>Standards and Targets</td>
<td>Standards evidenced, no identified targets</td>
</tr>
<tr>
<td>Phase of Change</td>
<td>December 2011 start</td>
</tr>
<tr>
<td>Assessment, Use of Data</td>
<td>Data is being collected to measure the impact on student engagement, instructional practices, and student outcomes</td>
</tr>
<tr>
<td></td>
<td>Comprehensive set of data points and tools are established for measurement. Once this protocol is deemed effective in changing teacher practise and student achievement, this professional learning model will be rolled out to other grade 9 math teachers in the district. The findings will impact professional learning models for other subjects &amp; grades within board. Data planning and collection is a central focus of the project.</td>
</tr>
<tr>
<td>Capacity Building in Teaching</td>
<td>Each project teacher continues to implement technology as an instructional strategy on an ongoing basis throughout the semester as planned, with the support of teacher site partner, colleagues in the project, DSBN Curriculum team and technology support team.</td>
</tr>
<tr>
<td>Leadership, Sustainability</td>
<td>Clear evidence of support from IT, Program staff, and Administration. The District School Board of Niagara is working in partnership with Pearson Canada to build, activate and measure the impact of this professional learning model. Pearson conducted extensive research into the evidence based and is connecting the district with credible researchers in this field from OISE.</td>
</tr>
</tbody>
</table>
Outcomes *(Verbatim as submitted in the Final School Board Report, June 2012)*

**Summary of Data Collection**
- Data reported.
- Data summarized in report with additional data files provided.
- Extensive additional reports provided as appendices with thoughtful analysis.

**Highlights of Key Findings/Results**
- Technology is critical in creating a differentiated learning environment and for helping students to become more responsible in their learning. Developing the ability to learn independently is key to improving student achievement and in helping students become lifelong learners.
- Change in teacher practice is complex and requires a rich understanding of change management strategies and processes.
- Creating a compelling reason for change is required to sustain momentum through the “implementation dip.” Without the ability to manage through the implementation dip, school systems will continue to educate students for the future with the systems from the past.
- The development of higher order thinking skills need to be embedded in our curriculum and the provincial assessment tools need to measure the development of these skills.

**Highlights of Challenges and Unexpected results**
- During the mid-point check (March 2012), a significant number of the participating teachers indicated that the rationale for embracing change in teacher practice was not “compelling enough.” The explanation given was that the EQAO scores were positive, so no change was required. This is a concrete, educational example of the change management expression “managing through the implementation dip.” Just as teachers are about to go through the difficult and uncomfortable process of changing their practice, they were questioning the rationale for the change. Because of this obstacle, the professional learning group focused on comparing two different types of lessons and identifying which lesson was most effective for both teachers and students.

**Additional Statements Made in the Report**
- Research, evidence-based studies, and this CODE research project reminds us that too little time is spent at the start of any change initiative on the process of building a compelling rationale for change. Teachers need to be given the time required to rationalize the teaching practice change and to think through how they personally will transition through the change. Without the acknowledgement of the importance of this first step, research tells us that 73 percent of change initiative will fail.
- Building a clear, specific definition of inquiry-based learning that is directly relevant to the learning environment (in this case Grade 9 math) is critical in supporting teachers as they re-define their role in the classroom. Daniel Pink talks about the shift that takes place when inquiry-based learning and technology are introduced into the learning environment. He describes how during this transition, teachers’ roles shift from being the purveyor of knowledge to that of lead learner. He explains that a difficult transition for teachers to make because the culture of teaching is deeply embedded one. Building a clear detailed view of the “future state” (in this case an inquiry-based learning environment focused on technology) is critical for teachers so they can benchmark their teaching decisions against this new criteria. During our research project we realized we had not detailed the role of the student enough, nor the importance of collaboration and purposeful talk.
- Providing support for the introduction and extension of technology for the purpose of creating an inquiry-based environment needs to be ongoing. The creation of a safe, collegial professional learning environment is necessary for teachers to be honest about their technology readiness. During this research, we conducted the technology readiness survey too early and this was seen by teachers to be “judging.” It wasn’t until four weeks into the project before we got an accurate and reliable assessment of the type of technology, training, and support needed by teachers.
Follow-up and Future Directions

Implications for school board planning

- The findings associated with this project (building and supporting change in teachers’ practice for the purposes of having an impact on student achievement) are not specific to math. These findings are core to any change management initiative and will inform DSBN’s professional learning culture for new and experienced teachers in the future.
## Northwest Catholic DSB

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Building Capacity for Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief Description</strong></td>
<td>We have provided two grade eight classrooms with a set of 30 iPads to pilot for the 2011-12 school year. A team of teachers and Board consultants have been assigned iPads so that they can assist with training, discussing, sharing and documenting strategies on the impact of iPads in the classroom. After consulting the teachers at the midpoint review they suggested that this project would have greater impact if each student had an iPad dedicated to them on a one to one basis. The team decided to purchase an additional 14 iPads for this project.</td>
</tr>
<tr>
<td><strong>Context</strong></td>
<td>Number of schools: 1</td>
</tr>
<tr>
<td></td>
<td>Number of classrooms: 2</td>
</tr>
<tr>
<td></td>
<td>Number of students: 45</td>
</tr>
<tr>
<td></td>
<td>The pilot project is focused on two (2) grade 8 classrooms in one school</td>
</tr>
<tr>
<td><strong>Impetus</strong></td>
<td>To be competitive in a global job market, today’s students must become comfortable with the complexities of ill-defined real-world problems.</td>
</tr>
<tr>
<td><strong>Goals &amp; Priorities</strong></td>
<td>The intent of this initiative is to build local capacity around the effective use of data to support students. This initiative is critical for knowledge mobilization and will provide the training, support, and development to broaden the usage of teacher and administrative tools across our school board.</td>
</tr>
<tr>
<td><strong>Theory of Action</strong></td>
<td>Learning-by-doing is generally considered the most effective way to learn. The iPad and a variety of emerging communication, visualization, and simulation technologies now make it possible to offer students authentic learning experiences ranging from experimentation to real-world problem solving.</td>
</tr>
<tr>
<td><strong>Standards and Targets</strong></td>
<td>Standards evidenced, no identified targets. Sought outside researcher to assist.</td>
</tr>
<tr>
<td><strong>Phase of Change</strong></td>
<td>Sept 2011 start of implementation</td>
</tr>
<tr>
<td><strong>Assessment, Use of Data</strong></td>
<td>Data is being collected to measure the impact on student engagement, instructional practices, and student outcomes. Lakehead University compiled a report. Effectiveness of a teacher training program related to a new technology (iPad). Through this school pilot, the solutions that we encounter will be enhanced and documented to ensure increased usage and success when iPads are released to the entire school board.</td>
</tr>
<tr>
<td><strong>Capacity Building in Teaching</strong></td>
<td>Teachers are using the technology effectively. Teachers will be asked to share the students’ progress and engagement, including effective strategies used. Teachers will be involved in broader discussions with Board consultants to share this data.</td>
</tr>
<tr>
<td><strong>Leadership, Sustainability</strong></td>
<td>Clear evidence of support from IT, and Administration. We will be working closely with Diane Findlay via NOEL (Northern Ontario Educational Leaders) Consortium. Lakehead University Researcher aided MISA Research Action Project to compile and share data.</td>
</tr>
</tbody>
</table>
Outcomes *(Verbatim as submitted in the Final School Board Report, June 2012)*

**Summary of Data Collection**
- Data reported.
- Data summarized in additional data files.
- Full and extensive additional reports also provided as appendices.

Using the Cognos reporting tool we were able to follow cohort data on the two classrooms and determine areas of success and areas of greatest needs. Students were given an online survey that was crafted by our MISA Researcher in collaboration with the pilot teachers to determine feedback on the success of this project.

**Highlights of Key Findings/Results**
- Teachers found that not only were students engaged, they remained on task throughout the lessons that used the iPads. Though we do not have any formal data, through discussions with teachers small classroom management issues decreased.
- Students recognized the ease and speed with which they could develop their assignments on a single device, using the iPad for research and production of written reports. Neither laptops nor handwritten reports came close! Students also believed that their achievement, as shown by their marks, had improved in this digital environment.
- While a small number of students believed that some of their classmates were distracted by the iPads and that teachers should be more restrictive, there was very strong approval of the current approaches (May, 2012), and from some even gratitude for their involvement in this program.
- With regards to future use of iPads, most students were encouraging in their advice to the next generation of users. Students reported that their parents, almost universally, were positive about the initiative.

**Highlights of Challenges and Unexpected Results**
- One of the early challenges was students not being able to save their personal work.
- Another challenge that we encountered was printing student work. Students were not able to print some of the rich media that they created with the iPads.

**Additional Statements Made in the Report**

**Positive**
- Increased on-task behaviour.
- More creativity in assignments in both students work and in teacher developing lessons.
- Students are more interested and excited about learning. Their engagement improves as they contribute ideas and have the ability to search for information and their more willing to share.
- They [students] feel a greater sense of independence. Resources are easily accessible - level four is defined as independent work- they now have the tools readily available to find information. Traditionally info was found in a dictionary, ask another student or ask a teacher. It is unrealistic to expect them to wait and use the computer when they get home.
- Students who were not handing work in on a regular basis are now handing in assignments on time and complete.

**Negative**
- Work and assignment completion was not affected by absences when students had access to iPads every day. In fact, absent students were more likely to complete missed work on the iPads. Sharing iPads has posed a problem when students are absent because their next scheduled use is often several days later and the missed assignment is seen as irrelevant to them or a "distant memory."
- Students whose off task behaviour did not improve with the use of the iPad used the iPad as another source of distraction.
- A low number of students did less work with the use of iPads. There is no recognizable reason that can be linked to the iPads.
With iPad sharing there are issues of work being tampered with and accidentally being changed or lost. There is a lack of apps on the market that are specific to intermediate grades.

The report includes a number of perspectives on student opinions and reaction to the use of the iPad. One question and the results are highlighted below.

Question: Would you prefer having textbooks as eBooks on the iPad or a printed book?

- eBooks on iPad: 26.3%
- Printed Book: 28.9%
- Comfortable with Either: 44.7%

Exemplar Student Responses

- I would prefer this because I struggle with organization as a student and having a iPad with all my textbooks on it would be extremely helpful for me as a student. It would give me better access to textbooks and improve my learning.

- A book is a book. I would rather read a printed book because it doesn’t feel natural reading off of an iPad. I find it a little bit uncomfortable.

- Because you have more control over it. I felt more comfortable doing things manually rather than on an iPad.

- Comfortable with either.

- I am comfortable with either because I have an e-reader at home and like reading with it but sometimes books are not available on e-reader so I read them in books.

Follow-up and Future Directions

Direction for future related work

- Our next step is to use our teachers that participated in this project as mentors. Pilot project teachers will use their knowledge and experience to help train staff on the expansion of the iPad project.

- Working with the pilot teachers we are compiling a list of appropriate and useful educational apps that will be used in the expansion of this project.

- The project will continue and expand to include 2 more schools and another 5 classrooms.

Implications for school board planning

- The Board has a plan to extend to all Intermediate classes by the 2013-14 school year. A major hurdle will be finding the dollars to have a project leader to oversee and ensure that all expectations are met.

- The Board is exploring an integrated system for cloud based connectivity.
### Ottawa Catholic School Board

<table>
<thead>
<tr>
<th><strong>Project Title</strong></th>
<th>Innovative Teaching Practice – Handheld/Mobile Devices</th>
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</thead>
</table>
| **Brief Description** | Our pilots are separated as 5 related projects.  
1. The project will examine using hand-held devices to engage special education and English Language Learners (ELLs) through apps that allow for Differentiated Instruction. This project will focus on building our students’ capacity to use the school iPads and *their own devices* in order to support their own learning.  
2. The project will focus on the development of a series of videos outlining appropriate social skills in a school setting.  
3. Students will be given iPads or iPods during the Language portions of their program and students will use them as a collaborative tool for literacy based assignments in class.  
4. The focus of the project is on assessment – and the role that reflective feedback plays  
5. We are providing all students in the Assessment Program and approximately five other students in K/Gr.1 with access to iPod Touches to supplement learning. The students will use the iPods for the Language Arts and Mathematics portion of their program as well as Alternative Curriculum expectations on the IEP. |

| **Context** | Number of schools: 3  
Number of classrooms: 25  
Number of students: 225  
The target groups: students demonstrating evidence of low engagement and low student achievement, ELL students, Special Education students |
| **Impetus** | Our Board was involved in a technology project last year as part of the MISA PNC. The project involved the evaluation of the use of mobile devices in a small number of classrooms e.g., in looking at our technology sign-out sheet from last September, only 3 out of 24 teachers had borrowed the iPads for use in the classroom. The vice-principal dealt with on-going issues concerning the use of personal devices on a daily basis. |

| **Goals & Priorities** | To increase comfort level and awareness with value of handheld devices for student learning and instructional practices. To increase staff capacity to access and support assistive technology programs and apps. To heighten student engagement. To develop differentiated programming for students. To increase the level of social skill acquisition for students. To impact classroom teaching practice. |

| **Theory of Action** | Student engagement is a critical factor in the success of students. With the use of mobile devices in the classroom, students receive immediate feedback on learning as well as become active participants in their own learning. |

| **Standards and Targets** | Standards evidenced, identified targets in each of the 5 projects |

| **Phase of Change** | Most projects had implementation dates that began December 2011 or early 2012 |

| **Assessment, Use of Data** | Data is being collected to measure the impact on student engagement & instructional practices. The impact of handheld devices on classroom teaching practices. Effectiveness of ease of use of mobile devices. Data will be used to assess overall effectiveness of project. |

| **Capacity Building in Teaching** | Staff members will have the opportunity to explore and use the applications on the mobile devices. Teachers will work with other teachers in similar subject areas to explore learning goals and the suitability of various apps for the attainment of these learning goals by students. Teachers have formed Professional Learning Communities to explore the mobile devices |

| **Leadership, Sustainability** | Clear evidence of support from IT and Administration. |
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported.
- Data not detailed or quantified in report.
- Report provided private web links to view students talking about the use of technology, and web links to illustrate students demonstrating higher order thinking using tasks that utilized the iPads.

Highlights of Key Findings/Results
Project 1
- When looking at our technology booking sheet, 91% of teachers have used a set of iPads in the last month (up from ~15% in the Fall of 2011).
- The vice-principal reports that he deals with complaints from teachers regarding inappropriate use of personal devices on a much less frequent basis.
- There are systems in place to facilitate and encourage the use of technology in the classroom.
- When completing the interviews it was obvious that the students didn’t consider the use of technology to be a special event, rather, as digital natives, it is part of their culture.

Project 2
- Students developed a deeper understanding of the yard expectations and some of the necessary social skills required in a school setting.
- Transference of the digital devices as a tool for the project to support other areas of the curriculum.

Project 3
- Student outcomes improved in PM Benchmark scores (Primary and Junior) and improved in CASI (no data supplied).

Project 4
- Web links in the report showing evidence of students’ critical and reflective thinking.

Project 5
- Students were highly motivated to use the iPod. As a result, behaviours decreased and students were eager to participate in academic tasks.
- Students would transition more independently and fewer transition cues were needed.
- Observed substantial increases in independence. Ability for staff to gradually fade out assistance/prompting.
- Students remained on task for longer durations.
- Increase in fine motor skills, printing skills, visual-motor skills.
- Use of video-modelling increased imitation skills. Students enjoyed watching themselves perform academic tasks.
- iPod helped facilitate peer interactions. They were much more aware of each other and would engage in closer proximity.

Highlights of Challenges and Unexpected Results
We had not anticipated how much work needed to be done to set up systems in order to manage the use of technology.

We were surprised at how well thinking was documented and how students had the opportunities for reflection. Students articulated their thinking clearly.

Some of the iPod apps we selected to collect data on had embedded prompts and were skewing the data. We were amazed at how many hidden skills our students had that we had yet to uncover.
Follow-up and Future Directions

Direction for future related work

Project 1
- As a result of this project, we have developed presentations to teach students and teachers how to use a wide variety of technology in the classroom. It is important that we deliver these presentations to each of our new grade 7 classes and new teachers in order to create sustainability.
- Also, as a result of this project, there is no longer enough technology to go around. Since so many more teachers are comfortable using the iPads in the classroom, we are finding that they are now booked far in advance and access is becoming more difficult.
- As we are using technology more and more, we need to continue to develop and maintain ways of managing this technology use in a fair, equitable, and accessible manner.
- We intend to supplement the use of school-owned technology with the use of student-owned technology (BYOD).

Project 2
- Repeat of this project with the new students in the class for next year.

Project 3
- Further use of handheld devices within the classroom.

Project 4
- Make this part of our school improvement plan with a school wide focus.

Project 5
- Continue to use both traditional and non-traditional teaching tools to supplement learning.
- Create a Blog and/or digital portfolio for each student and allow parents access to the site.
Peel District School Board

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Use of Academic Social Networking to Support Reading Program Participation in Middle School Grade</th>
</tr>
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<tbody>
<tr>
<td>Brief Description</td>
<td>This pilot will leverage online tools (private academic social networking environments) in an attempt to improve student engagement and participation in the reading program.</td>
</tr>
</tbody>
</table>
| Context                                | Number of schools: 2  
Number of classrooms: N/A  
Number of students: 35  
The target group is middle school students who are participating in the Red Maple Reading Program |
| Impetus                                | As with other educational jurisdictions, the PDSB is working to thoughtfully incorporate technology into teaching and learning environments. We often hear that technology improves student engagement but we are interested in harnessing that engagement for increased student achievement (something that is often not found in research). |
| Goals & Priorities                     | We hope to see improved engagement of students in book discussions; improved understanding of social networking by students; improved reporting (teacher) of learning outcomes as they are linked to the Red Maple program. We are also interested in, although not necessarily articulated previously, the potential of web 2.0 tools to motivate male students to read and write. |
| Theory of Action                       | Technology is being used to facilitate communication among students and teachers. Exploring a variety of web 2.0 tools will help the board to clarify the placement of tools for engagement and student success. Our decision to use web 2.0 tools to engage students in reading and writing was based on our board focus on literacy as well as research by Greenhow, Robelia and Hughes (Learning, teaching and scholarship in a digital age: Web 2.0 and classroom research) and Taranto, Dalbon and Gaetano (Academic social networking brings web 2.0 technologies to the middle grades). |
| Standards and Targets                  | Standards evidenced, no identified targets |
| Phase of Change                        | Main implementation began winter 2012 |
| Assessment, Use of Data                | Data is being collected to measure the impact on student engagement and instructional practices. Data will help to inform our future directions with our reading programs as well as the use of web 2.0 tools in other teaching and learning environment. |
| Capacity Building in Teaching          | Our implementation is based on the Ontario Inquiry Model (as presented by the Ontario Librarian Association). We are using the Teacher Librarian at selected schools as on-site coordinators. These individuals, along with the Instructional Technology Resource Teachers assigned to the school are guiding the discussions and assisting teachers with the selection of online tools. Both schools collaborated throughout the project over a four month period. Release time was provided for teams to meet at their own location to moderate, explore tools and plan next steps. |
| Leadership, Sustainability             | Clear evidence of support from IT, Program staff, and Administration. Collaboration among educators a variety of leadership responsibilities (coordinators, resource teachers, teacher librarians) |
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported.
- Data summarized in report with additional data files and survey summaries provided.
- Strong analysis of findings.

Highlights of Key Findings/Results
Most students found that blogging gave them a voice, especially students who typically would not be active participants in class discussions.

Student response: I sometimes enjoy blogging because I like to write and speaking makes me more nervous... I rather blog than speak.

68.7% said that blogging increased their engagement in reading in some way.

Student response: I honestly loved blogging. I'm not much of a reader but this blogging thing I really enjoyed it...we should do it more often.

When given the option, 54% would choose talking, 47% would choose blogging, only 12% would choose a written assignment/response. It was interesting to note that several students wanted a wider variety of response choices (e.g., the arts, technology).

Students did not see the connection between blogging and writing. 33% selected strongly dislike or dislike writing a response to reading in the pre survey compared to 50% who selected dislike or strongly dislike writing a reading response in the post survey. When comparing this data to the 47% that mentioned they would choose blogging to reflect on their reading, it is evident they do not make a connection between blogging and writing.

Student response: It’s more fun to talk or blog instead of writing. So I think it is a great way of showing what we have read by blogging.

Highlights of Challenges and Unexpected Results
Teachers’ unfamiliarity with the technology tools being used including the basics of blogging as well as the kidblog.org platform was a challenge. During our meetings the group discussed and worked towards solving the challenges with the blogging platform.

Managing, previewing, approving and assessing the quantity of responses especially with the immediacy of digital tools was another challenge. Students’ familiarity with social media tools required faster paced responses from peers and teachers. As a group we came to the realization that it was unrealistic to moderate and assess all blog posts and comments. We decided to release more responsibility to the students by requiring them to comment on other blogs, provide appropriate feedback which was modeled by teachers and provide opportunities for the students to moderate responses from the class at large.

Some further questions that arose were:
- The struggle of “assessing reading” versus “assessing writing conventions” in blog posts.
- Avoiding formulaic responses because of the public nature of the blog.
- Academic honesty (plagiarism versus remixing).
- Not being wowed by the technology and focusing on the content.
Additional Statements Made in the Report

The majority of learners were engaged regardless of their gender, reading ability, or interest in reading (e.g. Boys, English Language Learners and Special Education Students). Learning style, attitude and comfort with technology seemed to influence their engagement more than ability.

It was a safe and nurturing environment for both staff and students to take risks. On many occasions students were observed assisting each other as well as assisting the teacher in understanding the digital tools. It was truly an inclusive community of 21st Century learners!

Student response: It was great sharing your thoughts and ideas and in return getting feedback to help you.

Even students who typically did not complete homework assignments were motivated to complete their online blogging assignments in a timely fashion due to the public nature and shared accountability.

Student Response: Blogging is a very helpful tool because you can do it from home and don’t have to wait for the next day to understand something you don’t get. You can ask your question from the blog at home and get an answer usually from someone that day so you can understand what you have read.

There was a wide range of responses to the experience of blogging. Some students found it to be distracting to work online. It was interesting to see the perceptions of a few students of how technology is not a form of school work, it is part of their social context.

Student Response: I don’t like blogging. Kids these days are already so wrapped up in their web lives, school doesn’t need to add to that. And whenever I go on the Internet I get distracted.

Student Response: It is a very efficient and creative way to appeal to this generation of youths, as technology has evolved since the last generation.

The group enjoyed using blogs as a tool to communicate understanding. 88% of the teachers involved said they would blog again next year, 12 % said they may.

