

## Upper Grand District School Board: 2014 - 2015

<b>Project Title</b>	<b>Using Adaptive Learning Technology to Engage Students in Math</b>
<b>Description</b>	<p>The Upper Grand DSB has identified gap reduction and identification in primary mathematics as an area of need. Through our research, we have identified a web-based program called Dreambox as a dynamic technological tool to help address that need. This tool provides both diagnostic and formative assessment to teachers, as well as on-going feedback to students as they progress through a variety of interactive modules. Unlike many other programs, Dreambox also adjusts its next steps based on how students understand the concepts they're working through.</p> <p>The project was aimed at three main groups: Students, Teachers and Parents. For students we aimed to embed technology into a subject that traditionally does not utilize a lot of digital tools. Students explored a variety of math tools in a digital format for at least an hour a week using various platforms (iPad, Chromebooks, Laptops, etc). For teachers, we aimed to embed the use of technology to collect data and inform instruction. Teachers were given training on how to access this information and how to utilize it to inform their whole-class and small-group instruction. For parents, we aimed to engage them in their child's mathematical learning through the use of technology. In addition to committing to allow their children at least 30 minutes of Dreambox time at home, parents had the option of signing up for an account to track their child's growth and understanding of math concepts.</p>
<b>Context</b>	<p><i>Number of students:</i> 2600</p> <p><i>Number of teachers:</i> 125</p> <p><i>Number of schools:</i> 40</p> <p><i>Grades/Program:</i> Grades 2-3</p>
<b>Impact on Students</b>	<p>Student engagement with the Dreambox service has been consistent over the course of this project to date. Using the program at school and at home, student's knowledge and skills are quickly assessed leading to a highly customized program for every child. Through regular and persistent interaction with the tool each student's progress is tracked and reported providing immediate feedback to both the student and teacher. This formative assessment process provides rich actionable data allowing a teacher to adjust their small group instructional practice or to modify the small group's composition.</p> <p>Our first measurable outcome was an increase in student understanding of the curriculum, as determined by Dreambox. As evidenced by the data collected, student conceptual understanding has increased over time.</p> <p>Our second measurable outcome was evidence of sustained use of technology in math. ... teachers are using Dreambox, on an average of 2.5 hours/week with their class. What is more telling, however, is that students are going home and using Dreambox for an additional 30-55 minutes each week. This information is impressive when the fact that this has been continuing for three months is considered.</p>

	<p>We were hoping to use the attitudinal surveys from EQAO to help inform student engagement in math in general. However, we asked teachers to poll their classes and the response was overwhelmingly positive, with all teachers reporting that their students enjoyed using Dreambox, and 100% indicating that their students were engaged with the program.</p> <p>82% of teachers surveyed indicated that they saw an increase in student conceptual understanding in math, which was made evident during regular math instruction. 75% of teachers surveyed indicated that Dreambox ‘sometimes’ helps inform their regular math instruction.</p>
<b>Impact on Instruction</b>	<p>We believe that we are at the beginning of a change in practice but need to support that change with further training to better use the technology. Most teachers indicated that they are using Dreambox data to help inform their instruction. When asked about how this data is being used, teachers generally indicated that it is being used as diagnostic information to help determine where they should be starting their math lessons. The next step is to help teachers identify the information they can use from Dreambox to form and instruct small groups.</p> <p>We feel that we have more work to do with teachers and the use of the Dreambox reports. While 75% of teachers indicated that they use the reports to inform instruction, no teacher indicated that they do this consistently. Additionally, no teacher indicated that they regularly use Dreambox to form small groups, with only 37% indicating that they sometimes use the data to form small groups.</p>
<b>Impact on System</b>	<p>This project contributes to our overall goal of creating a comprehensive virtual learning environment that provides access to databases, productivity tools and dynamic, content-specific learning tools. Dreambox builds on the introduction of these tools by providing real-time feedback to students and teachers. This is important to our system scaling objectives because it increases teacher confidence with digital tools and also introduces the concept of data literacy to help inform instruction. This project is only possible because of past work that has been done in building digital capacity within our system and is now looking to leverage that capacity to change the way that teachers collect and use data to inform their instruction and close gaps for students.</p>

*NOTE: Information in the summary is taken directly from the data contained in the final project report.*