

Rainbow District School Board: 2014 - 2015

Project Title	Supporting Engagement, Deeper Thinking, and Math Talk With Technology in Mathematics Classrooms
Description	<p>Rainbow DSB encouraged and supported project participants to explore differentiated learning, inquiry-based learning, and open ended questions which promote deep thinking by students. Two full-time ‘learning coaches’ were hired to help guide teachers in their journey towards a technology-enabled, deep thinking pedagogy.</p> <p>The technology used to enable this learning was similar to that used in previous projects but with an overall increase in scope. During the 2012-2013, Rainbow DSB started with 39 tablets shared among seven teachers. For 2014-15 the project grew to include 418 iPads shared among 31 teachers and a wealth of supporting technology such as Apple TVs, charging carts, and high quality productivity and mathematics applications.</p> <p>As the technological scope increased, so did the opportunity to build on past successes and to further address the Technology and Learning Fund’s four key areas of focus by continuing to expand on teacher-student and teacher-teacher partnerships, enhance student-to-student learning, and address deep learning pedagogy enabled through technology.</p> <p>Rainbow DSB teachers participated in province-wide work action that led to a full and partial withdrawal of services. This work action limited the opportunity to collect and analyze data for evidence-based findings.</p>
Context	<p><i>Number of students: 700</i></p> <p><i>Number of teachers: 31</i></p> <p><i>Number of schools: 11</i></p> <p><i>Grades/Program: Grades 1-8, 9-12 mathematics</i></p>
Impact on Students	<p>Increased Student Engagement and Achievement</p> <p>Evidence of increased student engagement was found through classroom observations by teachers, learning coaches, and students. Anecdotal data collected from teachers through surveys tools and conversations with learning coaches also provided evidence that supported increased student engagement.</p> <p>[Student comments]</p> <p><i>“It made math fun and entertaining and easy for me to understand”</i></p> <p><i>“It was a new way of learning that caught my eye”</i></p> <p><i>“The iPads motivated me to keep going”</i></p> <p>[Teacher comment]</p> <p><i>“Students were always engaged with the iPads. Seemed more interested in any task when using the iPads”</i></p>

	<p>[I]tems were created during lessons that were specifically designed to use the tablets in a manner which engaged the students and provide differentiated, deep-thinking learning opportunities for students.</p> <p><i>Student Attitudinal Shift Towards Mathematics</i></p> <p>[P]roject teachers and project support staff indicated that some students who had very little confidence in their ability and/or lacked enthusiasm towards mathematics experienced an attitudinal shift during the project. Teachers stated that witnessing changes in their reluctant learners was one of the most encouraging outcomes of their participation in the project.</p> <p><i>“They took pride and ownership in their work because it was being recorded.” (Learning Coach)</i></p> <p><i>“I had some teachers tell me that some students that had never really participated in class before were submitting work that was above what they had contributed previously.” (Learning Coach)</i></p> <p><i>Development of 21st Century Competencies in All Students</i></p> <p>The variety of access to 21C tools and technologies to assist student learning is an area of inequity for many students in the Rainbow DSB. Through the 21C projects and the significant technology purchases connected with them, this inequity has been somewhat moderated, and essential 21st Century skill opportunities can now be provided for a greater number of students.</p> <p><i>Collaboration and Deep Thinking</i></p> <p>The technology acquired and implemented during the 2014-2015 project enabled students to experience learning mathematics in new ways. This included the opportunity to engage in student-student learning partnerships and collaborate with peers using technology.</p> <p>Guided and supported by their teachers, students were also enabled by technology to inquire and think about mathematics on a deep level. Specific applications such as Explain Everything also allowed teachers to change their assessment practices to reflect this new, deeper learning pedagogy.</p>
Impact on Instruction	<p>Anecdotal evidence and teacher feedback has shown that project teachers were very willing to try new technology enabled learning and teaching strategies in their classrooms and quickly integrate those strategies on a regular basis into their classrooms. They did so for the purpose of promoting deep thinking in their students and using assessment techniques that reflected this deep learning.</p> <p>Workshops and professional development activities, technology acquisitions, and tools such as Google Applications for Education have given teachers a variety of opportunities to collaborate and create teacher-to-teacher learning partnerships across the board.</p>
Impact on System	<p><i>Rainbow DSB Learning Networks</i></p> <p>Informal professional learning networks have been created through the Rainbow DSB 21st Century Teaching and Learning projects, and teachers and administrators continue to collaborate on developing a technology-enabled 21st Century learning model for the</p>

	<p>board. Feedback from stakeholders across the board indicates a desire to scale up these professional learning networks system wide.</p> <p><i>Learning Coaches</i></p> <p>Technical Integration Facilitators had previously been used in Rainbow DSB 21C projects, however the roles and responsibilities of a tech coach continue to evolve. The Tech Coach role continues to have more of a pedagogical support focus, and in 2014-2015 Rainbow DSB decided to create a 1.0 permanent position where a mathematics teacher was seconded. The name Technical Integration Facilitator has been changed to Learning Coach to better reflect the evolving role of the position.</p> <p><i>Rainbow DSB Teachers as Technology Leaders</i></p> <p>21st century learning projects that have increased student engagement enabled by tablet technology have now been conducted in over twenty Rainbow DSB schools and over a thousand students have participated. Teachers and students who have taken part in these projects have become leaders in technology enabled learning and teaching, and are championing the development of 21st Century learning strategies at their schools. Other subject areas are being incorporated into the work of the project, as we move forward.</p>
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NOTE: Information in the summary is taken directly from the data contained in the final project report.