Follow-up and Future Directions

Direction for future related work

- Cross school blogging where students from different schools could communicate with each other (e.g., a shared book club between a grade level at two or more schools).
- Integrating technology with good instructional practices (i.e. seeing technology as a tool)
- Would giving students more freedom in responses increase their engagement in blogging and reading?
- How could we continue to help students, teachers and parents better understand digital citizenship especially with the advent of Bring Your Own Device?
- Would conversations with the school community (parents, students, teachers) change perceptions of technology in the classroom (e.g., an ‘outside of school’ activity, learning tool, communicating tool)?
- How can we help students self-regulate their online behaviour? How can we better help build an understanding of digital identity?
- Given the observed decline in reading engagement over middle school years, will blogging help reduce that decline? In what other ways could we use technology to motivate students to continue to read?

Implications for school board planning

- An easily accessible home base of resources and ideas including web 2.0 tools, assessment ideas, strategies and solutions. This would not only be a valuable resource for the team but also to share board wide with the upcoming focus on Bring Your Own Device.
### Project Title
TPMI – Three Part Math Integration

### Brief Description
This is a math project that has aspects that are related to the impact of technology.

### Context
- Number of schools: 14 (All Schools in the Middle)
- Number of classrooms: 28 classrooms
- Number of students: 700
- We will be focusing on Grades 4-6 teachers and mathematics.

### Impetus
Our board has made a significant investment in technology in providing laptop computers for all our teachers. Our plan for this investment is that the use of the technology would mature into a rich instructional tool.

### Goals & Priorities
- Introduce the 3 Part Math lesson (teaching math through problem solving) to all Junior teachers, goal of having all teachers having received in-service on the 3 part lesson either through this project or through CIL-M.
  - deepen teacher understanding in problem solving model and how to use it effectively with their students
  - increase teacher understanding of what rich math tasks in mathematics look like
- The main role technology will play is in collaboration. The project will utilize Adobe Connect and Google Hangouts to facilitate collaboration between project teachers.

### Theory of Action
We view technology as being key in breaking down barriers between classrooms and allowing teachers to collaborate “anywhere, anytime” using digital tools.

### Standards and Targets
- Increase positive student attitude towards mathematics
- Improve EQAO scores in Math at Grade 6 (Below provincial average and dropping)
- Improve EQAO score in Applies Math at Grade 9 (9% drop from last year)

### Phase of Change
not clear in submission

### Assessment, Use of Data
Data is being collected to measure the impact on student engagement and instructional practices.
- Students will improve their attitude towards problem solving in mathematics.
- Teachers will broaden their repertoire of mathematics teaching to include the 3-Part Lesson as the main vehicle to deliver math instruction.
- Teachers will begin to or more regularly, use rich tasks to engage students in the learning.
- Teachers will develop Professional Learning Communities beyond their own school.
- Data will be used to assess overall effectiveness of project.

### Capacity Building in Teaching
Teachers will have the opportunity to participate in “just in time” training on these tools to assist them in incorporating technology into their instruction.

### Leadership, Sustainability
Clear evidence of support from Program staff and principals.
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported.
- Data collected included exit cards at sessions and monitoring usage of tools and web visits. It is anticipated that EQAO data when available will inform the analysis.

Highlights of Key Findings/Results
- Technology is one vehicle through which PLC's can share resources, lesson plans, e.g. Google Docs.
- Teachers need to become comfortable with the technology; they were impressed with capabilities, but reluctant to use it on their own until a base comfort level had been reached.
- Before the CODE sponsored in-service the elementary wide usage of Geometer's Sketchpad was a total of 28 minutes in a period from September 10th to February 26th. In the four months during the project (February 27th to June 25th) usage of Geometer's Sketchpad by elementary teachers and students increased to over 31000 minutes.
- Teachers have already collaborated on a number of three part lessons which are shared on Google Drive.

Highlights of Challenges and Unexpected Results
- We anticipated using Adobe Connect far more than we did. Teachers did not seem to gravitate towards this modality for collaboration. The board has used it in the past for meetings but it was challenging using it in a PLC type environment where there is a much richer discussion and sharing expected.
- We invited principals to attend the sessions (optional) and were pleasantly surprised at how many decided to join their teachers for the sessions.

Follow-up and Future Directions

Direction for future related work
- We intend to duplicate this model to all of our Grade 4-6 teachers until they have all received in-service on effective math instruction techniques and resources. We will monitor our EQAO scores to determine if this intervention is making a significant impact.
## Project Title
21st Century Mobile Learning in a Digital World

## Brief Description
The project is designed to provide support and guidance to schools and school boards in the implementation of mobile technologies for student learning.

## Context
- Number of schools: 20
- Number of classrooms: 30
- Number of students: N/A
- Target group of this project is students with learning disabilities in grade 5 to 10

## Impetus
Over the past 3 years Provincial Demonstration Schools have been exploring the use of mobile technologies (specifically the iPod Touch) as learning tools for students with severe learning disabilities.

## Goals & Priorities
This project will have an impact with individual students and the classrooms they are in. We will be providing an opportunity for students and classroom teachers to better understand how to learn and teach with mobile technologies. We will be providing in service and resource support to make this possible.

## Theory of Action
Mobile technologies allow students to perform tasks that are otherwise not possible and they can greatly enhance learning and improve student engagement. The term mobile is as important as technology.

## Standards and Targets
Standards evidenced, no identified targets

## Phase of Change
Continuation of previous related work (approx. 4 years). This specific project’s implementation began Fall 2011

## Assessment, Use of Data
Data is being collected to measure the impact on student engagement and instructional practices.
Between February and June 2012, we collected survey data from teachers that have attended workshops at Sagonaska as well we collected survey data from teachers that we in serviced in their home schools and their home school boards. We also collected survey data from students at Sagonaska School. This data was compared to data collected when students arrived at Sagonaska.

## Capacity Building in Teaching
We have learned how engaging and empowering mobile technology can be and we wanted to share our experiences with students, teachers and school boards across the province. Finally, as students explore mobile technology with us and see the possibilities we wanted to provide support to them as they return to their school boards.

## Leadership, Sustainability
Clear evidence of support from IT and Administration.
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported
- Data summarized and charted in report.
- Extensive additional report provided as appendix.

We have produced a number of resources that schools and school boards can access in the future. We have produced PDF documents including questions and answers regarding mobile technologies specifically the iPod touch. We have also produced an eBook incorporating multimedia content that can be downloaded on to an iPod or iPad using iBooks. The reason we created this eBook was that we felt it provided the most accessible resource for anybody using a mobile device. We are also completing a series of support videos to demonstrate how various applications can be used for student learning. Links to the resource and videos are in the report.

Highlights of Key Findings/Results
Supporting data and graphs were provided in the report.
- Students are using the device in all subject areas with a particular focus in language, in mathematics, and in science. It is important to note that use of the iPod in the classroom actually increased over the course of the year especially in the area of mathematics. Students were able to use many applications in the mathematics classroom to extend their problem-solving capability.

Initially students used the iPod for music, gaming, photography and video as well as Internet access. Students also used their iPod for as a social media tool, for texting, Facebook and Twitter. Student’s use of the mobile technology changed after several months of instruction at school. The most obvious increase was in the use of assistive technology where student use more than doubled. There was also a significant increase in the use of the device for reading including audio books and e-books. Finally, use of the device as an organizational tool also increased substantially. They took pictures of anchor charts, exemplars or important notes on the wall, whiteboard or SMART Board using the camera. They also used organization tools such as the calendar and voice memos to quickly record important information. In terms of assistive technology students used tools such as Dragon (Speech to Text), Prizmo (text to speech) as well as many mathematics support tools both in the classroom, during homework time in residence.

- One of the great advantages of the mobile technology is the fact that it is mobile. This seems like a simple idea but if one considers that students may need assistive technology in real time and possibly all the time, mobile technology makes a lot of sense.

- Data from teachers that attended workshops at provincial schools as well as teachers that we in-serviced at their home school or home school board. Teachers reported an increase in their personal use of assistive technology. After attending workshops or in-service presentations teachers were much more familiar with the possibilities and capabilities of the device. As with most assistive technology it is necessary for some and beneficial to all. It is this statement that probably accounts for the increase in the use of Assistive Technology.

Highlights of Challenges and Unexpected Results
- We have received interest from agencies outside of the public school system, particularly the Learning Disabilities Association of Ontario in Peterborough and the Trent Valley Literacy Association (TVLA).

- We have experienced a resurgence of interest at Sagonaska Provincial Demonstration School amongst staff and students as this project continues.

- Parents have expressed interest by attending some of our all day iPod workshops.

- Our iPod workshop has one of the greatest demand of the workshops we offer
Additional Statements Made in the Report

It is important to remember that the iPod has many Assistive technology features (See table below). We have noted at Sagonaska that as teachers become more comfortable with the use of mobile technologies they are much more likely to use the tools with students under regular daily basis.

Assistive Features of the iPod and iPad:

- assistive touch
- bluetooth connection to braille devices
- custom gestures
- dictionary and thesaurus
- iBooks notes and bookmarks
- large text
- learning dictionary
- mono audio
- phonetic word prediction
- rotor control

- speech to text
- speak notifications
- speak selection
- supports bluetooth headset and keyboard
- supports over 40 languages
- text to speech
- website simplification using reader
- white on black
- word prediction with speech
- zoom

- The technologies we use are increasingly cloud-based, and our notions of IT support are increasingly decentralized as we move away from lab-based delivery.

Follow-up and Future Directions

Direction for future related work

The Provincial Demonstration Schools have been exploring the use of mobile technologies for approximately 4 years now. We plan to continue using mobile technologies with our students in an even more integrated way.

Our plan next year is to continue the path we have followed with some significant changes to our structure. The first step will be to move to a policy of bring your own device to school (BYOD). As our survey data indicates many students already have this technology in their hands. We have also surveyed our parents and have found that the vast majority of them are supportive of this project. It is most cost-effective for students to bring their own devices and for schools to support students that may not have personal access. Mobile devices are most useful when they are used in a very personal way. This means that students should be able to customize the device and use it as a personal tool as well as a learning tool.

Students will be asked to bring their iPod, iPad or iPhone to school next year for this project. Students will sign a contract at the beginning of the year outlining the appropriate use of their device in the learning environment. Our plan for next year will be to gift applications to students that we feel would be beneficial for their learning. The selection of apps will be customized for each student to meet their personal needs. We will spend the course of the year teaching them how to effectively use their device and the associated apps. At the end of the year the students will take their own personal device as well as the applications that we have gifted to them home so that they can continue to benefit from the technology in their personal and school lives.
## Project Title
Teaching and Learning in a Digital World

### Brief Description
Teaching the computer programs using a “Job Embedded Model” allows students, educational assistants and teachers to all learn the program at the same time and essentially support each other’s learning. This inclusive model teaches all students Assistive Technology as opposed to pulling individual students out of the classroom for one on one instruction with Assistive Technology laptops.

### Context
- Number of schools: 13
- Number of classrooms: 59
- Number of students: 1100

### Impetus
In isolation, Special Education Students were using Assistive Technology in the classroom. This software can engage and support all students in acquiring literacy.

### Goals & Priorities
This pilot project will support students already using Assistive Technology programs in the classrooms and will now reach all students to support students in acquiring literacy through technology.

### Theory of Action
A universal design strategy provides an opportunity for all teachers, educational assistants and students to benefit from this co teaching and learning model.

### Standards and Targets
Standards evidenced

### Phase of Change
Continuation of program started in Sept 2010

### Assessment, Use of Data
Data is being collected to measure the impact on student engagement, instructional practices, and student outcomes.
- The frequency rate of students reaching Level 3 and 4 in reading after they received AT equipment (baseline 2010-2011 47%)
- The frequency rate of students reaching Level 3 and 4 in writing after they received AT equipment (baseline 2010-2011 41%)

### Capacity Building in Teaching
Training identified for teachers
- It will be a program that will allow co teaching and sharing of best practices with technology in the Rainy River District School Board.
- Between December 2011 and June 2012, all Grade 3-8 classrooms in the RRDSB will have a Premier Review lesson and an introduction lesson on Worksheet Wizard.
- Between December 2012 and June 2012, four Grade 1 classrooms in the RRDSB will have three lessons on the program Clicker 5.

### Leadership, Sustainability
Clear evidence of support from IT and Program staff.

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**Rainy River District School Board**
Outcomes *(Verbatim as submitted in the Final School Board Report, June 2012)*

**Summary of Data Collection**
- Data reported.
- Comprehensive supporting data files provided in submission.

**Highlights of Key Findings/Results**
Teaching the computer programs (clicker 5 and Premier tools), using a “Job Embedded Model” allowed students, educational assistants and teachers to all learn the programs at the same time and essentially support each other’s learning. This inclusive model allowed the students with Assistive Technology to be taught in the classroom with all other students, as opposed to being pulled out. Over the course of the project, students’ tally results show 2732 contacts/lessons with students. With these student contacts/lessons, there were 182 teacher contacts and 148 educational assistant contacts.

Teacher survey results for Premier Tools:
74% of teachers strongly agreed that the training model, where the trainer worked directly in the classroom with students, was an effective use of time for both the teachers and students. 61% strongly agreed and 31% agreed that by incorporating some of the assistive software with the whole class, students that did require the regular use of that software were less likely to feel singled out when using it.

Student survey results for Premier Tools:
66% of students agreed that Premier Literacy helped them with their writing/editing on the computer. 23% of students have used the software more than four times after receiving training and 47% of students have used the software between 2-4 times after receiving training.

Clicker 5 Qualitative Teacher Reflection Survey:
Teachers reflected on the increased engagement of their students when using the Clicker 5 program, stating that students took ownership of their learning, enjoyed using the program and felt successful. They also commented on the improved independence and confidence of their Grade one students.

**Additional Statements Made in the Report**
Students were very engaged in the technology, excited to use it and impressed with all of the functions of the programs. The Grade one’s using Clicker 5 enjoyed reading the books on their own and increased their independence by being able to click on the words that they were not able to read on their own. The voice recording function in Clicker 5 encouraged reluctant readers to read out loud and then listen to it by themselves. One of the teachers commented on a shy little boy. She said that he was willing to read into the microphone, but was reluctant to read in front of the teacher. The teacher was then able to play this recording for the entire class and as a result, increase his confidence in reading.

The Grade three classes, using Premier Tool’s Talking Word Processor, thought the word predictor in the program was very useful. Students who had difficulty reading/spelling were helped by this programs function, in that they could type in the first two letters of a word the program would provide them with options to listen to. This increased the student’s independence in writing and the student’s confidence.

The Grade seven classes, using Premier Tool’s Talking Word Processor, were engaged with the “Grammar Checker” function of this program. Following report writing, they could use the grammar checker to assist in editing their work. One student said it was like their teacher standing behind them pointing out parts of their work that needed editing.
Follow-up and Future Directions

Direction for future related work

- As we felt that this project delivery model was an overwhelming success with the co-teaching model we presented the model to the Board Leadership team, principals and trustees. The evidence that we are seeing with technology integration in the school from a K-12 is positive.
- We are expanding the project to include technology coaches that are embedding technology practices with clicker 5, Blogs, and incorporating iPads into the schools.
- The project has morphed as we believe that co-teaching and learning is the most effective method to reach staff and students and develop capacity within our system.
- Drawbacks or difficulties are making sure we work in all of our schools and all of our classes to ensure equity and equal opportunities to access the support and the technology.
### Project Title
Transforming Teaching Practice Through the Use of Technology

### Brief Description
This project will bring teachers together to develop skills using technology to support student learning. Teacher teams will choose which tools most fit the needs of their job-embedded school learning teams.

### Context
- **Number of schools:** 87
- **Number of classrooms/teachers:** 285
- **Number of students:** 6000 (no student outcomes monitored)

### Impetus
SCDSB is supporting the building of capacity in schools in using the technology we have in place. Minds On Media in addition to other focussed professional learning opportunities (focus on Junior and Grade 9 Mathematics) will ensure multiple classroom strategies are modelled during teacher learning.

### Goals & Priorities
The ultimate goal of this project is to use technology as a catalyst for board-wide change in instructional practice. Teachers have teaching notebook computers, the filtering system is fairly open, there are guest wireless networks in each school allowing students and teachers to bring in their own devices. The next step in the journey is to support teachers changing their instructional practice to make use of these tools effectively to support student learning.

### Theory of Action
The Minds On Media workshop is a model of professional development that allows teachers to take control of their own learning. The framework is designed to allow for choice and multiple entry points. It is an excellent model of differentiated instruction and collaborative learning that can be extended to the classroom. Research shows that job-embedded professional development leads to the greatest shift in teacher practice. The sessions this project supports will align school-based teams in choosing appropriate and using the tools effectively.

### Standards and Targets
Standards evidenced, no identified targets

### Phase of Change
This project began fall 2011

### Assessment, Use of Data
Data is being collected to measure the impact on *instructional practices.*
- Data to provide evidence that teachers know how to use the tools, but more importantly a context and ideas for how it can support pedagogical change.
- Attitudes towards technology in education
- Use of technology to support student learning
- Level of use and numbers of devices in use by teaching staff
- A survey completed as an exit ticket will provide feedback from participants as well and help indicate next steps and needs.

### Capacity Building in Teaching
In SCDSB, our technology professional development is integrated into literacy and numeracy high yield strategies such as descriptive feedback, accountable talk, differentiated instruction, etc. Instead of offering a session on how to use voicethread.com step-by-step, a session is run on descriptive feedback and a variety of tools suggested with resources on how to use those tools. This allows teachers to choose the tools that work best for them and their students. In this project technology will appear to be the focus.

### Leadership, Sustainability
Clear evidence of support from IT.
- ICT Consultants within Simcoe County are trained in the development of Mind on Media sessions and they have been given them permission on a case-by-case situation to run Minds On Media sessions with their support.
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported.
- Data summarized in report with an additional data file of “exit ticket” comments.

Highlights of Key Findings/Results
- The Minds On Media were an enormous success with participants and presenters. Full participation was noted. Many schools chose to send additional teachers to the days beyond what was covered by this project.
- Ninety five percent (95%) of respondents were positive about this type of professional development and state that they will increase their use of technology in the classroom as a result of this learning opportunity.

Highlights of Challenges and Unexpected Results
- One challenge noted was ensuring teachers arrived at the day ready to take some risks and actively participate. To continue to ensure this happens, we need to make sure enough consultants or “leaders” are on hand to have conversations with those struggling to find an access point.
- In following up, most of the concerns expressed by a few teachers were due to teachers feeling like they had to learn it all at once, or who felt as if they wasted some time during the session then it was time misspent. As a result, upon reflection, staff need to continue to support self-directed learning in teachers and ensure we provide opportunities that include stations that are accessible for beginning ‘users’ of technology.

Additional Statements Made in the Report
- This technology-based project enhanced the SCDSB’s vision of 21st Century teaching and learning by modelling inquiry-based learning that staff want to have replicated in classrooms. Instead of modelling 20th Century practices while talking about how classrooms can change, this project enabled teachers to actually experience self-directed, hands-on learning in a technology supported environment. With a strong message of emphasis on good teaching as practice opposed to specific tools, this project ties in literacy, numeracy and technology initiatives in a positive and effective manner.
- Teachers were not directed as to which tools they needed to learn. They were not directed to spend a specific amount of time at each station. They could choose to spend the entire session at one station, or to move between a few stations, staying for shorter periods of time. The learning environment created at a Minds On Media is one of trust. Participants were trusted to be self-directive in their own learning. The learning environment created at a Minds On Media event is the most important requirement of success.
- The use of technology in teaching and learning is a catalyst for change. Its use enables multiple effective teaching practices to be implemented at once (descriptive feedback, differentiated instruction, accountable talk, learning goals and success criteria, open and parallel tasks, etc.). It can be, for the uninitiated, disruptive in that it allows for there to be less central control. It also means that the learning requires the use of technology that the user previously did not know how to use. In the same manner it is an expectation that the teachers will extend the same privilege to their students so they can direct their learning. Owning their learning leads to independent, motivated learners (adult and student) who will take on more responsibility for their own learning.

Follow-up and Future Directions

Direction for future related work
- In order to build this capacity for self-directed learning, we plan to continue to run Minds On Media type events centrally and locally within different areas of the SCDSB. Expanding to host local area Minds On Media events with local facilitators will enable teachers to network with each other and establishing Family of Schools networks with peers, and see the strengths available within their own areas and schools.
- Increasing the spread of participants at Minds On Media to begin including more new, resistant or reluctant teachers will be the new challenge as we adapt the Minds On Media model to remain relevant.
Simcoe Muskoka Catholic

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Does Using Technology, Specifically Google Docs, Improve Students’ Attitude Towards Writing and the Quality of Their Writing?</th>
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<tbody>
<tr>
<td>Brief Description</td>
<td>We are using Google Docs and its unique features to answer the question “Does Using Technology, Specifically Google Docs, Improve Students’ Attitude Towards Writing and the Quality of Their Writing?”</td>
</tr>
</tbody>
</table>
| Context | Number of schools: 4  
Number of classrooms: 11  
Number of students: 300 |
| Impetus | We started by identifying the need, that, based on the EQAO scores, turned out to be Writing. This led us to choose Google Docs as the project tool due to its unique features. The next step was to select schools that would benefit from participating in this project and we decided to focus on our North region. Due to its climate and frequent inclement weather conditions, students in this particular family of schools would benefit from having access to a virtual learning environment. |
| Goals & Priorities | Our intention is to adopt Google Docs as a board-wide tool mainly for collaborative writing with a potential to expand the use of Google Apps for Education. We want to determine if taking advantage of Google Docs features such as providing descriptive feedback by both a teacher and peers throughout the writing process leads to improved quality, increased engagement and improved attitude towards writing. |
| Theory of Action | Google Docs provides some unique features that can’t be replicated in a paper/pencil environment such as:  
• real time collaboration  
• efficient process of providing descriptive feedback from both a teacher and peers  
• seamless home/school access to all students’ work |
| Standards and Targets | Standards evidenced, no identified targets |
| Phase of Change | January 2012 start |
| Assessment, Use of Data | Data is being collected through surveys to measure the impact on student engagement and student outcomes.  
We have selected these schools and grades based on their grade 6 EQAO scores in Writing and on their geographical location. Together with our Research Consultant we have developed a pre and post student survey as well as a pre and post teacher survey. |
| Capacity Building in Teaching | We currently have a number of small pockets of exemplary use of technology to differentiate teaching and learning. Our plan is to expand these practices through peer-to-peer coaching and collaboration, teacher leadership and job embedded PD.  
Planned sessions for training and sharing have been established. |
| Leadership, Sustainability | Clear evidence of support from IT and Program staff. |
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported.
- Data summarized in report.

