

Toronto Catholic District School Board: 2015-2016

Project Title	iPad Integration in the Grade 9 Applied Math Classroom
Description	<p>The “iPad Integration in the Grade 9 Applied Math Classroom” initiative was the result of collaboration between the TCDSB Math and 21st Century Learning Departments, who planned and delivered 6 sessions to TCDSB grade 9 applied math teachers. Through this project, we encouraged teachers to explore the use of the iPad to engage and support students in the learning of Mathematics. The focus of this project is on engagement and EQAO scores.</p> <p>The sessions were always facilitated by the program coordinator of 21C and resource teachers from the Math and 21C departments. System identified needs in EQAO were shared as were individual school data. Exit survey results informed the planning team in designing each learning session.</p> <p>The planning team consisted of the program coordinator II of 21C, two 21C and four Math resource teachers, and eight classroom teachers.</p> <p>As part of each session, a survey was conducted to gather information on technology use by teachers, and the type of technology used.</p> <p>The planning team collaborated with our research department to create and make available a student engagement survey that attempts to gather perceptual data from students on math and technology use. We asked that students complete this survey at the start and end of each course.</p> <p>The Math resource teachers also provided a template on how to estimate EQAO scores, and teachers were invited to share their predictions.</p> <p>Each session hosted breakout sessions, led by classroom teachers that provided them with leadership opportunities. These teachers also shared resources, and worked closely with other teachers to build capacity.</p>
Context	<p><i>Number of students: 2,000</i></p> <p><i>Number of teachers: 90</i></p> <p><i>Number of schools: 40</i></p> <p><i>Grades/Program: Gr.9 Applied Math</i></p>
Impact on Students	<p>Each teacher attended three professional learning sessions focused on iPad integration in the grade nine applied math classroom. To understand the impact of our learning sessions on student engagement, learning and achievement, we gathered perceptual data directly from students. We also collected data on students indirectly from teachers.</p> <p>Teachers are invited to use a diagnostic assessment to understand their students’ needs and assist with an approximate prediction in EQAO scoring. Repeating this process mid-way and towards the end informs lesson design and instructional strategies. An add-on to this assessment process, both at the start and end of a</p>

	<p>course, is the Student Engagement Survey, which is administered by our Research Department. We were able to gather a reasonable snapshot of student data around the timeframes that session one (November) and session two (February) had taken place. Overall, students had indicated increased levels of comfort and engagement.</p> <p>The follow up survey on learning and achievement with teachers reported that student-to-student learning partnerships ranged from collaborating and sharing during class to after class on a variety of tasks. Also, that students have shared their work with their entire class as they had the ability to display their work over a projector for all to deconstruct and discuss.</p> <p>Teacher-to-student partnerships are evident as teachers also reported that students are communicating more frequently and effectively, by using technology to share with others, create, access, and store their work easily in the cloud while using a shared device and or their own device.</p> <p>Overall, these teacher accounts identify that technology integration led to a change in student mindset, improvement in engagement, and achievement.</p>
<p><b>Impact on Instruction</b></p>	<p>When we compare each session’s data we noticed that the frequency of usage increased by approximately 20%. The number of teachers that reported as never using iPads dropped by approximately 50%. These statistics were indicative of the fact that the level of comfort with iPad integration was improving.</p> <p>Teachers participated in breakout sessions that were led by teachers. Each breakout session was focused on one or two apps that demonstrated learning activities that addressed specific curriculum strands and expectations.</p> <p>During session three, teachers had volunteered to share their learning and resources as well as lead a breakout session. This was evidence of the capacity building that had taken place over the course of this initiative. As further evidence of teacher-to-teacher partnerships, teachers had collaborated on designing learning activities throughout the period of time these three sessions were taking place. Some teachers had co-planned breakout sessions, and most teachers had also shared resources as part of a repository for every math teacher in our system to use.</p> <p>To capture evidence of teacher-to-student partnerships, each grouping of teachers by school, shared evidence of how they addressed specific student learning needs by explaining how iPads and apps were used.</p> <p>Teachers also reported that some apps were able to impact on their practice because they collected data that made it possible to identify the specific difficulties students were having. This information informed the instructional strategies, learning activities, and evaluations teachers used. As a result, many teachers reported an appreciation of what was possible when technology was effectively integrated with instructional strategies.</p>

<p>Impact on System</p>	<p>The importance of this initiative was grounded in research that uncovered that our students entering grade nine applied math over time had demonstrated gaps in understanding.</p> <p>This initiative was an opportunity to model effective professional learning that was driven by student, teacher, and system needs.</p> <p>This initiative was planned centrally by the 21st Century Learning, Mathematics, and Research Departments. This collaboration involved a synergy between specialists in teaching and learning, technology, mathematics, and research. Each member reported as having learned and grown in the areas of communication, collaboration, use of ICT for learning, organization, data gathering techniques, and facilitation of professional learning in a variety of formats.</p> <p>Our organizational process involved determining a focus, establishing how impact can be measured, and understanding how to design and implement data gathering tools so that specific variables can be measured and impact on students, teachers, and system can be realized.</p> <p>All members of the planning team demonstrated leadership, as they developed many relationships that will sustain the impact of this initiative beyond its completion and into each school community. Participating teachers demonstrated leadership as they took back their learning and shared with their school community as part of sustaining the impacts from this initiative.</p>
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