Highlights of Key Findings
- The proportion of students who perceived themselves to be “a good writer” most of the time increased from 39% in the pre survey to 46% in the post survey.
- The proportion of students who claimed “I edit my writing to make it better” sometimes or most of the time increased from 94% in the pre survey to 97% in the post survey.
- The proportion of students who reported “I check my writing for spelling and grammar” sometimes or most of the time increased from 91% in the pre survey to 97% in the post survey.
- Allows for a more respectful descriptive feedback (Teacher statement: Comments are provided on the side as well-meaning criticism tends to be less overwhelming like red provides an alternate way of conferencing with students who do not feel comfortable in a face to face situation.)
- Allows students to seamlessly extend their learning opportunities beyond the classroom.
- Gives students the opportunity to develop 21st Century skills such as communication, collaboration and digital citizenship.
- Greater motivation to make improvements to a piece of writing was noted by some teachers. For example, one case study report states: Rather than writing numerous hard copies to share for feedback and rewriting based on the comments written on these hard copies, the student can share the same poem with multiple classmates at once... Google Docs presents a medium that facilitates a ‘living’ document which can be altered and revised at any time.

Highlights of Challenges and Unexpected Results
- Staying focused on improvements to quality of writing rather than other benefits the tool provides such as easy access, no need to save.
- Limited understanding of quality descriptive feedback both from teachers and from students.
- Limited understanding of using feedback as part of the writing process rather than just comments on a finished product (the above challenges were addressed through professional learning).
- Limited access to the tool due to an inadequate number of computers in a school.
- Disruptions in Internet service.

Additional Statements Made in the Report
- Student comment: “I feel that this year I was taught more about how to edit than ever before”. 
- Teacher comment: “Using Google Docs allowed my students to think more critically about their work and therefore become more involved in actively editing their own work, as well as providing constructive feedback to their peers.”
- A teacher comment in one case study report indicates that this early use of the tool is leading to the creation of a classroom culture which in time will foster improved writing quality: “The student received lots of feedback from peers with suggestions on how to develop and end his story. Not all feedback was constructive; however, students became more comfortable with reading/sharing their work with each other as Google Docs sharing feature became part of the classroom routine.”
- Better use of class time; comment from a secondary teacher: Less note taking at secondary, more class time devoted to higher level thinking activities.
- Student comment: I feel that this year I was taught more about how to edit than ever before.
Follow-up and Future Directions

Direction for future related work

- Providing opportunities for project participants to attend an ECOO Conference where they will be able to network with other teachers using GoogleDocs for Education or similar tools.
- Expanding the use of GoogleDocs throughout the system with the focus on learning rather technology for its own sake.
- Use of GoogleDocs has become part of the repertoire of assessment-for-learning strategies shared with other teachers by the literacy consultant.
- Providing PD opportunities for teachers who will embark on this journey next year.

Implications for school board planning

- Working closely with our IT department to allow for an effective method of creating accounts and to ensure that the system is functioning efficiently to support all staff and students.
<table>
<thead>
<tr>
<th>Project Title</th>
<th>Blended Learning/Digital Tools</th>
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<tbody>
<tr>
<td>Brief Description</td>
<td>Pilot of blended learning in selected and targeted schools.</td>
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</tbody>
</table>
| Context | Number of schools: 19  
Number of classrooms: 55  
Number of students: 1500 |
| Impetus | Three years ago, our Integrating Technology in the Classroom special assignment teacher attended a Ministry meeting during which an offer to boards to pilot blended learning was presented. Our proposal was accepted and we were provided with some professional development and funding for a small amount of equipment – but our numbers were small and we were unable to expand the project wider |
| Goals & Priorities | Our goal is to increase the number of students who are exposed to online learning, but still need face-to-face contact with teachers. Our board is currently developing a vision for 21st Century learning, which includes an increase in the use of digital learning objects and online courses. |
| Theory of Action | Technology is critical as the students need to access the online learning objects to participate in Blended Learning. Due to the low pupil/computer ratio, we have been struggling with the access to the online learning, especially in our secondary schools. As a result, we are moving to a Bring Your Own Device initiative with a gradual increase in the number of students and staff who can use their own equipment from home. |
| Standards and Targets | Standards evidenced, no identified targets |
| Phase of Change | Implementation began Fall 2011 |
| Assessment, Use of Data | Data is being collected to measure the impact on student engagement, instructional practices, and student outcomes  
We are monitoring the access to the LMS by teachers and students to determine the level of participation. |
| Capacity Building in Teaching | By building capacity in teachers in as many of our schools as possible this year, we hope to have teacher-leaders available to coach others in the future. We have had one full day large group session with all teachers involved to distribute equipment and familiarize teachers with the LMS. |
| Leadership, Sustainability | Clear evidence of support from Program staff.  
E-learning contact is providing all PD for teachers and support in the classrooms.  
Project lead is monitoring budget, resources, and creating reports |
Outcomes *(Verbatim as submitted in the Final School Board Report, June 2012)*

**Summary of Data Collection**
- Data reported.

**Highlights of Key Findings/Results**
Judging by the increases in the numbers of teachers who have joined the project, we can see that teachers are seeing the value of blended learning, especially when they are sharing the increase in student engagement.
- Greater student engagement in their learning as they find the online tools and content to be more interesting and engaging. (no data quoted)
- Greater ease in communicating with parents beyond simply sending emails. Parents can view content, deadlines, calendar events, and discussions.
- Teachers are finding that the D2L platform is easier to use than they had anticipated. We have some schools where the entire school is now a “blended school.”
- Increased use of the discussion forums where students are providing feedback to each other.

**Highlights of Challenges and Unexpected Results**
- Teachers are frustrated by the lack of technology available for regular access to the learning management system, so we are hoping that once all schools can allow students and staff to bring their own devices (BYOD) this will reduce this problem.
- Not all secondary teachers are actively participating in the LMS so we are meeting with them in their schools to determine what is interfering with the blended learning. We have learned that the main reason is the lack of computer access. In the secondary schools, classrooms are only able to access a computer lab every two weeks – far less than is needed for authentic blended learning.
- We are finding that students are accessing the learning platform at home more than we expected, and that electronic communication with parents has increased through their ability to access the learning platform as well.
- We did not expect to find that the credit recovery teachers in our secondary schools would embrace the online learning platform, but once they saw how much easier it was to engage their at-risk students, and how many learning objects were available to the teachers, they are very appreciative of the format.
- The BYOD initiative was also unexpected, but when our IT department heard about our frustrations with the access to technology, they saw the urgency in moving us forward in this new direction.

**Follow-up and Future Directions**

*Direction for future related work*
- As more and more schools are involved in the BYOD roll-out, we expect even more classrooms to become involved. We will need to continue to support and build their capacity in the effective use of technology in their curriculum.
<table>
<thead>
<tr>
<th><strong>Project Title</strong></th>
<th>Full Day Kindergarten: Inquiry for the 21st Century</th>
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<tbody>
<tr>
<td><strong>Brief Description</strong></td>
<td>Teachers and Early Childhood Educators (ECEs) will engage in the collaborative inquiry process, embedding technology in their daily practice. In this cycle, teachers and ECEs will have an opportunity to co-plan, co-teach and co-reflect. A focus of this collaborative inquiry is documentation of student learning.</td>
</tr>
</tbody>
</table>
| **Context** | Number of schools: 4  
Number of classrooms: 12  
Number of students: 240 |
| **Impetus** | With Full Day Early Learning Kindergarten Program, our board was faced with the challenge with implementing a new program, while still remaining true to our strategic priority of “We Are Called To Live A Culture Of Innovation”. The new program outlined play-based and inquiry-based learning as an area of focus. |
| **Goals & Priorities** | This project is influencing how the board achievement team uses technology in the Primary grades. The goals of the project are:  
To develop the efficacy and abilities of both the teacher and ECE in documentation of student learning as well as communicating the learning to all stakeholders.  
To increase the student’s ability to retell as story in sequence. To increase the student’s level of verbal fluency.  
To increase the student’s level of interest and participation (in social situations) |
| **Theory of Action** | What technology is needed for young students? What technology best meets the teacher and student needs in these grades? the project is providing. Through conversations with teachers and ECEs who were running the new program, we also identified the limited capacity of the teacher and ECE to document student learning because of the limited tools that they had access to in the classroom. This conversation led us to discussion about technology and what technology could assist both the students and the educators. Students had new opportunities that are safe and non-threatening to express themselves orally. This safe environment was only possible with the technology. Students also had a variety of opportunities to engage in a variety of inquiry and play experiences that were only possible with the technology. |
| **Standards and Targets** | Standards evidenced, no identified targets |
| **Phase of Change** | This is the second year of the project |
| **Assessment, Use of Data** | Data is being collected to measure the impact on student engagement, instructional practices, and student outcomes. Documenting student learning is a key element to the program. Data from our project will influence future decisions about technology purchasing and usage. We looked at our prior year’s data (board developed Kindergarten Retell Task data and Teacher’s School Readiness Inventory and Oral Language development as an area of need. |
| **Capacity Building in Teaching** | All 21 staff are participating in a collaborative inquiry focusing on using the technology to document student learning by creating learning stories. For the collaborative inquiry, each staff member receives 5 half days of in-service: 1 half day as an introduction, 1 half day to co-plan, 1 half day to co-inquire/co-observe, 1 half day to co-reflect and a final half day to network and share their collaborative inquiry with the rest of the school. |
| **Leadership, Sustainability** | Clear evidence of support from IT, Program staff, and Administration. As well, 8 teachers, 7 ECEs, the superintendent, consultant and TIM engaged in an embedded mini-inquiry focusing on embedding play-based learning. This mini-inquiry was facilitated by Dr. Jan and Dr. David Buley, Marc Poirier from Pearson, Stacy Sullivan from Fronteir College and Katherine Smitherim and it was held at Laurentian University. To further facilitate communication, a conference for the project has been placed in the board’s First Class system and all participants in the project have access to share information about the technology in their classroom, their practices, questions, concerns and successes. |
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection

- Data reported and summarized in the report.
- Additional reports also provided.
- Student achievement data, educator feedback, a keynote presentation, newsletters, a video testimonial and some sample learning stories were identified through a Dropbox link.

Learning Stories, pre and post project questionnaires, reflective and anecdotal data from the collaborative inquiry were collected between February and June. As well, TSRI and Retell Task student data were collected at the beginning of the project and at the end of the project.

Highlights of Key Findings/Results

- Student achievement results show that 87% of Year Two Kindergarten students were able to meet the benchmarks outlined for the story retelling task in May. In January, only 72% of students were able to meet the benchmarks for the story retelling task. Although this increase is also attributed to other factors (such as child development or other strategies used in the classroom, …) technology is a factor that needs to be taken into consideration when looking at this increase.
- Student achievement results show that 92% of Year One Kindergarten students were able to meet the benchmark outlined for the total score of the TSRI. In January, only 79% of students were able to meet the benchmarks for the total score of the TSRI. Although this increase is also attributed to other factors, technology is a factor that needs to be taken into consideration when looking at this increase.
- The qualitative feedback from educators that was gathered throughout the process also indicates success with the project. Educators reported the greatest changes in documentation and communication of student learning as a result of the access to technology.

Highlights of Challenges and Unexpected Results

- Everyone came into the project with varied technology experience. To build capacity with educators new to the project, these educators were given a day of training and additional TIM (Technology Integration Mentor) support in the classroom.
- Using the collaborative inquiry process and the plan, act, observe, reflect cycle, educators were able to learn about technology and further their abilities to use technology in a way that was job-embedded and aligned with their learning about the new FDK program. By coming together with the technology and a shared purpose educators were able to learn from each other and gain the courage to take risks and move ‘outside of the box’ of traditional learning to use the technology in new ways.
- An educator just wanted to see what would happen if she downloaded an app that builds electrical circuits on the iPad. A couple of days later a student brought her an iPad and showed her how he created a circuit that lit up a light bulb. It is unbelievable to think that all of this learning was happening with Kindergarten students, but it was made possible because of skilled educators and the technology in the classroom.

Additional Statements Made in the Report

- Whenever technology is involved with a group of eager and interested learners, expectations are always surpassed. The educators used the technology in new and innovative ways that furthered the student learning and the documentation of student learning. At Christmas time, some educators reported videotaping their class concert on the iPad at the beginning of practicing, during practicing and again at the final concert. The educators shared these video clips with the students and had a discussion about their growth. The students were amazed at their growth and the educators began to build metacognition skills with their students.
- In one class, student interest about the moon bubbled up and because of the technology in the classroom, the educators were able to download a YouTube video showing the phases of the moon and show it to the students. This type of ‘in the moment’ learning would not be possible without the technology.
This project has influenced communication with parents. Using the technology to document student learning has improved the ways that parents learn about how their children are doing at school. Sharing videos, photographs and learning stories with parents gives them a much clearer understanding of how their child is learning and progressing at school.

Follow-up and Future Directions

Direction for future related work

- All educators involved in the project will also be engaged in a collaborative inquiry next year. The focus of the inquiry will be more open for educators, but the use of technology will be essential.

Implications for school board planning

- Next year the project will continue and the same technology (iPads, a Macbook, a printer, a camera, a Fisher Price camera and a projector) will be put into the new FDK classrooms. As a result of this project our board is currently investigating the feasibility of putting this technology into Grade 1 classrooms as well.
Thames Valley District School Board

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Early Literacy iPod Touch Project</th>
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<tbody>
<tr>
<td>Brief Description</td>
<td>Early Years educators will gain access to a wide range of resources to enhance student learning through the use of handheld mobile technology.</td>
</tr>
</tbody>
</table>
| Context                | Number of schools: 18  
Number of classrooms: 20  
Number of students: 500  
Early years classes are the target group of our project. |
| Impetus                | Previous experimental projects with iPods were conducted and well received in Early Years classrooms, which is what motivated our board’s involvement in this initiative. |
| Goals & Priorities     | Literacy development with the integration of technology at an early age is the intended level of impact in our board. Learning technologies and instructional technologies are developed within the project parameters, i.e., a variety and choice of applications for each classroom. |
| Theory of Action       | Each educator (in partners or teams) decided on a base-line inquiry statement: “If..., then...”  
The inquiries support improving student learning in literacy.  
Some examples of Inquiry Statements used by teachers:  
• If students are given opportunities to express, record and listen to their ideas, then they will improve their communication skills.  
• If we use rhyming apps, then the students ability to identify and produce rhyming words will improve.  
• If students use phonics (letter-sound) apps, then they will improve writing whole words.  
   This will increase the amount of writing and in turn writing confidence. |
| Standards and Targets  | Standards evidenced, no identified targets |
| Phase of Change        | Implementation began Fall 2011 |
| Assessment, Use of Data| Data is being collected to measure the impact on student engagement and instructional practices.  
Phonological Awareness scores, running records and writing samples from the fall have been collected which will allow team members to identify literacy growth for students when compared to spring results.  
The indicators or success will be generated at the individual school level based on individual inquiries. |
| Capacity Building in Teaching | Several training sessions for teachers on the use of technology and sharing instructional experiences. |
| Leadership, Sustainability | Clear evidence of support from Program staff. |
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection

- Data reported.
- Data summarized succinctly and effectively in report.
- Links to additional information are available in the report.

Project leaders collected anecdotal data from project team members in a variety of different ways. One way was by using a Web 2.0 tool called Linoit. Another process incorporated the use of collaborative Google Documents. A third method of data collection was an online Google Form in which teachers were able to write about key findings, results, next steps and other thoughts regarding the Early Years iPod Project.

Highlights of Key Findings/Results

The report provides a very balanced and thoughtful analysis of findings.

- iPods in the classroom had the greatest impact in the area of student engagement. Initial iPod implementation caused a decrease in participation in play-based learning because the students were so engaged when using the devices. However, as time went on, it became evident that the devices encouraged collaborative learning among students.
- One of the key findings of this project is that the apps, although captivating, are only one feature of the mobile devices. It’s in the use of the other features of the device (email, voice memos, camera and video recording), where the real student engagement has occurred in classrooms. Student engagement is maximized by the use of iPods when activities involving the devices are student directed or initiated.
- The impact the iPods had on student outcomes were different for every student, class, and inquiry. Teachers reported varying degrees of success in this area, ranging from little impact, to evidence which supported academic gains for students in reading, writing and oral language.
- A different way of engaging reluctant learners was now available to teachers. One teacher shared how some of her students with speech/sound production issues were hesitant to speak in class or they used very short responses and often did not elaborate on their ideas.
- The iPods offer a practical way for each student to try using multi-media tools, such as email, camera, apps, safari, and video recording. However, while some of the teachers had familiarity with iPod technology, it was new to others. Instructional teaching practices were impacted because teachers were not only learning how to use this type of technology, but also how to incorporate the technology into their programming.

Highlights of Challenges and Unexpected Results

- Additional support was required from our I.T. Department. The department needed to create an image for the netbook, configure the wireless access points, as well as to set up each and every iPod to access the access points. The time this involved and utilizing manpower from an already very busy department was a challenge.
- The varying knowledge base and comfort level of educators in the realm of iPod and Web 2.0 technology created some challenges. Some team members benefit from extra support in the use of this technology.
- Challenges persist in terms of purchasing apps in the iTunes store. Some schools, due to administrator’s choice, have access to apps which cost money, while others may use only free apps.
- Unexpected opportunities come with being able to support English Language Learners (ELL) students. The devices can prove to be very useful in helping students new to Canada improve their literacy skills.
- Collaboration among Learning Technology and Literacy Coordinators was an unexpected opportunity.

Additional Statements Made in the Report

- Many budding young news reporters, videographers, and photographers have been cultivated as a result of this project. Drama, music and dance activities are being captured on film by young students. Posters are being created by the children to advertise these events. Early Years children are able to send messages to their teacher and parents using email. iPods are a springboard for endless, engaging learning opportunities for students.
Sample Comments from Participants

- It is difficult to isolate the effectiveness of the iPods when they are used in conjunction with other technologies in the classroom.
- Students who were not part of the project and did not play the Fun Rhyming game also experienced similar improvements in their ability to produce rhyme.
- Ability to recognize rhyme was enhanced immediately following playing the game, this ability did not last until the next time.
- Students were more willing to take risks with writing independently. Their journal entries show phonemic spelling, but done without or with limited support.
- Students have improved their writing in journals, making lists, and writing friendly letters using phonemic/phonological awareness skills.

Follow-up and Future Directions

Direction for future related work

- The majority of teachers involved in the project stated that they were interested in becoming part of an Early Years iPod User Group next year. It was discussed that after school sessions and Adobe Connect meetings would be a good way to maintain connections and these beneficial sharing opportunities. The project has helped to build capacity among Early Years teachers in a way which would not have occurred without the Teaching and Learning in the Digital World - Pilot Project.
- Two educators from Peel District School board visited a TVDSB school for a day to learn more about the implementation of iPods in Early Years classrooms. The correspondence between our two boards has continued since the meeting.
## Thunder Bay Catholic District School Board (PROJECT #1)

<table>
<thead>
<tr>
<th><strong>Project Title</strong></th>
<th>Teaching and Learning in a 21st Century Classroom</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief Description</strong></td>
<td>The Boys Literacy Initiative (BLI) goal is to create an all-male Grade 10 literacy class, that integrates a variety of ICT resources to engage students and improve their achievement. This project places students in a 21st Century, technology-infused learning environment. Students will have access to and use technology to support and document their learning (e.g. digital cameras, podcasting, web 2.0, assistive and adaptive software, interactive whiteboards).</td>
</tr>
</tbody>
</table>
| **Context** | Number of schools: 2  
Number of classrooms: 2  
Number of students: 40 |
| **Impetus** | To establish the educational priorities for the 2010/11 school year, TBCDSB began with an extensive analysis of their assessment and achievement data. Of the various priorities that were established, one goal was to focus on improving student achievement in Literacy, specifically Boys’ Literacy at the Grade 10 Applied level. |
| **Goals & Priorities** | Intended Impact:  
- Increased student achievement  
- Increased engagement  
- Increased credit accumulation  
- Improved OSSLT results  
- Improved attendance  
- Changes in teaching practice – increased proficiency, comfort and understanding of ICT-enabled teaching strategies complemented by a deep understanding of Assessment for/as/of learning |
| **Theory of Action** | A Collaborative Research Model is planned. The foundation of the model lies in its flexibility and inclusive cooperative stance, which supports stakeholders working together toward informed decision making on a common research problem.  
Job-embedded, inquiry-based professional learning opportunities will enable classroom teachers to provide instruction incorporating 21st Century content, global perspectives, learning skills, resources and technologies. |
| **Standards and Targets** | Standards evidenced, no identified targets |
| **Phase of Change** | Initial planning began in 2010, implementation of this project Fall 2011 |
| **Assessment, Use of Data** | A series of research questions will be developed to provide insights into the success and challenges associated with the implementation of technology in the same-sex, ENG2P – Grade 10 Applied English. A mixed-methods design with triangulation will be used to capture quantitative and qualitative data from project stakeholders. Research questions will focus on the goal achievement of the project. Specifically, the goal of this project was to enhance (a) student achievement (b) student engagement and (c) instructional practice. |
| **Capacity Building in Teaching** | Provide a comprehensive training and professional development plan for the teachers and principals to not only learn the technology and the software, but more importantly to learn how to truly integrate these digital resources into the teaching process. |
| **Leadership, Sustainability** | Clear evidence of support from IT and Administration. External expertise includes:  
- Research Consultant Lakehead University  
- Project planning IBM Canada |
Outcomes *(verbatim as submitted in the Final School Board Report, June 2012)*

**Summary of Data Collection**
- Data reported.
- Data summarized in report.
- Full and extensive additional report also provided as appendix. This research report carefully and professionally documents a positive impact of the BLI on boys literacy. The report also includes an extensive annotated reference list related to Mobile Learning and Student Achievement.

**Highlights of Key Findings/Results**
Through this research report, we examined and documented the impact of the BLI at TBCDSB on five key areas of education: student engagement, student achievement, students’ skills for the 21st Century, the changing roles of teachers and students, and instructional practice. A Collaborative Research Model was used to collect evidence regarding the impact of the BLI on the five key areas. A mixed-methods design with triangulation was used to capture quantitative and qualitative data from students (N=28) and classroom teachers (N=3).

Results of the research suggest that BLI enhanced the learning of Grade 10 boys at the TBCDSB, especially in the areas of student engagement, student skills for the 21st Century. Objective measures of students’ literacy show a small positive impact of the BLI on boys’ literacy. This is a conservative interpretation - in fact the meaningful impact of the BLI on boys’ literacy may be greater – a pre/post controlled design would tell us more about the pre BLI literacy of the boys.

**Highlights of Challenges and Unexpected Results**
- Filter and Firewall Issues: Some educational sites are not available because of filtering/firewall practices.
- Technical Issues: Teachers and students navigated many technical issues directly related to the laptop image.
- Time: Learning and understanding new technologies takes time.

**Additional Statements Made in the Report**
**Early successes:**
- Credit Acquisition Data.
- 24 of 26 students passed course (the 2 that failed had significant attendance issues).
- Attendance Data
- ... was much improved for the boys registered in the class compared to their attendance in other classes.
- OSSLT Data.
- 56% pass rate in boys literacy classroom (class seeded with the lower performing boys with engagement issues) compared to:
  - 41% pass rate @ applied level for TBCDSB in 2010/2011
  - 42% pass rate provincially
- Gender Gap
  In 2010/2011 the spread decreased to 5% overall vs. TBCDSB trending, compared to:
  - Board 4-year average spread between boys and girls is 7.25% (girls passing OSSLT at a higher rate)
  - Provincially, it’s a spread of 7.75% (girls passing OSSLT at a higher rate)

**Sample Recommendations from Boys’ Literacy Initiative (BLI) Report:**
- The largest positive impact of the BLI has been on student engagement, student skills for the 21st Century and instructional practice. Because the mixed-method evidence (with triangulation) suggests that these are having a positive impact on the experience of students in school, we recommend continuing to implement the BLI at TBCDSB.
• The impact of the BLI on student achievement was small but positive. We recommend that the curriculum areas that might be impacted the most by the BLI be reviewed and valid measures be identified and implemented as part of an ongoing project monitoring plan.

• It is important to recognize that teachers in this BLI are not **only learning new technology, but also learning about their changing role**. More explicit acknowledgement of this dual learning curve (in professional development) is recommended.

• We recommend that some of the professional development for teachers **focus on defining some of the skills for the 21st Century**, like creativity and critical thinking to establish a shared understanding, and then identifying observable student behaviours or products that reflect those abilities.

**Sample Comments from Participants**

• **There’s such a difference in student achievement.** You know, seeing the process, and where they were at the beginning, to now and I really believe that technology had a lot to do with that achievement. Boys tended to gravitate, at least these boys tended to gravitate towards using technology to help them bring tasks to completion and not just completion, but to perfect it. One of my boys, just recently, today, said he was working on an assignment for two hours at home and he wanted to come in at lunchtime because he wanted to use this program. Students don’t just want to complete it, they want to perfect it.

• **Critical Thinking:** Having the access that they boys did to the Internet, fostered their critical thinking in terms of their digital citizenship. There were lessons and discussions around evaluating the content that they “Google” before them. Using various Web 2.0 tools and apply their skills to those tools provided many attempts at critical thinking in terms of application of skills. The boys made many references to how it doesn’t really seem like ‘work’ when they are typing and/or using the Netbooks, and so I could push them in their critical thinking skills a little more than they were probably used to unbeknownst to them.

• **I enjoyed the freedom to use different techniques and use my own personal skills on projects for example on my final Macbeth project I was able to use my programming skills to make a flash game instead of using Bristol board and waste sheet after sheet of paper and glue.**

**Follow-up and Future Directions**

**Direction for future related work**

• School principals, Student Achievement Department staff and project teachers are in the process of planning next steps for the project. The project will continue and expand. At this time, the first priority is expanding to other applied English classes (ENG1P, ENG2P).

**Implications for school board planning**

• Funding access to technology is a challenge. TBCDSB is in the initial stages of developing policy and infrastructure to support **BYOD** (bring your own device).
<table>
<thead>
<tr>
<th><strong>Project Title</strong></th>
<th>Educating for the Future ~ Preparing for the World: Mobile Technology in Thunder Bay Catholic Elementary Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief Description</strong></td>
<td>The Mobile Learning Initiative (MLI) places elementary students and teachers in a 21\textsuperscript{st} Century, technology-infused learning environment. Students and teachers have access to a variety of appropriate information and communication technologies (iMacs, iPads, iPods, Laptops &amp; SMART Boards) to enhance student outcomes and engagement. The primary goal of the project is increased student achievement through technology-enabled learning opportunities, access to the technology devices mentioned above, is essential to the project.</td>
</tr>
</tbody>
</table>
| **Context** | Number of schools: 18  
Number of classrooms: 161  
Number of students: 3000 |
| **Impetus** | The MLI introduce almost 2,000 pieces of technology into Thunder Bay Catholic elementary schools, including iMacs, iPods, iPads, laptops and SMART Boards. All 5,750 Kindergarten to grade 8 elementary students have access to and use a variety of technologies to support and document their learning. Also part of the MLI, a comprehensive professional development plan was developed to build knowledge and understanding, empower educators and support improved student achievement in literacy instruction. |
| **Goals & Priorities** | The primary goal of the project is to positively impact student achievement through embedded support and teacher participation in a Teaching-Learning Critical Pathways. Other anticipated outcomes are increased student engagement and positive changes in instructional practice, particularly in respect to assessment. |
| **Theory of Action** | The rationale for this project connects with our desire to provide students with the best possible education. We believe that the learning opportunities enabled through this project will positively impact student achievement, student engagement and teaching practice. “Students will require an education that has a solid foundation on basic literacy and numeracy skills but also supports deep thinking and action – an education that values and understands the human condition. This is about a type of education that prepares students to survive and thrive in the 21\textsuperscript{st} Century and to make positive and lasting contributions to their world.” Source: "Teaching-Learning Critical Pathways." Ministry of Education / Ministère De L'Éducation. The Literacy and Numeracy Secretariat, June 2008. Web. 31 Jan. 2012. |
| **Standards and Targets** | Standards evidenced throughout, no identified specific targets |
| **Phase of Change** | Phase 1 began 2010-11. Phase 2 and 3 began Fall 2011 |
| **Assessment, Use of Data** | A series of research questions will be developed to provide insights into the success and challenges associated with the implementation of the Mobile Learning Initiative at the TBCDSB. A mixed-methods design with triangulation will be used to capture quantitative and qualitative data from project stakeholders. Research questions will focus on the goal achievement of the project. Specifically, the goal of the Mobile Learning Initiative at the TBCDSB is to enhance (a) student achievement,(b) student engagement, (c) instructional practice, and (d) focus on 21\textsuperscript{st} Century skills for learners with support from recent technology. |
| **Capacity Building in Teaching** | Provide a comprehensive training and professional development plan for the teachers and principals. Job-Embedded Training: All Grade 3-6 teachers will receive 6.5 days of training, which will be organized to integrate the goals of the TLCP capacity building with the mobile technology training goals. |
| **Leadership, Sustainability** | Clear evidence of support from IT and Administration. External expertise: Research Consultant Lakehead University |
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported.
- Data summarized in report.
- Full and extensive additional report also provided as appendix. This research report carefully and professionally documents a positive impact of the MLI. The report also includes an extensive annotated reference list related to Mobile Learning and Student Achievement.

Highlights of Key Findings/Results
- The largest positive impact of the MLI has been on student engagement, changing roles of teachers and students, student skills for the 21st Century and instructional practice. Because the mixed-method evidence (with triangulation) suggests that these are having a positive impact on the experience of students in school, we recommend continuing to implement the MLI at TBCDSB.
- The impact of the MLI on student achievement was mixed. We recommend that the curriculum areas that might be impacted the most by the MLI be reviewed and valid measures be identified and implemented as part of an ongoing project monitoring plan. In order to better attribute student gains to the MLI.
- The teachers reported that the professional development and ongoing support to learn about the technology were critical to successful implementation of technology in the classroom. Based on the evidence of changing roles for teachers and learners, we recommend that continues to shift from professional development and ongoing support (e.g., from technology coaches) shift from technology-centered to a technology-instruction centered approach (e.g., coaches focus on integration of technology and instructional practices). One area that might be a focus, for example, is integrating technology and assessment for learning.

Highlights of Challenges and Unexpected Results
- Filter and Firewall Issues: Some educational sites are not available because of filtering/firewall practices.
- Laptop image: Some system features are unavailable because of the IT configuration.
- Initiative Fatigue: Teachers reported that participation in multiple initiatives was a challenge.
- Time: Learning and understanding new technologies takes time.

Additional Statements Made in the Report
- It is important to recognize that teachers in this MLI are not only learning new technology, but also learning about their changing role. More explicit acknowledgement of this dual learning curve (in professional development) is recommended.
- One concern that was raised consistently was the notion that the students and teachers might be distracted by the ‘bells and whistles’ of the technology and be less focussed on the achievement of expectations or evidence of critical thinking. We recommend that some of the professional development for teachers focus on defining some of the skills for the 21st Century, like creativity and critical thinking to establish a shared understanding, and then identifying observable student behaviours or products that reflect those abilities.
- Administrators in the pilot schools were surveyed:
  - Students were more engaged (time on task, work completion, ownership and pride in learning).
  - Behaviour and classroom management issues were less evident.
  - Assistive and adaptive technologies enabled exceptional students to engage in classroom activities without appearing to be ‘separate.’
- Teachers in the pilot schools were surveyed:
  - Students were more motivated and engaged (time on task, work completion, ownership and pride in learning).
  - Students were more confident in their learning.
  - Students were more collaborative, new leaders emerged, listening improved.
- Students were excited by the availability of current, relevant information and multimedia resources to support their learning.
- Some students were expert users of the technology and assisted their peers learning – new classroom “experts” emerged.
- Technology has given all students a voice – it allows shy students to be heard.

Sample Comments from Participants

- **We just completed a project on the Titanic and I was a little worried cause it was going to be research and we hadn’t done much in the way of writing first person. I was really shocked at not only their level of interest, but also the research that they put into the project, because what they had to do was choose an actual passenger that was on the Titanic. Then they had to research who that passenger was, what their life was like and create what their experience on the Titanic would have been based on what we knew about first class passengers, second class or third class. The amount of writing, and how well it was done shocked me. They went through the writing steps where they had to write it out first but also they searched for some pictures of that person that they chose. For me it was like “Wow this is what the technology could be”. Keep them engaged, give them that idea that they can do it rather than struggling with rough copies and then good copy and then do it again. It’s a lot of writing so this makes it a little easier for them I think. I think they’re more confident.**

- **It would be more exciting for me to use paper and pencil because you have more room to write. On pages you just have those text boxes and it’s hard to fit all that information on one page. It’d be OK, because people rely on technology too much. I’d be fine with it. It helps, but I wouldn’t go on it always.**

- **I’m happy with it because I did it myself and I accomplished more things, I used new things, new words. I wouldn’t have been as excited to do this project without the computer because it’s an advantage to use it and it’s fun and you can do so much more in a faster time.**

Follow-up and Future Directions

**Direction for future related work**

- Consideration should be given to the systematic use of a measurement tool (or tools) that captures student growth trajectories over time in key areas of student achievement, student engagements, and skills for the 21st Century.
- The qualitative component of this research was important to interpret and provide depth to the quantitative data.
- Qualitative data is important to the inquiry should be considered in the next study.

**Implications for school board planning**

- Funding access to technology is a challenge. TBCDSB is in the initial stages of developing policy and infrastructure to support *BYOD* (bring your own device).
<table>
<thead>
<tr>
<th><strong>Project Title</strong></th>
<th>Transforming Student Engagement and Teacher Practice through the EAL (Earn a Laptop) and IL (Inspired Learning) Project</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Brief Description</strong></td>
<td>This project will look at the correlation between student engagement in Inspired Learning classrooms with teachers who have been part of the EAL (Earn-A-Laptop) program and the Inspired Learning classrooms that have a teacher who has not earned an EAL laptop.</td>
</tr>
</tbody>
</table>
| **Context** | Number of schools: 41  
Number of classrooms: 41  
Number of students: 1025  
We are specifically looking at the information or the teachers who have taken part in both the Earn a Laptop program and the Inspired Learning Program. |
| **Impetus** | We used student voice activity to identify that students felt that the use of technology improved their engagement and achievement |
| **Goals & Priorities** | The purpose of this program is to investigate how access to technology impacts student learning. In addition to the use of collaborative tools, students have access to Internet resources, assistive technology, and media creation tools to complement all areas of the curriculum. As they develop their skills, they are creating and sharing digital work with their classmates, with other schools, and even globally with digital partners. |
| **Theory of Action** | In order for our teachers to provide opportunities for students to access technology for educational purposes they must have both an understanding of how the tools work and access to implement those plans. By providing them with the training through the EAL program and access to the tools through the IL Program we believe that our students’ engagement will increase and as a result so will their achievement. |
| **Standards and Targets** | Standards evidenced. No targets stated.  
For this project we are looking at the data and the correlation when a teacher has participated in both the EAL program and the Inspired Learning program. |
| **Phase of Change** | Program has evolved from Inspired Learning Program (in its seventh year), and has expanded to include every elementary school in the district as a participating class |
| **Assessment, Use of Data** | Data is being collected to measure the impact on student engagement, and instructional practices.  
Through a controlled study, the project hopes to have a measure of impact of the EAL program to inform future directions. |
| **Capacity Building in Teaching** | Our EAL (Earn-A-Laptop) program is designed to provide eligible teachers (permanent 0.5 FTE or greater) the opportunity to earn a laptop that can be used between home and school. Teachers are required to attend eight, two hour workshops where they will gain an increased understanding of how the many programs offered through the board operate and integrate into their classroom instruction. |
| **Leadership, Sustainability** | Clear evidence of support from IT and Administration.  
The EAL project was developed with the support of our trustees, senior administration, federations and teaching staff. |
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported.
- Data summarized effectively in report.

Highlights of Key Findings
The findings presented below are effectively summarized and charted in the report. Data from a Post Survey was collected this June. The data was collected from students that had a teacher with an EAL laptop (EAL group) and from students that did not (non-EAL group), and their answers were compared.
- Although the majority of students claim that having the laptops has improved their attitude towards school, the students of EAL teachers had a slightly higher percentage (by 8%).
- EAL students exhibit more confidence in their overall ability to use computers as well as their ability to research information using technology.
- A higher percentage of EAL students believe that technology should be used in education.
- When asked to comment on the impact of their EAL laptop on their IL program, all but one EAL teacher claimed that their EAL laptop has been valuable in helping them to plan and teach with netbooks.
- EAL teachers exhibit an increase in confidence in their own computer skills.
- EAL teachers displayed more confidence in their ability to use technology for teaching.

Highlights of Challenges and Unexpected Results
- The challenge in our district is based on the momentum and buy in we have seen. Our consultant and training support time is in high demand. Unfortunately, this means that teachers don’t receive the additional support they need in as timely a manner as we would hope. However, the demand does speak to the engagement of the teachers and their commitment to the program.
- We are seeing such momentum with respect to the creative use of technology in our district that we recently launched another opportunity to which teachers can apply. The opportunity is called, Innovation and Inquiry using Technology. This allows teachers to receive funding for a special project that they design using the inquiry model that we will have the opportunity to fund and follow.

Sample Comments from Participants
*Having the laptop at my disposal at home and at school ensures that I can plan lessons that incorporate software, online sites, or smart notebook. Often these lessons are more engaging to students and serve as a foundation to their skill development. Often times the feature presented to students through the use of my laptop is surpassed by their creativity and risk-taking. The EAL laptop becomes a forum for students sharing their work with others to build on ideas, receive feedback, or for me to collaborate with students. The EAL laptop improves my ability to communicate with parents and share student work more rapidly. Lastly, the EAL laptop serves as a quick reference to inquiry questions that arise during lessons or discussions. It allows me to readily find teaching materials that build on classroom work. For example, if a current event is raised in class, I can quickly access news sites (a great opportunity to explore credibility of sites) or search videos that immediately support our discussion. If a student poses an inquiry question or states a contentious point, I can model for the students the necessary research skills to find an answer to the question using credible sites. Research skills, literacy, math exploration have been greatly improved by the use of my EAL laptop in class. I have the opportunity to model for students, guide them in their work through collaborative sites as they are working, and independent work when students can use their laptops to complete work or share their learning.* (Grade 6 Teacher)
Follow-up and Future Directions

Direction for future related work

- The EAL program is a voluntary initiative. It is the teacher’s choice whether they want to participate. We are encouraging teachers to come forward and use technology in their classrooms, and providing them with the tools and training to do just that. We know that there is a lot of expertise and enthusiasm among our staff and we want to capitalize on that. That is the rationale for the Innovation and Inquiry Using Technology project. Teachers have submitted proposals, received equipment and are in the process of submitting their preliminary report for next year.

Implications for school board planning

- In order to expand our access to technology, we are in the process of implementing a BYOD initiative whereby students can access resources with their own devices. This would allow more teachers to embed the use of technology in their class.
### Project Title
- Academic Workspace 3.0 - The Parent & Community Engagement Portal

### Brief Description
- Our goal is to work together with Families of Schools Superintendents, School Principals and Parents, building a “digital bridge” with students, teachers and parents that will, in fact, create a collaborative environment to drive greater engagement.

### Context
- One (1) elementary and One (1) secondary

### Impetus
- Parental and Community engagement and involvement are critical success factors to any child’s educational process. Providing student and school information in an “on-demand” environment is crucial for parents to become active participants in their child’s school community.

### Goals & Priorities
- The Parent & Community is the targeted group. More specifically, the project will focus on the what, when, where and how to effectively engage parents in their children’s school life, that will ultimately lead to increased participation and involvement. The target group will entail parents of children in Grades JK – 12. Applying a single point “information source”, incorporated with the web based technology, will allow for the provision of this information to a multitude of diverse cultural backgrounds and languages quickly and efficiently. Additionally, this approach maximizes the school’s and teachers’ efforts. If parents are informed, communicating and contributing they will become more engaged.

- The goals of this pilot are to:
  - Understand the “customer requirements” of parents and the community. Understand if these requirements are different based on ‘level’ of school. Understand better how parents want to engage and when.
  - Prove that a parent-oriented approach will drive parent and community engagement through the use of technology

### Theory of Action
- The Academic Workspace 3.0 is the Toronto District School Board’s vision of a single integrated web-based solution for a comprehensive interactive communication and engagement forum for students, teachers, and parents.

### Standards and Targets
- Standards evidenced, no identified targets of performance but clear timelines for completion

### Phase of Change
- Sept 2011 start
  - Middle stages of implementation

### Assessment, Use of Data
- This pilot will allow the Board to expedite the research, development and deployment (limited to two schools) of this phase of the project and will, through measurement, ensure this solution will lead to improved student engagement and achievement.

### Capacity Building in Teaching
- N/A

### Leadership, Sustainability
- Clear evidence of support from IT and Administration.
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported and summarized in report.
- Additional detailed report provided with findings and survey tools.

Highlights of Key Findings/Results
- Student achievement and teacher feedback is the top priority for all parties (ie. Grades/Marks/Feedback/Attendance/Assessment).
- The second priority is School Calendar and Announcements.
- Security and authentication becomes more important, given student information is involved vs. just school calendar or announcements.
- A majority of parents indicated they have children in multiple TDSB schools.
- Interactive communication is something to be reviewed and considered.
- The number of parents willing to participate in follow-on testing/pilot is significant indicating in our view, the need for this effort.
- The frequency of communication between parents and schools/teachers was highlighted as another important consideration based on the survey results.
- Results indicate that 100% of those surveyed have access to the internet.

Additional Statements Made in the Report
We were able to create both an electronic survey as well as a paper version to accommodate the largest number of potential respondents. The results of the survey served to both substantiate our hypothesis and beliefs as well as to disprove a number of them as well. This is such valuable information and will allow us to focus our design energies on what exactly all parties would like to see. It has further provided us with a priority of sorts on the important items.

Current results against the goals and objectives of this pilot include the following:

- Understand the “customer requirements” of parents and the community via successful collection of research data to support their requirements.
  - We have been successful in gathering these requirements for both parents and community, but also the school based staff.
  - Additionally we have a priority sequence of what information is being requested.

- Understand if these requirements are different based on ‘level’ of school.
  - Our research and survey indicated this to be a myth and that there is no difference in what is required or requested by an elementary school vs. a secondary school.
  - Additionally, the data suggests there is no difference in the requirements within the different areas of the city/district.

- Understand better how parents want to engage and when.
  - We have actually gone above and beyond this goal, in that we have both the parent perspective, and the school/teacher perspective.
  - The data supports that these requirements do in fact match.

Follow-up and Future Directions
Implications for school board planning
- We will continue to manage the project through to its pilot completion, targeted for the September 2012, timeframe. At this time, we plan to issue a final document of the pilot design, the results of the planned pilots and any and all of the information tabulated. This will include the security protocol that we will ultimately select to address the security of student information.
### Upper Grand DSB and York Region DSB

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Teaching and Learning in a Digital Walled Garden</th>
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<tbody>
<tr>
<td>Brief Description</td>
<td>This project provides a pilot evaluation of a Virtual Learning Environment in two Ontario school boards. Virtual Learning Environments (VLEs) are web-based education systems. VLEs may include online access to assignments, quizzes and tests, and reference and research material.</td>
</tr>
</tbody>
</table>
| Context | UGDSB = 15 schools, 20 classrooms, 500 students  
YRDSB = 6 schools, 20 classrooms, 500 students  
Grades 6 – 12 |
| Impetus | With the proliferation of information on the Internet teachers and parents are frequently concerned about the accuracy, and appropriateness of content available to students on the Web. Both YRDSB and the UGDSB wish to provide students and staff with safe, secure access to appropriate and relevant digital resources and tools. As learning does not stop when students leave our schools, we wish to provide access to the rich digital resources and tools from any location, not just in the classroom during the school day. |
| Goals & Priorities | Use of Virtual Learning Environments (VLE) impact on:  
Student engagement with their learning during the school day  
Student engagement with their learning outside of the school day  
Teacher instructional practice  
Teacher assessment practice |
| Theory of Action | We are looking at how VLEs impact student engagement and outcomes (e.g., collaboration and use of technology), and instructional practices:  
What are student preferences and experiences with respect to technology in the classroom?  
What are barriers and facilitators for teachers using VLEs?  
Do students with access to the VLE engage more frequently in learning both inside and outside of the regular school day?  
Does the use of VLE change teacher instructional and/or assessment practices?  
Leveraging the power of the Active Directory systems in our boards we can now provide a digital walled garden where students and staff gain entrance to a safe and resource rich environment from any place and at any time  
A “Research Logic Model” was submitted that provides a comprehensive structural overview of the theory of action. |
| Standards and Targets | Standards evidenced  
Clear identified targets |
| Phase of Change | Years in planning, project implementation Fall 2011. middle stages of implementation |
| Assessment, Use of Data | Data is being collected to measure the impact on student engagement and instructional practices. Over the course of this project we will collect data using a number of different methods: Student surveys; Focus group sessions with teaching staff; Photocopy budgets; Access to system Collaborated with University of Guelph to develop research model, Get ethics approval; Gather and analyze data for research (Feb – April). |
| Capacity Building in Teaching | Participating teachers are provided with regular training opportunities organized by central staff. By design the team of teachers is working as professional learning team  
Extensive training provided to the participants. |
| Leadership, Sustainability | Clear evidence of support from IT, Program staff, and Administration.  
We have engaged Dr. Anne Bergen from Institute for Community Engaged Scholarship/The Research Shop at the University of Guelph.  
Dr. Bergen is assisting in the evaluation of VLE’s impact on student engagement and teacher practice. She has assisted in developing the logic model for the evaluation, development of questions for student survey and submissions for ethics approval. |
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data summarized in report.
- Data summarized in report with additional supporting data files provided.
- Full and extensive additional report Teaching and Learning in a Digital World: A Developmental Evaluation of Virtual Learning Environments in the Upper Grand And York Region District School Boards is provided as appendix. The report was written by the Research Shop, University of Guelph. It provides an examination of the OGDSB and YRDSB project, but also provides a context of other research done on the subject. It is recommended that any groups or individuals exploring VLE’s should read the report. A brief précis of the report is provided below.

An online survey was used to assess student pedagogical and motivational outcomes related to VLEs; teacher activities and outcomes were assessed using focus group methodology. Results show that students using VLEs show differences in motivation to use online technologies and feedback, and in satisfaction with access to technology, as compared to non-users. Teachers using VLEs are changing instructional practices, including how and when student feedback occurs. Barriers of time constraints, unreliable technology, and lack of access to technology impact teacher motivation and perceived ability to implement VLEs. There is evidence that using VLEs blurs the line between school and home for both students and teachers, moving teaching and learning from the classroom to the larger online environment. Limitations and recommendations are discussed.

Highlights of Key Findings/Results
- Students have utilized the virtual learning environments frequently outside of school hours, completing work and submitting assignments at all times of day and night.
- Student motivation to do work has noticeably increased.
- A Virtual Learning Environment (VLE) provides a ‘device-agnostic’ platform that staff and students can use from anywhere and at anytime.
- Cloud-based VLEs complement the implementation of the “Bring Your Own Device” policies being implemented at both UGDSB and YRDSB.
- Students using VLEs are working differently, using more Internet at home and have different expectations, such that they are more satisfied with Internet at school.
- Teachers using VLEs are assessing students differently, and also communicating with students differently.
- Teachers require more professional and technical support for VLE implementation.
- Online communities of learning are an important professional development tool for teachers.
- Collaboration between departments is essential to the successful implementation of VLE, the Curriculum and IT Departments must recognize a common purpose, student learning.

Highlights of Challenges and Unexpected Results
This is an extensive project with many stages of development. The following is just a sample of the challenges and surprises as the project unfolded.
- Immediate uptake and use by schools required us to speed up development of policies and procedures for end users, e.g., parental permission forms.
- Development of training materials. We assumed pre-existing resources on Internet would suffice, but staff want customized materials designed by and for our board. We are still working to develop a better process for providing access to the materials.
- High level of parental support for project.
- Integration of Google Apps with eLearning Ontario’s Learning Management System, Desire 2Learn.
- Use of Google for SEA students to work with resource teachers, technical trainers and other teachers.
- Adoption by groups of itinerant teachers, Special Ed. consultants, itinerant technology coaches.
• Students using the tools in other classes not affiliated with the project and convincing their teachers of the effectiveness of these tools in their learning.
• Increased parent confidence in providing access to safe, reliable, inclusive digital resources in a managed environment.
• In boards that do not have a security protocol that matches the Google requirements, single sign-on is not possible and increases the level of difficulty in managing access. It is essential to get the system to a point where seamless access can be enabled and understanding the costs of this process is important.
• Managing demand from school not in pilot; requests for access were persistent through year.
• Continued challenges of unreliable access.

Sample Comments from Participants
• *Promotional video made by grade 11 students shared with prospective schools for next phase. The video link to Youtube is provided in the report.*
• *The report Teaching and Learning In a Digital World: A Developmental Evaluation of Virtual Learning Environments in the Upper Grand And York Region District School Boards provides a wide range of quotes from students, parents, users, teachers, technicians, administrators and others that set an excellent context for the project.*

Follow-up and Future Directions

*Direction for future related work*
• Continue collaboration between UGDSB and YRDSB to continue learning together.
• Develop and deliver of training using a variety of different modalities (face-to-face, Adobe Connect, Moodle).
• Produce resources for staff on digital citizenship and appropriate use of technology.
• Collaborate with other school boards interested in using Google Apps.
• Continue research collaboration with the University of Guelph to see impact of VLE on learning.

*Implications for school board planning*
• Integration of Google with Ministry eLearning LMS (D2L) for blended learning.
• Explore integration of Google with open source LMS (Moodle) for blended learning.
<table>
<thead>
<tr>
<th>Project Title</th>
<th>Teacher Development Through the Use of Interactive Whiteboard Technology</th>
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<tbody>
<tr>
<td>Brief Description</td>
<td>We are providing each school within our board the opportunity to select one teacher from each division (elementary) and one teacher from a variety of disciplines (secondary), where these teachers will be released from their classroom to take part in instructional practice PD and resource development related to interactive whiteboards and related software.</td>
</tr>
</tbody>
</table>
| Context | Number of schools: 50 (45 elementary schools and 5 secondary schools)  
Number of classrooms: 150 (3 – 5 teachers from each school will be participating)  
Number of students: 3750 |
| Impetus | The WCDSB has invested in the installation of interactive whiteboards within every classroom space of 300 square feet or larger. The over 900 projectors can be found in every learning environment and this project is intended to develop teacher practice and understanding of interactive whiteboards and their link to innovative teaching practices. |
| Goals & Priorities | Our board has invested a large sum of money in this interactive whiteboard project, and this grant provides us with funds to release teachers and provide them with PD. |
| Theory of Action | Research has shown that interactive whiteboards can have a positive impact on student learning and engagement, but only when the proper teacher training and professional development has happened. This project will develop teacher capacity around exemplary use of interactive whiteboards through 21st Century skills and interactive student-driven learning within each of our schools across each division. |
| Standards and Targets | Standards evidenced, no identified targets |
| Phase of Change | Continuation of previous project |
| Assessment, Use of Data | Data is being collected to measure the impact on instructional practices. Teachers will take part in a survey before the session starts to identify where they are with regards to the use of interactive learning within their classrooms. Once they have taken part in their session and had time to apply the concepts within their classrooms, they will complete a secondary survey that will identify the impact that this project has had on their development. |
| Capacity Building in Teaching | Each school had a half day release time for the three teachers, and the agenda was presented to the teachers. It was structured to provide teachers with a basic understanding of interactive lesson design and delivery, and then allow them to apply their own creativity and skills to the development of an individual lesson. Each of the lessons that was created was then uploaded to a central hosting platform called “ShareNet”. |
| Leadership, Sustainability | Clear evidence of support from Program staff. |
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported.
- Survey result reports are provided as appendix.

Highlights of Key Findings
- When comparing teacher participant use of their interactive projector within the classroom, usage increased approximately 6% on average after the session.
- When comparing teacher usage of interactive websites, after the session every teacher was using them at least once a week, compared to 13% who didn’t use them before the session.
- A drastic increase can be noted regarding teachers’ use of RM Easiteach within their teaching. Pre-session, 47% didn’t ever use the program. Post-session that was reduced to 11%.
- The most notable result from this survey and project came from the last question on the follow-up survey. It asked teachers about their professional opinion on how much impact their interactive lesson had on students’ comprehension of the skill/concept. 37% of teachers rated it as a 4 on the 5-point scale and 30% rated it as a 5. This tells us that 67% of teachers noted a great impact on student comprehension when delivering lessons using an interactive model.

Highlights of Challenges and Unexpected Results
- The only early challenge that presented itself was the differing abilities of teachers regarding their familiarity with computers and learning a new software program. Many teachers were very experienced and familiar with the application and were able to learn quite quickly. This was addressed in two ways: the teachers that struggled with the new concepts were provided with extra support time and they also designed more basic lessons for their classes.

Follow-up and Future Directions
Direction for future related work
- As a result of this project, over 150 teachers from our board were able to develop their skills and understanding of interactive learning pedagogy. Although this was just a starting point, we have benefited greatly from this funding.
- Upon reflecting on the results, it was very obvious what our next steps need to be. As a board, we need to provide teachers with release or PD time in order to develop their skills with interactive learning.
**Waterloo Region District School Board**

<table>
<thead>
<tr>
<th><strong>Project Title</strong></th>
<th>Future Forums Project</th>
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<tr>
<td><strong>Brief Description</strong></td>
<td>The project provides a group of grade 10 students enrolled in English 2DI, Civics 2OH and Careers 2OH with an opportunity to engage in an inquiry based, cross-curricular, project oriented approach to their learning. Utilizing mobile technology and on-line applications, students have an opportunity to work with their teacher, along with teachers and students in other schools, in a collaborative environment to achieve the expectations of the three courses using an integrated approach.</td>
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</table>
| **Context** | Number of schools: 14 Secondary Schools  
Number of classrooms: 14 classrooms offering a total of 28 credits  
Number of students: 390  
A cohort of grade 10 students at 14 high schools enrolled in ENG 2DI, CHV 2OH and GLC 2OH |
| **Impetus** | The project grew from initial thinking and conversations among educators and students and with community leaders in the technology industries located in the Waterloo Region. An existing need to address was lower than expected success rates in the Grade 10 civics and careers courses. This trend has been consistent over the past five years and despite strategies developed independently at the school level, success rates have not significantly improved. |
| **Goals & Priorities** | The project is expected to promote greater personalization of instruction, through the use of technology, by providing students with access to knowledge and opportunities for interaction/thinking beyond the timetabled classroom. |
| **Theory of Action** | The project examines the impact of a technology enriched, cross-curricular and inquiry based curriculum on student learning and engagement in a secondary classroom. Technology is essential as an enabler for students to be independent learners, take responsibility for and pursue their personal learning, and develop/achieve curriculum expectations at a high level (e.g., develop, edit and publish work to authentic audiences). Using technology enables students to learn “anywhere, anytime, from anyone about anything.” |
| **Standards and Targets** | Standards evidenced, no identified targets |
| **Phase of Change** | Implementation began fall 2010, extension of previous project |
| **Assessment, Use of Data** | Data is being collected to measure the impact on student engagement, instructional practices, and student outcomes. Specifically the project examined the impact on student engagement, student attitudes towards learning and their ability to think critically, communication effectively, collaborate with other students and explore creative approaches to solving problems. The project also intended to examine the effect on teacher instructional practices and to determine the sustainability and scalability of this type of project in our sixteen secondary schools. Student outcomes as reflected in marks, attendance, reports of satisfaction/engagement and their ability to communicate their thinking in writing are intended to improve or reflect high levels. |
| **Capacity Building in Teaching** | The teacher is involved in an inquiry based, multi-disciplinary, project oriented approach integrating the teaching and learning of grade 10 Academic English, Civics, and Careers expectations. The teacher works with a network of teachers from schools across the WRDSB. Coverage and professional learning is provided to assist in planning and facilitating the use of effective instructional strategies and technology related resources (e.g., net books and online tools) to support learning in an interdisciplinary class. |
| **Leadership, Sustainability** | Clear evidence of support from IT, Program staff, and Administration. Very strong process to build engaged leadership and to promote sustainability. Schools interested in participating in the project must designate a vice-principal to oversee implementation of the project.  
- Attending professional development meetings with the Futures Forum teacher and/or Learning Services staff.  
- Providing ongoing communication and updates on the Futures Forum project with principal.  
- Supporting the Futures Forum teacher as a key in-school contact person (Learning Services and ITS will serve as a key link and provide coordination of the project. Pearson Education – Design and implementation of metrics to evaluate the project. Communithe – Provided feedback regarding the design of the Future Forum Project |
Outcomes (Verbatim as submitted in the Final School Board Report, June 2012)

Summary of Data Collection
- Data reported.
- Full data collection will be available in September 2012. (Pearson Education has agreed to help with the design and implementation of metrics to evaluate the effectiveness of the project once it starts in the 2nd semester. They will conduct interviews with staff and students involved in the project to determine the benefits participants perceived they gained through their involvement in the project. In addition they will help to create surveys that examine student engagement attitudes as well as a survey that examines student’s skills in collaboration, creativity, communication and critical thinking.)

Highlights of Key Findings/Results
- The results of the interviews done with teachers in the program as well as the activity in the Future Forum Conference clearly demonstrated that teachers have communicated and collaborated with their fellow Future Forum colleagues on a much larger scale and scope than was ever envisioned or anticipated.
- Students involved in the program demonstrated a high degree of engagement as evidenced by the data gathered through the interviews, surveys and school statistics. As well, the quality of work submitted throughout the year, culminating in the summative projects, clearly demonstrated their commitment to the project.
- As a system we gained valuable insights into the effectiveness of implementing a system wide project at the secondary level. The collaboration between central learning services staff and ITS staff along with the educators involved in the project demonstrated the powerful effect this collaboration had on the success in implementing the project.

Highlights of Challenges and Unexpected Results
- Technological issues had been identified by the participating schools associated with inconsistent Wi-Fi connections. Some classrooms were reporting weak signals, while others indicate that some days no connection occurs.
- The integration of three courses along with providing a consistent approach to assessment that maintains the integrity of the instructional practice had been a larger challenge than originally anticipated. Significant time and energy by teachers, consultants and administrators went into planning an integrated course that meets the mandates originally set out for the project.

Additional Statements Made in the Report
- Sustainability of the project was also an early challenge. When issues occurred the easy answer was to provide more money to support the project. However, in order to ensure that the project is sustainable in the future and to ensure that the implementation of this type of project is scalable in the future, alternative solutions were explored to resolve the problem.
- As a system we have learned a tremendous amount regarding how to implement a system wide initiative such as the future forum project. We have benefited tremendously from a closer working relationship between learning services and ITS staff. This relationship has allowed both departments to gain a better understanding of how to work together to meet the needs of students in a technology enabled environment.
- Most significant is that it has given direction to the system, and BYOD has a direction and focus in the Board.

Follow-up and Future Directions

Direction for future related work
- Due to the success of the project, all schools involved in the future forum project will offer the program again in 2012/2013. In addition at this point the remaining two schools will be involved in the project next year.
Implications for school board planning

In addition, this project has solidified the direction of ITS to expand the number of mobile devices currently deployed in our secondary and elementary schools. The project has demonstrated the benefits to educators and students to have mobile devices in the classroom as opposed to booking a computer lab which is often in high demand. Furthermore, a plan to encourage students to “bring their own devices” is critical to ensuring that technology enabled classrooms can be extended to all areas of the school. This will also give educators an opportunity to teach digital citizenship to students to ensure safe and effective use to technology tools and on-line applications.

The success of this project has helped to define the direction Forward Thinking will be conceptualized within the Waterloo Region District School Board. Digital Learning will become the direction and vehicle by which curriculum will be delivered from Kindergarten to grade twelve.
**Wellington Catholic DSB**

<table>
<thead>
<tr>
<th>Project Title</th>
<th>Bridging the Gap for Students with Learning Disabilities</th>
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<tbody>
<tr>
<td>Brief Description</td>
<td>We are attempting to support teachers in changing their instructional practices with regards to assistive technology.</td>
</tr>
</tbody>
</table>

| Context | Number of schools: 4  
Number of classrooms: 8  
Number of students: 25  
The target group our project are grade 7 and 8 students, teachers and educational assistants working with students with special needs requiring assistive technology. |
|----------|--------------------------------------------------|

<table>
<thead>
<tr>
<th>Impetus</th>
<th>We had identified an achievement gap for our learning disabled students. When we investigated further it became clear that students who were effectively using technology did not experience this gap.</th>
</tr>
</thead>
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<table>
<thead>
<tr>
<th>Goals &amp; Priorities</th>
<th>Assistive technology (including but not limited to, speech to text, text to speech technology) is the primary focus of the project. We are supporting teachers with training in this area and site, student specific support in the use of this technology. We intend to change the practice of the teachers working with assistive technology which will lead to increased student use of technology improving student achievement specifically for our students with learning disabilities.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Theory of Action</th>
<th>It is our hypothesis that if teachers are more confident in supporting student use of assistive technology, student engagement will also increase.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Standards and Targets</th>
<th>Our project aims to find a solution to as many of these reasons as possible by providing teacher and student specific site support. Student profiles have also been used to determine student specific next steps to improve student engagement.</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Phase of Change</th>
<th>December 2011 start of implementation</th>
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</table>

| Assessment, Use of Data | Data is being collected to measure the impact on student engagement and instructional practices.  
We intend to use our learning's from the project to make decisions about how we support classroom teachers in the area of assistive technology. Our data shows that our students with learning disabilities who use assistive technology demonstrate increased student achievement. |
|-------------------------|--------------------------------------------------|

<table>
<thead>
<tr>
<th>Capacity Building in Teaching</th>
<th>In the past, we have only been able to provide student specific training to teachers when student are receiving their equipment through the Special Equipment Allocation. This project allows us to support teachers in a more comprehensive way.</th>
</tr>
</thead>
</table>

| Leadership, Sustainability | Clear evidence of support from IT and Program staff.  
We are working closely with Trillium Provincial school to provide support and in-service to our teachers. |
|---------------------------|--------------------------------------------------|
**Outcomes** *(Verbatim as submitted in the Final School Board Report, June 2012)*

**Summary of Data Collection**
- Data reported.
- Data summarized in report with additional data files provided.

**Highlights of Key Findings/Results**
Since February, we have done an end of project teacher and student survey, teachers have updated student profiles specifically noting changes in student engagement, written output, and reading comprehension. We have gathered report card marks from Term 1 and Term 2 in the areas of writing and reading.
- In the area of student achievement, our targeted students improved 2.5% in Writing from Term 1 to Term 2, and 2.3% in Reading from Term 1 to Term 2.
- Our survey results show significant improvement in the use of assistive technology in classrooms; an increase of 22% of students using text to speech “Always or Often,’ and 16% of students using speech to text “Always or Often.”
- Likewise teachers show a similar change in approach to assistive technology; an increase of 25% of teachers reporting that they “Really Like or Love Assistive Technology” and an increase of 45% of teachers who view themselves as proficient users of assistive technology.

**Highlights of Challenges and Unexpected Results**
- We found that with our teachers who were not using technology, they were at a point where they did not know where to begin and often didn’t know what training to even request. Although our Assistive Technology System SERT (ATSS) is available to them, before and beyond the CODE project, these school teams seemed not to know what to ask for.
- A second challenge was that we found we had assumed an understanding of learning disabilities among our teachers that were inaccurate. As a result, we revised our sessions to include two half days specific to discussing the learning disability profile which led to a discussion about why technology is so important for this group of students. We recognized that this is critical understanding if we want teachers to be committed to using the technology. This was eye opening for us because we realize that this understanding is not about technology in any way but provides the basis for all understanding of why we choose to use the tool.

**Follow-up and Future Directions**

*Direction for future related work*
- As a result of our key findings regarding the need to support teachers general knowledge about learning disabilities and specific training on assistive technology we will be allocating some of our budget and resource time to offering training for teachers. Specifically, in the fall of 2012, we will be targeting the teacher of our grade eight CODE students at the secondary level.
- We have already begun planning our partnership with Trillium and will continue to bring SERTs, teachers and EAs to the workshops they offer and take advantage of the “Visiting Teacher Program” that has been so successful during CODE 2012/2013.
<table>
<thead>
<tr>
<th><strong>Project Title</strong></th>
<th>Destination Reading</th>
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<tbody>
<tr>
<td><strong>Brief Description</strong></td>
<td>We are providing Full Day Kindergarten SK classes, and Grade 1 classes at all the interested schools participating, with access to an online reading program called “Destination Reading.” Students will use the interactive technological program as an integrated part of their language arts program.</td>
</tr>
</tbody>
</table>
| **Context** | Number of schools: 58  
Number of classrooms: 178  
Number of students: 4450  
Senior Kindergarten – Full Day Kindergarten Classes, and Grade 1 students at all elementary schools wishing to participate in the project |
| **Impetus** | Over the last few years, we have seen a decline in Grade 3 E.Q.A.O. literacy results for the Y.C.D.S.B. As such, the school board wanted to implement a strategy to help students improve their literacy skills before they reach Grade 3. |
| **Goals & Priorities** | To support and improve literacy skills in early years so as to improve Primary Reading Assessment (running records and Developmental Reading Assessments, DRA and E.Q.A.O. scores in primary division board-wide. Furthermore, it was hoped that the use of the “Destination Reading” program would serve to build technological capacity of hesitant teachers and students, by serving as a catalyst to increase the use of technologies in schools like interactive Promethean boards, classroom computers, and school computer labs, particularly in the primary division. |
| **Theory of Action** | Technology is key to the success of students completing activities independently, as students are provided with many aural and video prompts and cues to read words, sentences, and stories, otherwise not possible without a computer, nor with a traditional paper workbook. Similarly, the digital modeled lessons use digital aural and visual media to teach young students just learning how to read the conventions of print, and the phonetics of decoding, providing the opportunity for students to independently build confidence and capacity at a much earlier age, when compared with solely using paper books. |
| **Standards and Targets** | Standards evidenced, no identified targets |
| **Phase of Change** | Specific start dates not provided. |
| **Assessment, Use of Data** | Data is being collected to measure the impact on student engagement, instructional practices, and student outcomes  
Compare and contrast Primary Reading Assessment (running records and Developmental Reading Assessments, D.R.A. scores from students in Grade 1 using “Destination Reading”, and the scores from the same cohort of students in Grade 2, and Grade |
| **Capacity Building in Teaching** | All teachers involved in the “Destination Reading Project” were provided with release time to attend 2 half-day training sessions at different intervals throughout the project, as well as an additional half-day every year after as a refresher |
| **Leadership, Sustainability** | Clear evidence of support from IT, Program staff, and Administration. Principals of participating schools motivated teachers by providing and maintaining at least 2 computers in each SK and/or Grade 1 class, as well as 4 headsets, to facilitate student group participation. Teacher-librarians have been encouraged to become “tech-leads” in each school, assisting colleagues in the use of technology to improve student achievement. The Y.C.D.S.B. is working in conjunction with IBM and their educational “Riverdeep” software. |
Outcomes *(Verbatim as submitted in the Final School Board Report, June 2012)*

**Summary of Data Collection**
- Data reported.
- Data summarized in report with additional data files provided (complete survey results provided as separate document.)

**Highlights of Key Findings/Results**

In conjunction with IBM, we disseminated another online teacher survey with anecdotal and Likert scale questions regarding the effectiveness of the program towards student outcomes and instructional practices.
- According to surveys and conversations with the teachers involved in the “Destination Reading” project, the majority agree that the program provides early primary students with an invaluable opportunity to learn and practice early literacy skills independently at school or at home in an engaging, and fun manner, while simultaneously supporting the use of 21st Century computer skills.

Further data collection and analysis anticipated in the future.

**Highlights of Challenges and Unexpected Results**
- Early challenges essentially were two-fold: the processing of unique teacher and student user authentication and login accounts; and having teachers create lessons in “Activity” mode that can be monitored and assessed, as opposed to just letting students freely use the program in “Explore” mode, which cannot be monitored.

**Additional Statements Made in the Report**
- The use of “Destination Reading” fortuitously increased both teacher and student use of Promethean interactive whiteboards, helping to build and nurture a sense of competency, familiarity, and confidence with the technology in an efficient and expedient matter, with little pre-planning or set-up. This increased familiarity with the Promethean boards lead to teachers using the boards in other more engaging manners.
- The “Destination Reading” project enhances our board’s vision of 21st Century teaching and learning by exposing younger students to technology at an early age so as to develop and improve basic computer skills (i.e. drag and drop, mouse skills) required for success in an ever-increasing digital world. Furthermore, the “Destination Reading” program serves to build technological capacity of hesitant teachers and students.

**Follow-up and Future Directions**

*Direction for future related work*

- Since purchased licenses for the program are reusable year after year indefinitely at no additional cost, the use of the “Destination Reading” program will continue as is, with licenses being annually reassigned to the next cohort of SK and Grade 1 students.
Chapter 4: New Perspectives Arising from Landscaping New Terrain: Themes that Emerged from the Projects

In this chapter, we present three main themes that emerged from the study data. Within each of the themes, several sub-themes are discussed that connect the 47 projects or cases as a whole. We also describe commonalities and diversity among and between projects and the tensions, challenges, and issues that school boards are facing going forward.

Miles & Huberman (1994) describe where themes originate. The three main themes in this pilot study are drawn from reviewing interviews with school board project leaders, superintendents of education, school administrators, teachers, and students. These educators participated in site visits, phone conversations, and the response to the interview questions that we circulated through our final webinar sessions. As these researchers suggest, we were “looking for recurrent phrases and common threads ... and by observing, naming, and verifying the patterns [and descriptions]” (p. 190), we identified the three main themes in the data. Lawrence-Lightfoot & Davis (1997, p. 190) describing Miles & Huberman’s (1994) method of pattern coding, quote that identifying patterns “can reduce large amounts of data into a smaller number of units [and can] help the researcher elaborate a cognitive map, an evolving, more integrated schema for understanding local incidents and interactions ... For multi-case studies, it lays the groundwork for cross-case analysis by surfacing common threads and directional purposes” (p. 69).

Wolcott (1994) notes that description, analysis, and interpretation are three key elements necessary for making meaning of the data, and Glesne (2006) writes that qualitative researchers must “find ways to make connections that are ultimately meaningful to themselves and the reader” (p. 149). All these elements have been utilized to help make meaning from the data gathered by the research team in person, by phone, and through invitation to school boards taking part in this pilots study.

The research team also utilized the metaphor of the landscape to support the analysis, interpretation, description, and finally to frame the research text. Lawrence-Lightfoot & Davis (1997) note that, “Metaphors can serve as overarching themes and rich undercurrents that resound throughout the [research] ... they act as symbols pointing to larger phenomena that emerge as significant [in the research]” (p.55).

The features of the projects are described in each theme in this chapter. Through the research team’s analysis, descriptions of the patterns that were visible across and among individual projects are delineated.
Naming the Overall Themes

As we collated the data from our site visits, phone interviews, and responses supplied by school boards to our set of interview questions, three main themes emerged that coincide with the three items that Fullan (2012) notes as necessary to consider together now as we move into a new improvement cycle in education for the 21st Century: pedagogy, technology, and change. As Glesne (2006) suggests, using the landscape metaphor, the research team considered the following questions in the process of data analysis: 1) What connections can be made among the narratives told in the field text? 2) How does the information connect? 3) What patterns can give shape to our data?

Naming the three main themes has allowed us to place the patterns discovered and the descriptions provided in the field text into this final research text. Under each of the three main themes, data was identified and placed as sub-themes, each of which is described in the sections that follow.

Theme 1: Pedagogy

As noted in Chapter 1, in recent years professional development around issues of teaching utilizing technology has too often focused solely on technology at the expense of pedagogy. Yet pedagogy is the means for supporting students’ learning in the present as it has been in the past and will be in the 21st Century. The foci of the projects were different and the technological knowledge of the teachers and staff involved was at varying stages. The understanding that technology is moving beyond a skill set of its own, separate from curriculum development in subject areas, was visible across projects. One superintendent of education noted, “Our vision was technology, but we have enlarged that to innovation overall ... We see technology as a tool for 21st Century learning which is embedded in our board vision for such things as curriculum expectations and team-based professional development.” Another individual reflecting on a project noted, “Just adding technology to a bland task only produces momentary benefits and fleeting interest. True engagement must be based on worthy tasks and effective pedagogy.”

From comments across our interviews, there is repeated and accepted acknowledgement that we are at a new crossroads in terms of incorporating technology into pedagogical understanding in teaching and learning. During one school board visit, a project leader referred to the work being done in this project as “pioneering.” As one individual said, “I see teachers moving from being sceptical to making gradual openings for differentiated instruction.” Another noted, “There is learning to be done by all when it comes to connecting technology to instructional strategies and effective pedagogy.”
Three sub-themes emerged across and among projects or cases that helped delineate pedagogical data more specifically. One was **student engagement and achievement**, another was **teacher training and teacher practice**, and the third was **pedagogical engagement with the larger community** through technological use.

**Student Engagement and Achievement**

When sharing perspectives on student learning, participants in many school boards spoke about these projects opening connections and providing choices for students that they have not had previously, which is leading to a new level of engagement. One superintendent of education noted, “We are not going back to the old ways: the kids involved in these projects are not keen on going back to the one case, one choice model.”

In one project, a teacher noted that student engagement was improved because of the increase in resources for topics online to download, videos to watch together with classmates followed by group discussion — all of which broadened the curriculum content and student interest. She also noted that in her project, practice sites for reading and writing were available for students who needed it online, which she felt was adding skill development to enhance achievement.

In another project, it was noted that classes were becoming more interactive and students were helping each other either one-on-one or in small groups, leading to increased student autonomy. Teachers in this project spoke about seeking new ways to assess learning and achievement given these changing circumstances.

One teacher noted that among her class of boys, attendance increased as their interest in subject matter increased due to technology being used in the classroom. Another at the elementary level said that in general, over the course of the project, he had noticed an increase in engagement and interest among boys in reading and writing. This comment was echoed by an individual at the secondary school level who spoke about both engagement and achievement for all students in content areas such as Civics, English, and Careers, where through technological connections students were experiencing a growing awareness of social issues and getting involved in them locally and in the larger community. They were seeing the “big picture” that they hadn’t seen before as part of their school curriculum.

In terms of student assessment, school boards reported that they were trying various activities to ascertain improvement in student learning and achievement. One participant said that their school board was in the midst of looking for ways in assessment to monitor reading levels across elementary schools.
In another school board, a project leader noted that they were working on how to recognize achievement using report card data, patterns of past achievement, a comparison of students within and without of the project parameters, and student work samples.

In one school board, students were surveyed and interviewed for their perceptions of technology use, which were very positive. In others, records of individual student work were gathered as evidence of growth and development across the timeframe of the project. In yet another school board, investigation of how to determine engagement and achievement beyond teacher testimonials is underway. One superintendent of education stated that the school board needed to focus on questions about engagement and achievement in order to ascertain growth for all students as technology becomes more widely utilized by teachers.

It was noted that students in these projects seemed to be using technology broadly as a reading tool, for voice recognition, for accessing podcasts about curricular topics and world news, for taking photos of notes, and for reminders such as voice memos and planners.

One school board gathered evidence of students connecting across schools when working on a project, and another said that the effective use of technology by teachers had “helped create an environment of inquiry” for students. When asked about their perspectives on technology use in their studies, students voiced differing opinions. One said, “I don’t like blogging. Kids these days are already so wrapped up in their web lives, school doesn’t need to add to that. And whenever I go on the Internet I get distracted.” Another more positive response was, “It is a very efficient and creative way to appeal to this generation of youth, as technology has evolved since the last generation.”

Overall, 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.

In some interviews, teachers did express their concern about the lack of continuity for students who had experienced increased interest in school during their time in the project, but who would enter a classroom the following year where technology would not be readily available for daily use in their studies. They wondered if achievement levels would be negatively affected by this situation.

Teacher Training and Teacher Practice

In terms of our landscape metaphor vis-à-vis teacher training and practices, recurring images across and among projects were about “creating openings,” “taking a new journey,” and “learning collaborative practices” as necessary aspects for creating a new landscape in teaching and learning. Implications for
professional development were many, and in general, point toward the fact that weaving technology into subject matter and into assessment practices is in early stages of development.

One participant felt a shift in professional development is key: “the central focus for teachers must be training and support, and not just sit-and-get.” Another thought that training must be clearly focused on how technology enables learning ... “learning first, technology second.” This comment was much like one from another school board that teacher training needs to be focused on pedagogy, not hardware.

Individuals in several projects spoke about the need for the creation of a safe, collegial professional learning environment as a necessary component for teachers to be honest about their technological readiness for undertaking pedagogical challenges in various subject areas. Another mentioned that the skills of 21st Century teaching and learning, such as creativity and critical thinking, needed to be defined as a starting point quite apart from technological use.

In one project, a recommendation to shift from technology-centred to a technology-instruction-assessment approach in future professional development and ongoing support for teachers was noted as a key factor for success. Along the same lines, a project leader said that making explicit connections between pedagogy (instruction and assessment) and technology in professional development sessions would be very beneficial.

As a number of individuals across and among projects noted, some definite understanding of software and hardware is required to make appropriate curricular choices. One participant noted that the important question is: “What difference will this technology make to the learning?” This question seems to highlight the perspective that new openings are being created through these pilot projects, leading to changes in the landscape of pedagogical understanding on the part of teachers and other educators in the school boards more generally.

Some classroom teacher participants felt that a clearer understanding of working as a teacher in a digital environment was something all teachers needed — those new to the profession and those with years of experience; it’s one thing to know how to use technology but what does it mean as a learning and teaching tool? The question was raised: Does the tool really help me do what I want to do or am I constantly having to make accommodations to make it fit?

A teacher with a number of years of experience spoke about the positive change she has undertaken in her own practice during this pilot study. She noted that she and her students together learned the technological skills they needed for classroom work and in so doing, moved away from “the sage on the stage” role, giving students
more power to make choices. She said she felt her creativity and confidence increased through embracing technology.

Meanwhile, a new teacher said that she began with teacher-directed lessons but, through this project, was slowly allowing students to take the lead and she noticed that her students were becoming active learners in that process.

A project leader from one school board and a superintendent from another described how they had observed teachers working more collaboratively across grades and even schools, thus beginning to build a new collective understanding of pedagogical implications for technology use.

On a very positive note, after describing the pockets of data gathered that highlight changes in how teachers are working individually and collaboratively through this project, one project leader, speaking about witnessing teacher experimentation with technology and innovation, said that in his opinion, “this project has the potential to change how we teach.” Overall, as one individual said, it seems clear that “teachers need time to learn new technologies [and their applications] and they need to [learn to] self-select the technology that they will work with so it matches their classroom needs and personal readiness.”

**Pedagogical Engagement with the Larger Community**

One recurring comment about engagement beyond the school itself through technology was that it allowed home and school to be more easily and quickly connected. For example, one principal noted that better communication meant that parents could join in on a weekly or even daily basis to keep up-to-date about their children’s schoolwork. A teacher said students could extend their learning at home based on work they had begun in class. Another specified that she connected with parents by sending home safe websites for increased math and vocabulary practice.

In several projects, Parent Councils offered sessions to interested parents who wanted to access web-based projects from home. In one project, the individuals interviewed spoke about parents just beginning to connect with the potential resources offered through technological avenues between home and school.

In one school board, pamphlets about their project were placed in the community along with e-mail communications to show the divergence in student learning using technology that was apparent in their project. In another project, a curriculum leader noted that they were publishing information about the project on the Internet and running seminars that were student-led for parents and the community.
Many school boards reported connections to or partnering with businesses, and also with local universities and colleges for additional expertise, insight, and direction for their projects. In some cases, relationships with outside organizations were already established and in others, were just beginning with this project.

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.

Theme 2: Technology

Learning Environments

Many positive changes were noted across projects in terms of the use of technology in learning environments for teachers and students. Pedagogical differentiation for students and modification of curricular content were mentioned in several projects, as was the notion of teachers’ understanding of the possibilities provided in blended learning which was a relatively new concept for a number of teachers.

One superintendent of education described subject areas where teachers were working more closely together at grade levels, even across schools, so that students could choose topics of interest in a course beyond his or her own teacher and school to complete assignments. He noted that such a shift in practice changes how teachers assess student work, and clarifies interest and progress on the part of students.

One teacher said that she observed that students were more willing to take risks through technology use, trying new ways of presenting their work. Another felt that students were able to engage in tasks more independently and were also more inclined to engage in group work than was previously the case.

A project leader noted that she found student behaviour improved in the project group as a shift in the type of assignments using technology led to engagement that included higher order thinking skills and collaboration among students using various types of technology including phone cameras and podcasts.

Two teachers mentioned that the immediacy of further learning by using the iPad both enriched students’ general information about a topic and enlarged their ideas beyond the scope of lessons they had taught in years gone by. Students worked together to seek new information in a collaborative fashion and were excited by their engagement with technology to further their own learning.

In one project, the team leader noted that once students have experience with several modes of technology, that it is possible to link to other applications to increase student knowledge in classroom and school environments. In that vein, another project leader described her project as having the impetus to move the
school board forward as a whole toward having technology in all rooms for student use, including the iPad, laptop, printer, projector, and other technology, as needed.

One teacher voiced a concern that students need to learn how to make good personal choices in their use of technology – that becoming a “critical consumer” on the internet highway was a huge shift in the teaching and learning environment that teachers and school boards now need to consider.

Overall, many participant comments revolved in an indirect way around the shift they were seeing toward inquiry learning on the part of students and teachers, away from the voice of teacher as sole authority in curricular subjects. One teacher shared that she was now able to pose more questions about topics that students could look up immediately for further information to extend and connect their learning. As a participant in one project noted, “teachers are not only learning about technology, but also about their changing role [through this project].”

**Digital Citizenship**

Many aspects of digital citizenship were spoken about by participants that seem to reflect the fact that we are in the early stages of grappling with issues surrounding safe and ethical use of technology in school culture. Of primary importance across and among projects was the issue of students using technology safely and effectively in schools. To this end, all the projects seem to be struggling with issues surrounding control of technology in school boards, either by maintaining fire walls or by allowing open access to websites. As one individual said, “These devices will be and are being used by students; the question is how do we utilize those opportunities in a safe and engaging learning environment?” Another participant questioned whether the focus should be on infrastructure that restricts or controls student access or on providing an open environment and then focusing on educating students about safe use and establishing restrictions and controls for inappropriate use. Still others felt that cost to school boards would dictate an open environment in the years ahead.

Along similar lines, the question of ‘Bring Your Own Device (BYOD)’ was one pondered by many school boards, with an individual noting, “Every school district must understand and bring local meaning to BYOD. The question is not ‘should we’ but rather, ‘how can we’?” The ethical use of technology as a subject needing to be taught to students was stated across projects so that students know how to make appropriate decisions. Many school boards noted that they were in the midst of creating policy decisions about these issues.

In terms of benefits, one person described the big picture of technology use as follows: “As the equipment is integrated into student life, you are surprised by what is possible. The technology isn’t just associated with
school life. When their devices stay with them both in and outside of school, it isn’t just for writing an essay or learning fractions. It wakes them up in the morning, keeps track of their homework, sets reminders, and provides access to so many things that are important to so many aspects of their lives. Learning feels different and more integrated.”

One project leader in a school board that as yet has no policies around digital citizenship in schools felt that in informal ways, life skills were enhanced through teacher modeling of appropriate technology use and demonstrating comfort with various devices for teaching and learning. In another school board, a teacher commented that as part of their project, a focus on using technology from home responsibly at school was part of their program – being responsible for what you say ‘out there’ is seen as a critical aspect of digital citizenship.

A superintendent of education noted that students need to apply higher order thinking skills for problem solving, creativity, and collaboration as they incorporate technology in their learning. In similar fashion in a different school board, the notion of inquiry and life-long learning skills such as collaboration were described as necessary for going beyond classroom walls to the continuous learning provided in the digital world.

A consultant and a project leader used words and terms such as “flexible,” “depth of understanding”, and “self-regulation” as necessary skills to navigate beyond their school, town, or country as we come to depend more on digital connections. A teacher in another project echoed these comments but added that her school board was working on a document outlining the ethical use of technology to help guide teachers as they move forward in the digital citizenship world.

Some teachers whose project was in the early elementary years, felt that getting notions of digital citizenship in from the beginning of school life would alleviate many problems later as that knowledge would be taken for granted as children moved through the grades.

Several school boards reported that they had enlarged their conversation to include community groups or businesses to help them look toward the future as they considered digital citizenship in the context of future learning.

**Theme 3: Change**

*Board Vision for 21st Century Teaching and Learning*

Across the interviews and data gathered from individual projects, it appears that while there is general agreement that addressing the skills and attitudes needed for 21st Century teaching and learning is of critical
importance, school boards seem to be at different stages in their thinking and development of strategies for moving forward with technology use. School board visions are complicated by a variety of issues such as professional development needs, teacher willingness to embrace new directions in learning and change, funding, issues of student safety, community understanding, availability of regional support by business and university, and more.

In some regions where input from the technology sector is available for inquiring into necessary skill development for life in the 21st Century, school board direction has been in place for several years with regards to teachers and students using technology. A superintendent of education from one such school board said that they were using this particular project to think about applicability to their whole system in terms of curriculum goals and school board goals. In another project, a past connection to business supported a vision for building technology use so that technology became linked to district learning priorities and curriculum expectations.

In one school board, the project leader noted that they had built technology into their overall improvement plan and were visualizing this project as a pilot for all classrooms for learning in an increasingly rich way. They were shifting past practice to focus on 21st Century skills such as deconstructing, reconstructing, and co-constructing knowledge and sharing this new language with teachers with an eye to differentiated instruction to reach all students.

In other school boards, this project marked the beginning of a shift toward including a technology focus as part of a strategic plan and an enlarged vision of innovation overall so that progress in professional development initiatives and curricular directions is not splintered or fragmented or approached in an isolated way. In one school board, it was noted that their current vision was very broad but also that their project represented a huge step away from talking about technology use to focusing on a path for action. They saw this project “as a catalyst for new board vision.”

**Implications for Programming and Policy**

In his book “Stratosphere” (2012), Michael Fullan notes four points that he suggests district leadership focus on as pedagogy, technology, and change are considered together in an overlapping and connected way for 21st Century school system reform. He writes that: “The integration of technology and pedagogy to maximize learning must meet four criteria. It must be irresistibly engaging; elegantly efficient (challenging but easy-to-use); technologically ubiquitous; and steeped in real-life problem solving ... A crucial point in these developments is that as innovations they do not further complicate the lives of students and teachers, but,
on the contrary, they make their learning *easier and more interesting*” (p. 33). In this study, members of project teams have raised all these points in their own way as they look back on their experience in their project and look ahead to new ways of applying what has been learned to future planning.

It seems clear that, through these projects, school boards are asking new questions about how departments such as Curriculum, Programming, and IT can work together to focus on 21st Century skills rather than as separate entities as they have done in the past. One superintendent of education noted, “We have a big idea focus [now] to adapt and change for more student engagement, interest, and flow beyond our board ... we are beginning to provide more student choice and need to be consistent across schools for teacher development within the board and within schools.”

Other comments focused on moving IT into school board improvement plans and improving speed and quality of service for classroom use. Professional development was spoken of frequently as a vehicle for program change and overall vision change. Rather than focusing on IT use as a separate entity in professional development there is recognition that it must be woven into pedagogy and changes in curriculum development for 21st Century skills to be understood and practised in schools.

It seems that a great deal of thought is now being put into new directions for the change that Fullan speaks of for programming and policy. Far from a *fait accompli*, several school boards have developed policies that include the use of technology in schools and classrooms, but most seem to be in the developing stages, reviewing past practice, and looking ahead to place ethical and safe use of technology into school board policy. Many considerations were mentioned in this realm, and it seems clear that understanding of the new breadth of educational practice beyond school and school board to local and world-wide connections are being considered carefully prior to policy being implemented.

One superintendent of education said that “building a holistic vision” using multiple viewpoints was important at this juncture and that “opening up” within and beyond their school board to other school boards and the community was increasingly important for programming and policy considerations. This individual also noted that, “This project is an important milestone for the province to indicate its way forward in terms of present and future expectations for boards.”

Overall, it seems safe to say that these projects have acted as a catalyst for giving school boards the impetus to inquire into changing how they perceive the marriage of technology with pedagogy. This represents a positive move forward in thinking about teacher development, student engagement and achievement, and board-wide
holistic thinking. In this regard Fullan (2012) notes, “Pedagogy is becoming sharper and more penetrating; technology is becoming mightier and easier to use and integrate. One more ingredient is needed to complete the assault: the growing clarity and power of design and change knowledge that will be essential for achieving reform on a large scale – whole-system reform” (p. 54).
Chapter 5: New Echoes across the Landscape: Challenges, Issues, and Highlights

In this final chapter, we address tensions, challenges, and issues, followed by a section that celebrates highlights across projects as a whole. Guiding this concluding chapter is the notion of the continuing motion across the terrain of innovation in the digital world that this project has made visible and the potential for exploring other aspects of an ever changing landscape for teaching and learning as school boards move forward in 21st Century practices for students and teachers.

Tensions, Challenges, and Issues

Over the approximately one-year period of the pilot project, there appears to be a convergence of several practices and directions associated with technology-related initiatives. Significantly more school boards identified a pedagogical focus to their future planning and direction than was evident in their initial proposal. Many more school boards identified the need to examine or continue to examine more personal, mobile technologies (with related Bring Your Own Device (BYOD) issues and wireless infrastructures) than was evident in the initial proposal and interim report. Many more projects had direct reference to connecting their future projects to system-wide plans and the development of board-wide policies than was evident in their interim reports. Some school boards are also looking into blended learning, not as one teaching practice, but as an approach to integrate IT into curriculum.

There appears to be a greater convergence of what needs to be addressed to effectively move the projects forward in the school boards that are aligned to the themes of pedagogy, technology, and change. However, despite the apparent convergence, there does not appear to be the same degree of coherence or consistency on how to proceed. These inconsistencies were not unexpected considering the different phases of implementation and areas of focus for the projects, as well the tensions and challenges that were reported as school boards progressed with their projects.

As an example, the implementation of mobile devices was undertaken in many different forms and with varying strategies and areas of focus. 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
However, the examination of mobile devices usually caused the school boards and project leaders to consider an interconnected web of issues that impacted decisions and directions related to mobile devices. For example, as one participant noted, “Though the Apple device is a thoroughly intuitive device for student use, the highly personalized nature of the Apple devices has slowed our district-wide implementation as central management of apps in the device can be costly and difficult.”

Selecting Devices

Mobile devices vary greatly in the range and quality of features. The management and sharing of any school-purchased devices requires a careful examination of the features and functionality of devices that change. Frequent questions raised around these issues are:

- Because of the ease-of-use and familiarity, do we invest in mobile devices such as iPods and iPads?
- Since iPods and iPads are designed as personal devices, what are the limitations and issues in using these devices as shared classroom devices?
- How do we best exploit the collaborative learning potential of mobile devices while being vigilant to inappropriate and unacceptable uses?
- What tasks, such as printing and file sharing, could be more difficult with the use of mobile devices?

Considering these questions, an individual in one project noted that, “the results of many of our findings lead us to believe that the power of these mobile hand-held devices is found in the personal ownership or 1:1 nature of the device.”

Bring Your Own Device (BYOD)

It appears that many projects have examined or are planning to examine a Bring Your Own Device (BYOD) initiative in their school board. BYOD offers the promise of broader and more flexible use of technology, but many school boards are seeking support or answers to some fundamental issues and possible tensions. Some of the issues noted are:

- Do we have the infrastructure to support BYOD?
- Is BYOD a local school decision or a board-wide decision?
- What issues need to be addressed before promoting BYOD? (e.g., acceptable use policies, parental support, dealing with inappropriate use, lost or stolen devices, equity issues, student safety issues, cyber-bullying, and harassment)
- At what age or grade should we allow or promote BYOD?
- Are we obliged to guide students and parents on the types of devices or features that are recommended?
• Does BYOD enable teachers to more easily make pedagogically informed use of technology in the classroom?
• Is it appropriate for a school to expect or request that each student brings his or her own device to school to be used as school supply?
• For teachers who are apprehensive of BYOD, what supports and training are needed to make broader-scale use of these devices effective?

One individual placed these questions in context in the following way: “Traditionally [our school board] has had a very standardized technological environment. The infrastructure of the school board has traditionally focused on PC computers and all hardware purchases had to be from a pre-approved list. This project came at a time when this level of standardization was being re-examined. The iPads were the first non-PC material allowed into the environment. The project also coincided with the introduction of Wi-Fi in our schools (the project schools were the first to have Wi-Fi access). While this project allowed us to examine the impact of a tablet computer within the classroom and the impacts tablets have on engagement and learning for students it also was the initial examination of a Bring Your Own Device (BYOD) opportunity for our staff and students.”

Infrastructure (Networks and Hardware)
Many projects identified real constraints on the scope and reach of their initiatives based on existing network infrastructure. A critical foundational requirement related to any consideration of mobile devices is the reliable access to wireless services. Projects reported exploring cloud-based solutions to promote access, sharing, and collaboration within schools, across schools, and between home and school. Inconsistent and unreliable access to wireless networks continues to frustrate and challenge some initiatives. Some overall questions around issues of infrastructure were as follows:
• Do we have the wireless infrastructure and bandwidth to accommodate the increasing demands on the network?
• Are current cloud-based solutions sufficiently reliable and economically viable to be effective across our school board?
• Is there less need for computer labs if our hardware becomes more mobile, and more personal?

Summing up the shift toward these new questions, a participant in one school board described past practice with IT: “Our district has, traditionally, focused on a technology model that has relied on 3 or 4 desktop computers hard-wired to drops at the back of classrooms. It is [now] believed that this structure has hindered students from actively using available technology and instead created less authentic experiences.”
Equity

As devices become more personal, many school boards reported that equitable access to mobile technology, both within a school population and across schools within a school board, was an area of increasing concern and attention. Some frequent questions reported are:

- What school-based supports need to be in place so that students of varying means can have equitable access to learning resources and materials?
- Should there be minimum standards of access/bandwidth established across and among school boards?

Considering the pilot projects from an equity perspective, an individual in one school board noted, “The schools which initially expressed interest were mostly from demographically advantaged areas. Expanding the pilot to all types of schools is important to show that the concept of “Bring I.T.” can be scaled across the region. In order to do this, some superintendents worked within their families of schools to identify additional participant schools.”

Security and Safety of Wireless Networks

Projects related to the safety and security of wireless networks identified the need for collaborative planning that involves program staff, information technology staff, and school and system administrators. Questions across and among boards reflected this need:

- Do we establish a virtual learning environment (web-based learning systems) within our schools that provides controlled and safe access to the Internet through personal devices or school-supplied hardware (e.g., netbooks, iPads)?
- Do we have an open access network, similar to what students can access outside of school, and focus on establishing acceptable use policies across the school board?

Technical Support

As more mobile devices are being used or are being requested for use in schools, school boards reported that the nature of technical support for schools, teachers, and students should be carefully re-examined. School boards are increasingly identifying cloud-based solutions and more decentralized approaches to technical support. As one participant said: “The technologies we use are increasingly cloud-based, and our notions of IT support are increasingly decentralized as we move away from lab-based delivery.”

Questions such as the following were reported across many school boards:

- As devices are increasingly personal, can we expect that students become the primary maintainers of their personal technology?
• Does the use of personal devices provide teachers with greater pedagogical opportunities or place higher demands on limited technical expertise?

**Digital Citizenship**

Several school boards reported initiatives related to educating students, training teachers, or developing resources related to the safe, ethical, and effective use of information collected or shared using digital technology. There was widespread acknowledgement of the importance of attending to digital citizenship but initiatives varied widely in scope and strategies used.

Many issues seem to be embedded in the issue of digital citizenship. An individual from one project noted: “Understanding of what it means to be a positive digital citizen is hindering adoption. ... Teachers are slowly realizing, with more and more technology within their classrooms, that they need to be teaching the students how to properly use the equipment in an ethical manner.” Another participant describing the situation in his school board said, “This project acts as a bridge to bring together the gulf between teachers that "buy in" for the need to teach these concepts and those who don't. Teachers who are reluctant to move forward due to concerns about student behaviour have now been provided a series of lessons to help guide them with bringing forward the teaching of digital citizenship in an integrated way.” Questions remain, such as:

• How do we link the necessary digital citizenship skills (e.g., digital security, digital etiquette, digital literacy, digital communication) to program, instruction, and assessment that cross many subject areas and many grades?

• What are effective means of messaging the skills and practices of digital citizenship to both teachers and students so they are using digital tools successfully and safely for learning?

Apart from the issues listed above that are commonly associated with mobile devices, there were other tensions, challenges, and issues that were shared among and between projects.

**Training and Professional Development**

Many school boards reported challenges on how to target training and professional development activities. Several school boards reported that they had overestimated the degree to which teachers understand and are comfortable with foundational technology skills, causing them to re-visit the focus of their activities. An overriding question was reported:

• Do we focus training and equipment on teachers who have a demonstrated interest or technical skill set, or do we broaden the scope to influence and encourage a wide range of teachers?
An individual in one school board summed this question up saying, “We overestimated how many participants were using technology in their personal lives. Thus, the leap into using Edmodo was significant. Some teachers lacked basic digital fluency. Teachers want to be proficient, and public use of technology can be a high risk.”

**Exploiting Technology in a Crowded Curriculum**

There were several projects that identified the challenges of promoting the use of technology within a crowded curriculum. They spoke of the ease with which teachers can avoid considerations for the use of technology and still meet all curriculum expectations and assessment and reporting requirements. For a significant number of teachers, the case has yet to be made or received that they can access and use technology effectively to impact the learning of their students.

An important comment from one participant notes that: “Research, evidence-based studies, and this research project reminds us that too little time is spent at the start of any change initiative on the process of building a compelling rationale for change. ... During the mid-point check (March 2012), a significant number of the participating teachers indicated that the rationale for embracing change in teacher practice was not “compelling enough.” The explanation given was that the EQAO scores were positive, so no change was required. This is a concrete, educational example of the change management expression “managing through the implementation dip.”

**Blended Learning**

Some projects indicated confusion around the meaning of blended learning. Blended learning was identified as a new pedagogical reality with its own challenges and advantages. As such, there were challenges in reaching teachers with the needed training and support. Questions such as the following were reported:

- Is blended learning an effective way for students to acquire the skills needed for the 21st Century?
- What are the pedagogical links between blended learning and differentiated instruction?
- With blended learning, how can we better involve parents in supporting their child’s learning and following their progress?
- How effectively is blended learning supporting special needs or at-risk students?

One project participant noted, “It is important to introduce blended learning in a context; technology is not the miracle solution to all.”
Developing 21st Century Skills

A number of projects spoke of the importance of identifying and promoting the development of 21st Century skills such as collaborative problem solving, ICT literacy, and learning through digital means, but documented the challenges of shifting understanding and practices away from the vagueness of slogans and posters toward meaningful classroom implementation and pedagogy. As one individual said, “One concern that was raised consistently [in our project] was the notion that the students and teachers might be distracted by the ‘bells and whistles’ of the technology and be less focussed on the achievement of expectations or evidence of critical thinking. We recommend that some of the professional development for teachers focus on defining some of the skills for the 21st Century, like creativity and critical thinking to establish a shared understanding, and then identifying observable student behaviours or products that reflect those abilities.”

Another noted, “Teachers were not sure how to identify evidence of improved student learning as a result of incorporating new instructional strategies into their classrooms. Additional time and support had to be provided here, as well as co-constructing exit cards and other data collection methods with the team as a whole.”

Questions like the following were raised across and among school boards:

- How can we operationalize and embed 21st Century skills in ways that are meaningful and relevant to an individual teacher’s program and assessment practices?
- How are 21st Century skills different from other lists of skills that are identified in various curricula and program resources?
- How do we move past lists of skills to building meaningful and rich problem-focused tasks that create the conditions for teaching and assessing 21st Century skills?

The tensions and challenges that school boards reported through their projects consistently aligned with the three interconnected themes of pedagogy, technology, and change process. This convergence suggests that increased opportunities for learning and sharing between participating school boards have high potential for rich dialogue and collective guidance.

The pilot projects provided a shared experience of exploration within a common framework for data gathering and reporting. Building further opportunities for sharing and dialogue around common challenges and themes may further exploit the learning that was evident through the pilot project.
Celebrating Highlights

The CSC research team was consistently impressed and at times astonished at the quality and depth of the project reports that were submitted, especially in light of the compressed timelines and the complexity of many of the tasks that were undertaken. The information provided through the reports clearly indicated the passion and commitment of the educators involved in the pilot study. The summary charts in Chapter 3 provide an overview of each project.

Projects consistently identified, collected, and reported supporting data that informed each project’s analysis, reflections, and next steps. Reports effectively summarized data and results, and many projects included further details and analysis in attached spreadsheet files and survey reports. Due to the timelines, there was limited data focused on student achievement available for submission but several projects indicated that student outcomes data could be further supplemented in the fall of 2012. A significant number of projects worked in partnerships with private enterprises or post-secondary institutions to submit very comprehensive research reports that provided detailed and well-informed direction for future initiatives.

Almost universally, school boards identified or established a clear pedagogical foundation for their initiatives. Project leaders were acutely aware of the allure of focusing on the “glitz and glamour” of technology, and consistently reported training and professional development experiences that focused on meaningful educational use of technology. Consistently, projects avoided making the technology the centre of attention, but instead focused actions on teaching and learning.

Many projects identified next steps and future directions that were clearly linked and aligned to system strategic planning and school board priorities. Project leaders used their results as a means for informing and guiding future system direction related to the effective use of technology.

There was evidence reported from many school boards of extensive outreach to parents, post-secondary institutions, business and community partners. The outreach took many forms but was consistently focused on establishing a shared understanding of the impact and use of technology and in identifying broader perspectives on the effective and ethical use of technology both inside and outside of the classroom.

Finally, a number of school board leaders identified the importance of the Teaching and Learning in a Digital World Initiative in establishing, funding, and encouraging broader actions and discussions related to the meaningful and impactful use of technology. In many ways, this was the desired outcome that motivated the efforts of those who are connected to this initiative.
Epilogue

Possibilities on the Terrain of Digital Innovation

In keeping with the landscape metaphor introduced in the Prologue of this report, conclusions are drawn that point to the shifting landscape of technology described in previous chapters. It seems apparent that on an individual basis, the 47 projects that comprised this study are engaged in unique processes and procedures that are resulting in the exploration of new terrain on the digital landscape. Taken together as a whole, the echoes heard across and among the projects constitutes 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.

In each chapter and under each sub-heading in the chapters of the study, the notion of a shift in thinking about the issues addressed through projects is made visible in the comments and questions posed by those who participated in this pilot study. Thus, data reveals a positive shift in all aspects delineated as focus areas for these projects — student engagement and achievement, innovative teaching practices, learning environments, digital citizenship capacity, and community engagement. In the panorama of diverse projects undertaken by school boards, it was clear that appreciation for the scope of topics and issues uncovered in the landscaping process emerged as the study progressed through the year.

While projects vary, they have acted as an impetus for change in teaching and learning practices, in policy, and in professional development across and among projects. As one project leader voiced, “These projects represent a new form of pioneering in boards - trying new ideas, compiling information about successes and needs, deciding on future actions for positive change for students and teachers in 21st Century teaching and learning. The contours of the landscape are changing rapidly as this study indicates and decisions about new forms that teaching and learning will take in the immediate future and how best to get there are critical features for moving forward with pedagogy and technology working in tandem for students and teachers.

In this study, themes, challenges, and issues across and among boards are clearly established. However, because of the diversity in the projects, it is not possible to provide comparative data across or among school boards. As data in Chapter 3 describes, projects ranged through elementary and secondary grades to special education and board-wide initiatives. In similar fashion, the technology used was diverse.
From the project data though, 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.

These changes are in keeping with Fullan’s new school improvement cycle where pedagogy, technology, and change are addressed together rather than as separate entities. He writes, “The big breakthroughs that I describe in this book are all driven by deeper conceptions of learning. Fortunately, they can be incredibly accelerated by innovations in technology – as long as we get the causal sequence right; pedagogy to teaching, and then back and forth, back and forth” (p. 34).

Now that this initial pilots 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, and curriculum, 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.
References


### Appendix A – School Boards, Project Titles, and Descriptions

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<tr>
<th>School Boards</th>
<th>Project</th>
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<tr>
<td>Algoma DSB</td>
<td><strong>Netbooks… A Gateway to Improving Learning, Teaching and Technology Use in the Junior Division</strong>&lt;br&gt;Netbooks are being introduced to students in Grade 4 to improve the development of keyboarding skills and to enhance cross-curricular use of technology.</td>
</tr>
<tr>
<td>Avon Maitland District School Board</td>
<td><strong>Technology Enhanced Collaborative Teacher Inquiry</strong>&lt;br&gt;Beginning in semester two, each of our nine high schools will select a department to participate in a collaborative inquiry project. The nine departments will focus their inquiries around instructional practices, with each school team/department creating its own inquiry question. The Math teachers involved in this project will use blended learning in their classroom.</td>
</tr>
<tr>
<td>Brant Haldimand Norfolk CDSB</td>
<td><strong>21&lt;sup&gt;st&lt;/sup&gt; Century Teaching &amp; Learning Pilot Project</strong>&lt;br&gt;The project provides the following technology upgrades to ensure all primary teachers have equity of access: A Netbook for each classroom teacher of Grades one, two and three; infrastructure upgrades to provide wireless network access and LCD projectors; training in terms of technical skills use of Digital Learning Reading Software.</td>
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<tr>
<td>Bruce-Grey Catholic District School Board</td>
<td><strong>Teaching and Learning in a Digital World – Pilots for System Learning Initiative</strong>&lt;br&gt;As learning teams, teachers and students are paired with iPads to co-teach the technology and unfold applications to subject and interdisciplinary learning.</td>
</tr>
<tr>
<td>Conseil scolaire public du Nord-Est de l’Ontario – CSPNE</td>
<td><strong>Projet de collaboration en salle de classe [Collaboration in the Classroom]</strong>&lt;br&gt;Using tools such as the Learning Management System (LMS), Google Apps, and the resources available through e-Learning Ontario, we want to try three different ways of using technology to make interactions between staff and students more dynamic and motivating. We believe that this will have a significant impact on student engagement and, therefore, on student achievement.</td>
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<tr>
<td>Conseil des écoles publiques de l’Est de l’Ontario – CEPEO</td>
<td><strong>Apprentissage hybride 7e et 8e années [Blended Learning in Grade 7 and Grade 8]</strong>&lt;br&gt;Participants access the Learning Management System (LMS) on a portable computer or in a conventional computer lab. In taking part in Projet CODE, we want to engage students in their learning, developing their learning skills and work habits. In order to do this, we need to use pedagogical practices that enable students to develop independent work habits, initiative, and self-regulation. The connection between student engagement, the development of these skills and habits, and improvements in student achievement will be assured through the implementation of assessment for learning.</td>
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<td>Conseil scolaire Viamonde – CSViamonde</td>
<td><strong>Utilisation efficace des tableaux interactifs au service de l’apprentissage [Effective Use of Interactive Whiteboards for Learning]</strong>&lt;br&gt;We want to increase student engagement in learning through the use of interactive whiteboards, and technology in general, in various courses. We want to meet the students’ needs. We want to encourage students in difficulty, who would benefit from the use of technology, to use it. If technology is integrated into various subjects, students who have a technological device subsequent to being identified will not feel excluded or different from the other students.</td>
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<td>Conseil des écoles catholiques du Centre-Est – CECCE</td>
<td>Apprentissage hybride en 7e et 8e années [Blended Learning in Grade 7 and Grade 8] Our blended learning project is for Grade 7 and Grade 8 students. We wanted to create an experimental situation, selecting classes in a variety of different environments (rural, urban, enriched, regular). Each teacher personalized his or her unit according to the students’ needs, during system-wide support days on which collaboration was encouraged.</td>
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<tr>
<td>Conseil scolaire du district du Grand Nord de l’Ontario – CSPGNO</td>
<td>ÉTAPE – Environnement technopédagogique d’apprentissage personnalisé électronique [A Technology-based Pedagogical Environment for Personalized e-Learning] The primary goal of this project is to support teachers in their pedagogy to improve student achievement, recruitment, and retention, while increasing student and parent satisfaction, through the use and integration of electronic resources and tools.</td>
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<tr>
<td>Conseil scolaire de district des écoles catholiques du Sud-Ouest – CSDECOS</td>
<td>Le rôle de la technologie (iPod/iPad) pour appuyer l’apprentissage des élèves souffrant de troubles du spectre autiste (TSA) [The Use of Technology (iPad/iPad) to Support Learning in Students with Autism Spectrum Disorder (ASD)] Give students greater autonomy through the use of technological and visual supports. Facilitate access to the curriculum through the use of applications that allow for differentiated instruction. Facilitate data collection to ensure that the goals are achieved and that the strategies being used are supported by the research and the evidence. Focus on motivating students. Clarify the curriculum expectations and the routine.</td>
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<tr>
<td>Conseil scolaire catholique de district des Grandes Rivières – CSDGR</td>
<td>Apprentissage hybride en 7e et 8e années [Blended Learning in Grade 7 and Grade 8] Student engagement is visible everywhere. They love technology. We need to adapt to young people, not the other way round. Our teaching practices are changing; we don’t have a choice, because if we ignore Facebook, Twitter, texting, etc., we will lose many of our teenagers. We can see that students are into it and succeeding. With the integration of Antidote, we no longer need ‘paper’ books such as dictionaries or the Bescherelle. We can find lots of information in just a few clicks.</td>
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<td>Conseil scolaire de district catholique Centre-Sud – CSDCCS</td>
<td>L’apprentissage hybride dans le cadre des carrefours en numérotation en 7e/8e [Blended Learning in the Grade 7/8 Numeracy Hubs] The platform will be presented through the numeracy hubs.</td>
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<td>Conseil scolaire de district catholique des Aurores boréales – CSDCAB</td>
<td>L’apprentissage hybride en 7e et 8e année [Blended Learning in Grade 7 and Grade 8] Blended learning in five multi-grade classes (Grades 5 to 8) to allow team work with students in the same grade (and/or same gender) in different schools.</td>
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<tr>
<td>Conseil scolaire catholique du Nouvel-Ontario – CSCNO</td>
<td>Apprentissage hybride en 7e et 8e [Blended Learning in Grade 7 and Grade 8] With the help of IT tools that are already available within their respective schools, teachers will use the Grade 7 and 8 online content modules, integrating the tools on the provincial platform (the Learning Management System or LMS) in order to: • Enrich learning in the classroom through the use of new digital age teaching practices that support student engagement; • Increase their ability and their students’ ability to make effective use of available electronic resources; • Respond to various learning styles and types of intelligence (differentiated instruction) in order to improve student achievement; • Increase collaboration and sharing between schools through in person and virtual meetings; • All while developing 21st Century skills in their students.</td>
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| Conseil scolaire de district catholique de l'Est ontarien – CSDCEO | Apprentissage hybride [Blended Learning]  
Demonstrate that e-learning, i.e., blended teaching and learning, is beneficial. Identify areas and actions that support integration and structures that support collaboration. |
| Conseil scolaire catholique Franco-Nord – CSCFN | Intégration de la technologie [Technology Integration]  
This approach favours the use of differentiated instruction (DI) in the classroom through the use of technology and other tools. We want students to become engaged in their learning; we do this by offering them ways of learning that are as close to their learning style as possible. In this way, they will feel better equipped to succeed.  
The use of an IWB is common because all of the classes have one. If needed, IWB training is available every month (we have an electronic site that stores lessons by grade....). Our coaches also offer training on technological tools (joysticks, iPod touch – all of the schools have iPod touch or iPad devices). Follow-up is available if needed. In addition, in accordance with our action plan, the Consortium is training the team so that it knows how to use the Learning Management System (LMS). |
| Durham District School Board       | Grade 3 iPod Project  
Each school with the DDSB had the option of preparing a proposal to a central steering committee of how they might use a class set of iPod touches within a wireless environment in their classroom and school. |
| Greater Essex District School Board | Innovative Teaching Practice – Blended Learning/ Digital Tools  
Our Board is testing the new Enterprise Portal / School Bundle with a group of Power Users. A group of teachers, administrators and students (Power Families and Power Schools) will be piloting the technologies within the Enterprise Portal from March – June.  
The Enterprise Portal consists of an array of varying technologies. The three main areas of the Portal which will impact engagement and practice are the Internet (School Web Sites), the Intranet (Team/PLC sites) and MySites (Student collaboration sites). At this point the team elected to focus on the INTERNET part of the Portal. For schools, that meant a focus on transferring and creating content on the public School Web Sites and creating a virtual presence for common areas such as the Learning Commons. |
| Halton District School Board        | Bring I.T.! - Encouraging Personal Devices in Schools  
With the expansion of wireless network availability in our board and the cancellation of a board-wide ban on such devices, schools being encouraged to embrace the use of this student and staff-owned technology within schools and classrooms by allowing students to ... Bring I.T.! |
| Hamilton-Wentworth Catholic District School Board | iPads in Education  
Implementation of iPads as a teaching and learning device in three schools (two elementary/one secondary). |
| Hamilton Wentworth District School Board | Digital Citizenship: Living, Learning and Leading in Digital Spaces  
HWDSB’s pilot project has a working title of Digital Citizenship: Living, Learning and Leading in Online Spaces and focuses on what it means to be an ethical, socially responsible citizen on the internet and in today’s digital world. |
| Huron-Perth Catholic District School Board | Cast Your Net  
Our “Cast Your Net” initiative is intended to provide mentorship for all students in their use of Social Media and technology. |
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<th>School Boards</th>
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| Huron-Superior Catholic DSB                       | **Use of a Learning Management System (Blended Learning) within Secondary Programming**  
Provided in a face-to-face classroom environment, the Learning Management System (LMS) will act as a web portal for students and teachers. This model of instruction has recently been referred as Blended Learning. |
| Keewatin-Patricia DSB                             | **Supporting Innovative Teaching Practice with Interactive White Boards and one to one Netbooks**  
Within the 3 pilot schools, we have provided interactive whiteboard technology in each instructional space, laptop and desk docking for all teachers, mobile netbook labs for Early Learning to Grade 4 students (shared) and netbooks for each individual student grade 5 thru 8. |
| Lakehead District School Board                    | **Increasing Student Engagement and Teacher Efficacy through Innovative Practice**  
All grade 1-8 classrooms in the board have been equipped with an interactive whiteboard. The project is focused on training teachers to utilize this technology. |
| Near North District School Board                  | **Blended Learning**  
The NNDSB Teaching and Learning in a Digital World initiative will develop a series of web---based diagnostic math activities designed to increase student engagement and improve student achievement, credit accumulation and EQAO results. |
| Niagara (District School Board of Niagara)        | **Innovative Teaching Practices**  
To determine to what extent does an evidence-based protocol customized for Niagara's culture and context impact teachers skills, attitudes and instruction practices around the purposeful use of technology.  
How does the use of a lap top, LCD projector and Student response systems help students’ engagement, conceptual understanding of math? |
| Northwest Catholic DSB                            | **Building Capacity for Improvement**  
We have provided two grade eight classrooms with a set of 30 iPads to pilot for the 2011-12 school year. A team of teachers and Board consultants’ have been assigned iPads so that they can assist with training, discussing, sharing and documenting strategies on the impact of iPads in the classroom. . After consulting the teachers at the midpoint review they suggested that this project would have greater impact if each student had an iPad dedicated to them on a one to one basis. The team decided to purchase an additional 14 iPad’s for this project. |
| Ottawa Catholic School Board                      | **Innovative Teaching Practice – Handheld/Mobile Devices**  
Our pilots are separated as 5 related projects.  
The project will examine using hand-held devices to engage special education and ELL learners through apps that allow for Differentiated Instruction. This project will focus on building our students’ capacity to use the school iPads and their own devices in order to support their own learning.  
The project will focus on the development of a series of videos outlining appropriate social skills in a school setting.  
Students will be given iPads or iPods during the Language portions of their program and students will use it as a collaborative tool for literacy based assignments in class.  
The focus of the project is on assessment – and the role that reflective feedback plays. |
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<th>School Boards</th>
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<tr>
<td>Peel District School Board</td>
<td>Use of Academic Social Networking to Support Reading Program Participation in Middle School Grade</td>
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<td>This pilot will leverage online tools (private academic social networking environments) in an attempt to improve student engagement and participation in the reading program.</td>
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<tr>
<td>Peterborough, Victoria, Northumberland and Clarington Catholic District School Board</td>
<td>TPMI – Three Part Math Integration</td>
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<td>This is a math project that has aspects that are related to the impact of technology.</td>
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<tr>
<td>Provincial Schools Branch</td>
<td>21st Century Mobile Learning in a Digital World</td>
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<td>The project is designed to provide support and guidance to schools and school boards in the implementation of mobile technologies for student learning.</td>
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<td>Rainy River District School Board</td>
<td>Teaching and Learning in a Digital World</td>
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<td>Teaching the computer programs using a “Job Embedded Model” allows students; Educational Assistants and Teachers to all learn the program at the same time and essentially support each other’s learning. This inclusive model teaches all students Assistive Technology as opposed to pulling individual students out of the classroom for one on one instruction with Assistive Technology laptops.</td>
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<tr>
<td>Simcoe County DSB</td>
<td>Transforming Teaching Practice Through the Use of Technology</td>
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<td>This project will bring teachers together to develop skills using technology to support student learning. Teacher teams will choose which tools most fit the needs of their job-embedded school learning teams.</td>
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<td>Simcoe Muskoka Catholic</td>
<td>Does Using Technology, Specifically Google Docs, Improve Students’ Attitude Towards Writing and the Quality of Their Writing?</td>
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<td>As indicated above, we are using Google Docs and its unique features to answer the question “Does Using Technology, Specifically Google Docs, Improve Students’ Attitude Towards Writing and the Quality of Their Writing?”</td>
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<tr>
<td>St. Clair Catholic</td>
<td>Blended Learning/Digital Tools</td>
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<td>Pilot of blended learning is selected and targeted schools.</td>
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<tr>
<td>Sudbury Catholic District School Board</td>
<td>Full Day Kindergarten: Inquiry for the 21st Century</td>
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<td>Teachers and Early Childhood Educators (ECEs) will engage in the collaborative inquiry process, embedding technology in their daily practice. In this cycle, teachers and ECEs will have an opportunity to co-plan, co-teach and co-reflect. A focus of this collaborative inquiry is documentation of student learning.</td>
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<tr>
<td>Thames Valley District School Board</td>
<td>Early Literacy iPod Touch Project</td>
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<td>Early Years educators will gain access to a wide range of resources to enhance student learning through the use of handheld mobile technology.</td>
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| Thunder Bay Catholic District School Board       | Teaching and Learning in a 21st Century Classroom  
The Boys Literacy Initiative (BLI) goal is to create an all-male Grade 10 literacy class, that integrates a variety of ICT resources to engage students and improve their achievement. This project places students in a 21st Century, technology-infused learning environment. Students will have access to and use technology to support and document their learning (e.g. digital cameras, podcasting, web 2.0, assistive and adaptive software, interactive whiteboards). |
| Thunder Bay Catholic District School Board       | Educating for the Future ~ Preparing for the World: Mobile Technology in Thunder Bay Catholic Elementary Schools  
The Mobile Learning Initiative (MLI) places elementary students and teachers in a 21st Century, technology-infused learning environment. Students and teachers have access to a variety of appropriate Information and Communication technologies (iMacs, iPads, iPods, Laptops & SMART Boards) to enhance student outcomes and engagement. The primary goal of the project is increased student achievement through technology-enabled learning opportunities; access to the technology devices mentioned above, is essential to the project. |
| Toronto District School Board                    | Academic Workspace 3.0 - The Parent & Community Engagement Portal  
Our goal is to work together with Families of Schools Superintendents, School Principals and Parents, building a “digital bridge” with students, teachers and parents that will, in fact, create a collaborative environment to drive greater engagement. |
| Trillium Lakelands DSB                           | Transforming Student Engagement and Teacher Practice through the EAL (Earn a Laptop) and IL (Inspired Learning)Project  
This project will look at the correlation between student engagement in Inspired Learning classrooms with teachers who have been part of the EAL (Earn-A-Laptop) program and the Inspired Learning classrooms that have a teacher who has not earned an EAL laptop. |
| Upper Grand DSB and York Region DSB               | Teaching and Learning in a Digital Walled Garden  
This project provides a pilot evaluation of Virtual Learning Environment in two Ontario school boards. Virtual Learning Environments (VLEs) are web-based education systems. VLEs may include online access to assignments, quizzes and tests, and reference and research material. |
| Waterloo Catholic District School Board           | Teacher Development Through the Use of Interactive Whiteboard Technology  
We are providing each school within our board the opportunity to select one teacher from each division (elementary) and one teacher from a variety of disciplines (secondary), where these teachers will be released from their classroom to take part in instructional practice PD and resource development related to interactive whiteboards and related software. |
| Waterloo Region District School Board             | Future Forums Project  
The project provides a group of grade 10 students enrolled in English 2DI, Civics 2OH and Careers 2OH with an opportunity to engage in an inquiry based, cross-curricular, project oriented approach to their learning. Utilizing mobile technology and on-line applications, students have an opportunity to work with their teacher, along with teachers and students in other schools, in a collaborative environment to achieve the expectations of the three courses using an integrated approach. |
| Wellington Catholic DSB                          | Bridging the Gap for Students with Learning Disabilities  
We are attempting to support teachers in changing their instructional practices with regards to assistive technology. |
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<tr>
<td>York Catholic District School Board</td>
<td>Destination Reading</td>
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<td>We are providing Full Day Kindergarten SK Classes, and Grade 1 classes at all the interested schools participating, with access to an online reading program called “Destination Reading.” Students will use the interactive technological program as an integrated part of their language arts program</td>
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</tbody>
</table>
Appendix B – Guiding Questions for Site Visits, Project Interviews and Final Project Report

1. How does this technology-based project enhance your *board’s vision* of 21st Century teaching and learning?

2. How does your project contribute to building the *life skills* necessary for living and learning in a digital world?

3. Describe how your project has influenced *teachers’ practice*.

4. How has *student engagement and achievement* been recognized during your project?

5. Technology often has an influence on *learning environments*. How is this statement reflected in your project?

6. What broader influence does your use of technology for teaching and learning have *beyond your school and board*?

Note: Depending on your project’s areas of focus, not all of the above questions may be relevant to your initiative.
Appendix C: Reporting Template Handbook

A. Key Dates and Contact Information

Contact Information
Curriculum Services Canada will respond to your questions throughout the process. You may contact us by email or by phone.

Email:
Pauline Beggs: pbeggs@curriculum.org
Sandy Gene: sgene@curriculum.org

Phone contact:
Call Sandy Gene at Curriculum Services Canada
1-800-837-3048 ext. 254, or 416-591-1576 ext. 254

Overview of Timelines
January Interim Report: on or before January 31, 2012
Final Report: on or before June 30, 2012

Submission of Completed Reports
Send the completed reports by email to BOTH Pauline Beggs and Sandy Gene at Curriculum Services Canada.

Email:
Pauline Beggs: pbeggs@curriculum.org
Sandy Gene: sgene@curriculum.org

Site Visits
Site visits will be to selected sites in order to clarify or further understand the scope and impact of pilot projects across the province. Project leaders of selected sites will be contacted beginning in February 2012 in order to arrange convenient times for the site visit.

The site visits are intended only to add to our understanding of your project. The purpose of the site is not to evaluate, critique, or compare.

B. Overview of the Teaching and Learning in a Digital World Pilot Projects

In January 2011, the Council of Ontario Directors of Education (CODE) and the Ministry of Education indicated their intention to work in partnership to support district school boards interested in participating in pilot projects on effective practices for Teaching and Learning in a Digital World.

The technology-enabled projects would align with the 6 theme areas of:

1. Vision
2. Digital Citizenship and Literacies
3. Innovative Teaching Practice
4. Learning Environments
5. Student Engagement, Culture and Achievement

Boards submitted an outline of their pilot project for consideration in February 2011. The Ministry and CODE did a cooperative review of all submissions. The final project list identified 47 participating boards.
In mid-October of this year, an External Research team was selected by the Ministry to work with participating boards in documenting their projects and their evidence of impact within a common research framework.

Curriculum Services Canada (CSC) is the successful vendor of record. Our CSC Research Team is charged with preparing an overall report on the results of all projects.

Curriculum Services Canada is a not-for-profit standards agency whose services reflect the importance of quality assurance in programs and products for education. CSC has many years of experience in supporting quality instruction and learning in Ontario’s public school system.

You can go to [http://curriculum.org](http://curriculum.org) to get additional information.

C. Reporting Template Overview

**Electronic Reporting Tool**

A reporting template has been sent to all project leaders. The template is a WORD document that will adapt to the information that you provide. The report cells are not fixed, and will expand to contain all the information that you need to include. 

The reporting tool is to be used for both the January Interim Report and the June Final Report. Since the reporting template is consistent throughout the process, projects are encouraged to enter information in their reporting template as it becomes available so that reporting requirements and timelines are more manageable.

**Reporting Requirements**

There are 4 parts to the reporting template:

- Part 1: Project Information
- Part 2: Project Description
- Part 3: Project Monitoring
- Part 4: Project Implementation

Curriculum Services Canada acknowledges that Boards have projects at various stages of implementation and the extent of what can be reported will vary from project to project for the January Interim Report.

**Interim Report, January 2012**

*Parts 1, 2, 3 of Report*

It is expected that all projects will complete Parts 1, 2, 3 of the report based on the most current information.

The information should provide a descriptive profile of the project (identifying the focus of the activities, the process for monitoring, and implementation details).

The information can be edited or elaborated on for the June 2012 Final Report based on activities and adjustments that occur between February and June.

*Part 4 of the Report:*

All projects will complete the first section of Part 4 that details implementation plans.

Projects that have early data and findings are encouraged to complete other sections of Part 4 as appropriate and relevant. This data will reduce requirements for June reporting and provide the research team with valuable insights on effective practices.

**Final Report, June 2012**

All projects will submit a fully completed report.

The June Final Report will update, confirm and finalize information from the January report, and complete sections of the report that were blank or only partially completed for the January Interim Report.

Submission of any supporting data and data collection tools will be detailed in June 2012, as required.
D. Understanding the Reporting Template


Part 1 Project Information details the “coordinates” of the project. Here you identify where the projects are situated, who is involved, how many are involved, etc. The following points will clarify several sections of Part 1.

- The request for the number of students and teachers is only an ESTIMATE so that we can gauge impact.
- The reference to “Identify the target group of your pilot project activities” means the specific group that is being “acted on” in this pilot project. For example,
  - grade 3 students at 4 schools,
  - grade 9 mathematics teachers at one school
  - parents of students in a specific classroom
- The project may have implications beyond this group, but this is where your current pilot project activities are focused.
- The reference to “Describe the intended level of impact …” considers the implications of what is learned from the pilot project. For example, the pilot project may be targeted at grade 4 students in two classrooms (because of limited finances or hardware) but the impact of what is learned from the pilot may be the Junior Division in all elementary schools in the Board. The impact can be broad, but must be clearly and DIRECTLY connected to the learning from the pilot project.
- The section on supporting partners may include not only post-secondary institutions and private sector support, but also include ongoing interactions other school boards, or with your Community of Practice Cluster designated as part of this project.

**Part 2: Project Description (What, Why)**

Part 2 has three (3) major sections: description, technology focus, and rationale.

1st Section

The project description has two components

- a descriptive overview of the focus of your project in a few sentences or paragraphs, and
- an identification of the intended area or areas of impact.

The areas of impact could be one, two, or all three of student engagement, instructional practice and student outcomes.

The following is an example description to illustrate this section.

*We are providing all students in four of our grade 6 classes with iPads. The students will use the iPads for the language arts portion of their program and students will use the technology as a collaborative tool for literacy-based projects. A team of teachers and consultants has been developing resources that utilize the iPad technology ... etc.*

(The description also includes area(s) of impact highlighted below.)

The project is intended to impact student outcomes related to collaboration and communication, and to have a positive impact on student engagement.

In summary, the description should briefly describe the main focus of the pilot project and then identify the connection to one or more of the 3 areas of impact. For example, in the description above, the project identifies impacts on student engagement and student outcomes.
The description of HOW it is being accomplished (e.g. workshops, training sessions, resource development etc.) should not be detailed until Part 4 (implementation).

2nd section
Since the focus of Teaching and Learning in a Digital World is gauging the impact of information and communication technology, please provide a clear description related to the role and impact of technology. This description should indicate why technology is critical to the project. It should be convincing that the technology was an essential component of the project and not just a simple enhancement or an add-on to the initiative.

3rd section
Rationale asks for a description why this project was selected or why it evolved. What motivated the involvement by your board in this project? What need was identified and how was it identified?

The reference to baseline data asks for the description of the conditions before you began the project. A descriptive picture (in words or data) of both the beginning and end state are required in order to gauge or measure if there was any impact or improvement as a result of the activities related to the pilot project.

Part 3: Project Monitoring (How Well)
Monitoring provides the information that can be used to measure the degree of impact or improvement. Monitoring can collect both descriptive (qualitative) information and numerical (quantitative) data.

The measurable outcomes identify the broad areas of your data and information collection as it relates to the technology-enabled project. These may include areas such as:

- effectiveness of a teacher training program related to a new technology
- breadth of input related to technology related board policies
- effectiveness or ease of use of software
- durability or functionality of hardware
- cost effectiveness of a new classroom resource

These are all important outcomes and should be identified in your report. However, your outcomes must include or be clearly connected to one or more of the three broad areas of impact:

- Student engagement
- Instructional practices
- Student outcomes

In other words, your monitoring must be relevant to the technology focus of Teaching and Learning in the Digital World, and must include the collection of information and data that directly relates to improving student engagement, instructional practices, and/or student outcomes.

The following further elaborates on the three areas of impact.

Student engagement
Students are invested in their learning. They commit time and effort to their learning. They try hard to learn and take pride in their accomplishments. They care about the quality of their work.

Indicators are what you can observe or count (the “look for’s”) that collectively give evidence related to the broader and more complex outcomes. Indicators will vary based on the target group. For example, what is appropriate in grade 1 will be quite different from what could be used in grade 10 mathematics. Example indicators for student engagement

- Students are willing to participate, complete tasks, attend class, follow directions, ask task related questions of others, etc.
- Students can describe the purpose of the lesson or task
- Students indicate that they enjoy the work
• Students understand what quality of work is required

**Tools and Processes** are the ways that information or data can be collected. Examples include surveys, interviews, written student feedback, classroom observations by the teacher, attendance records, etc. The data can be qualitative (anecdotal) or quantitative (use of rating scales).

**Instructional practice**
Changes to instructional practices can relate to what is taught (program changes) or and how it is taught (pedagogy). The data can relate specifically to the changes in instructional practices (e.g., are teachers using the technology effectively? what instructional strategies are now more evident or less evident due to the use of technology) or can be expanded to look at the impact on the experiences of students (e.g., how have the classroom experiences for students changed because of the initiative? what student actions and interactions are now more evident or less evident due to the use of technology?).

**Student outcomes**
Student outcomes can include one or both of student achievement or process learning skills (e.g., 21st Century skills of collaboration, creativity, communication, and critical thinking).

Please contact Curriculum Services Canada if any further clarification or elaboration on the three areas of impact is required.

**Part 4: Project Implementation (How)**

**Section 1**
“Outline in detail your implementation plan for this pilot project”

For the January Interim Report, provide a very rich description of your implementation process. Describe how your board has or will implement the pilot project. Include details such as:

• how people were trained
• how resources were development
• how you created supports to sustain the project
• how you maintained the technology
• how you motivated the people implementing the project
• how you established leadership and accountability

**Other Sections in Part 4**
The remaining sections on this page deal primarily with findings and results of your initiative. If your project has early findings and results, please complete the appropriate sections for the January Interim Report.

These sections must be completed for the June Final Report, and may be completed for the January Interim Report based on your stage of implementation.

**E. Reporting Template**
A sample Reporting Template is included in this document. Project leaders have received, in a separate file, the version of the template that should be used to enter the information and then sent by email to Curriculum Services Canada (see page 1 of this handbook for instructions).
## Part 1: Project Information

<table>
<thead>
<tr>
<th>Board:</th>
<th>Submission Date:</th>
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</table>

**Project Title:**

**Contact person** (role, email, phone number, etc.):

**Scope of the project within your board:**
- Number of schools:
- Number of classrooms:
  - *Other Information:*

**Number of students directly impacted by your project in this school year (estimate only):**

**Number of teachers and staff directly involved in the pilot project in this school year (estimate):**
- Number of teachers:
- Number of non-teaching staff:
  - Please provide specifics on the roles of non-teaching staff (e.g. IT, administration, etc.)

**Identify the target group of your pilot project activities.** (e.g., specific grades, courses, group of students based on identified need, etc.)

**Describe the intended level of impact for the project in your board.** (e.g., board-wide change, practices within selected schools or classrooms or courses, learning of a selected group of individual students)

**If you are working with supporting partners (e.g., private sector, post-secondary institutions), describe the nature of the partnership and the extent of the contributions.**
Part 2: Project Descriptions

Describe your pilot project. Identify what you are doing and how it is intended to impact one or more of:

- student engagement,
- instructional practices,
- student outcomes.

(It is not necessary here to describe how it is being implemented or evaluated.)

Specifically identify the role of technology in this pilot project. Describe why technology is an essential element to your pilot project.

Identify the rationale for your project.

What motivated your board’s involvement in this initiative?

What baseline data has been or will be collected in order to allow you to identify the impact or measure improvement?
## Part 3: Project Monitoring

Identify the area (or areas) of impact of your monitoring activities.

- [ ] student engagement
- [ ] instructional practices
- [ ] student outcomes

Further clarification of these areas of impact is provided in the support materials accompanying this template.

<table>
<thead>
<tr>
<th>Measureable Outcomes</th>
<th>Indicators</th>
<th>Tools and Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(What can be observed, described or tabulated that tells me that there is an impact?)</td>
<td>(Describe what you are using to gather evidence of impact)</td>
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</tbody>
</table>
### Part 4: Project Implementation

<table>
<thead>
<tr>
<th>Outline in detail your implementation plan for this pilot project.</th>
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<tbody>
<tr>
<td>Identify early successes of your project.</td>
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<tr>
<td>Identify early challenges. Describe how you have worked through or altered your original plan.</td>
</tr>
<tr>
<td>Identify unintended results, unexpected opportunities, or unanticipated changes to your process.</td>
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<tr>
<td>Outline further data collection processes you have implemented between February and June.</td>
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<tr>
<td>Summarize your KEY FINDINGS /RESULTS from this pilot project.</td>
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<tr>
<td>Describe your NEXT STEPS as a result of your findings from this pilot project.</td>
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