

District School Board of Niagara – Project #1: 2015 - 2016

Project Title	DreamBox – Adaptive Mathematics Technology to Support Student Learning
Description	<p>The DreamBox project is designed to meet the individual mathematics needs of elementary students through a computer-based program called DreamBox. This adaptive mathematics computer program responds to the individual needs of each student as they play through the activities and lessons within the program. DreamBox adapts to the learning needs of each student, and while it generally aligns with our Ontario curriculum, it is more focused on aligning with the current needs of each student developmentally (as determined by mathematical landscapes, including work by Cathy Fosnot). The technology provides students with contexts and links to models which enables students to make sense of the mathematics they are learning (e.g., a number line is introduced for fractions being created out of a bike race). Through the teacher's dashboard, student performance in relation to curriculum expectations can be accessed, which provides teachers with another assessment tool to track student achievement and progress. This data allows the teacher to further identify the strengths and needs of their students, both through in-class instruction and through DreamBox.</p>
Context	<p><i>Number of students: 19,148</i></p> <p><i>Number of teachers: 777</i></p> <p><i>Number of schools: 83</i></p> <p><i>Grades/Program: JK-6</i></p>
Impact on Students	<p>Our DSNB Mid-Year assessment clearly demonstrated that DreamBox is having an impact on student learning in mathematics. Questions that related directly to the content that DreamBox is supporting from our Mathematics Curriculum were better answered than in previous years (according to teachers). The other exciting evidence came from the problems that were not directly related to the content that is learned through DreamBox. On these questions, many students (including those that teachers identify as struggling students) made use of the models that they had learned through DreamBox to solve problems.</p> <p>DreamBox is also impacting regular classroom instruction significantly. Teachers and instructional coaches are consistently sharing that their students are often solving problems and when asked about their thinking the response is, "I learned that on DreamBox". The strategies, models and tools are moving from the computer into the classroom.</p> <p>DreamBox also provides similar responsive feedback that teachers give students during instruction. This allows opportunities for the students to be engaged in rich mathematics learning and receiving feedback from the program, while the teacher might be working with another group of students (at times during a math lesson).</p>

<p>Impact on Instruction</p>	<p>Teachers are better able to implement mathematics instruction that is appropriate for individual students as they are using the DreamBox Dashboard. Teachers are able to use this data to work one-to-one with students about the content that challenges them. When similar difficulties are being experienced by a group of students, teachers are able to use this data to work with that group of students on the concept or lesson they are struggling with.</p> <p>These decisions, that are being informed by looking at student data from the DreamBox Dashboard, are positively impacting student learning and teacher practice. Teachers are becoming more aware of their student strengths and difficulties, as well as seeing models and strategies that might support students to move forward through DreamBox.</p> <p>This program allows for a blended learning environment to exist and flourish. Teachers and students are using regular class experiences to share learning from DreamBox to extend and revisit regular classroom experiences. Teachers and students both are learning from the technology and each other, to different extents, and at different points in the learning.</p> <p>Teachers also have an increased ability to share student learning with parents through DreamBox and its Parent Dashboard. This gives insight to parents about their child’s development. This helps to further strengthen the lines of communication about mathematics in the classroom, through technology and to the home.</p>
<p>Impact on System</p>	<p>We have worked to better inform educators across the system about the program and all of its benefits and connections to the curriculum. As teachers, administrators and superintendents have better understood the power in this responsive, adaptive technology, we have seen a significant increase in student usage.</p> <p>DreamBox is also helping the system to scale up our understanding of technology-enabled practices to engage students in learning the mathematics curriculum. DreamBox presents all concepts through visual models that help students to visualize what is happening in their strategies. These models help students to make sense of the mathematics they are doing by using their visual reasoning. The concepts which DreamBox underpin much of the mathematics students learn in our curriculum and thus help to provide every student with important experiences that research shows are foundational to mathematics understanding. As well, there are certain concepts in mathematics that some elementary mathematics teachers don’t fully understand or know how to support students in learning. DreamBox is providing both the students and teachers with some of this missing knowledge and experiences in order to help the system learn mathematics more effectively.</p>

District School Board of Niagara – Project #2

Project Title	Google Read & Write
Description	<p>During the 2015-2016 school year the DSBN has worked to further integrate Google Apps for Education (GAFE) into the daily practice of our teachers and students. Weekly active users of Google Drive are up almost 50% from approximately 9000 users in September to 15,000 users in March. Our file count in Google Drive has steadily doubled over the last six months. Throughout the school year the DSBN has offered entire classes and individual teachers and students training using the Read & Write extension for Google. Due to its ease of use and unobtrusive nature, Read & Write became a natural fit as a “beneficial for some, good for all” tool. Read & Write gives users access to assistive technology regardless of their specific learning needs.</p>
Context	<p><i>Number of students: 10,000</i></p> <p><i>Number of teachers: 350</i></p> <p><i>Number of schools: 100</i></p> <p><i>Grades/Program: K-12</i></p>
Impact on Students	<p>The use of Google Read & Write has steadily increased over the term of this project. Of the schools who reported their usage during the 2016 Grade 3 and Grade 6 EQAO testing period, between 70% and 80% of students requiring Assistive Technology chose to use Read & Write. Since the software is not mandated and there is choice within the DSBN for which Assistive Technology students can use, the high level of adoption indicates that both teachers and students are finding the software helpful and easy to use.</p> <p>Over the past two years, as Read & Write’s adoption rates have increased, we have seen an upward trend in student achievement at the elementary level in the Reading and Writing strand of the report card. We have data that shows an increase in students achieving Levels 3 or 4 when we compare their achievement from the 2014-15 school year to the same cohort’s achievement in the next grade in the 2015-16 school year. This trend is seen among students who have IEP’s and as an overall trend in the DSBN.</p> <p>By providing Read & Write to all users in the DSBN, and by training whole classes instead of specific students, we help to remove the stigma surrounding the use of Assistive Technology. Since Read & Write has a diverse set of tools and all students are using GAFE, the students who need the software based on their IEP do not stand out from their peers.</p>
Impact on Instruction	<p>There has been an increase of adoption throughout the DSBN of GAFE based largely on the integration with Google Read & Write. As a result, we are seeing increases in teachers adopting a Blended Learning model using either Google</p>

	<p>Classroom or D2L. Both of these tools integrate with Google Read & Write. Teachers no longer need to provide specialized versions of content for students using Assistive Technology. This decreases teachers' workload and students requiring Assistive Technology do not stand out from their peers.</p> <p>In the past, Assistive Technology was only provided to students who had significant need because the technology was specialized and expensive. With our new model, the DSBN provides Read & Write to all users in our system. This has had an impact on how students and teachers use the technology. In the past, teachers did not have access to or training on how to use the Assistive Technologies that the DSBN provided unless they were in specialized areas like LRT or SERT. With the new model, teachers are not only trained to use the software but they are encouraged to use it to assist in their own work.</p>
<p>Impact on System</p>	<p>Although throughout this initiative Read & Write has been available Board wide, training has been ongoing for both teachers and students.</p> <p>As part of the implementation plan, board Consultants and Coaches have been trained on the use of Read & Write. This has helped to increase the speed of adoption throughout the DSBN. Central staff have been encouraged to find ways to integrate the use of Read & Write into their subject areas with the school based staff that they are working with. Also, many secondary subject-based Program Leaders have been introduced to Read & Write through their central learning meetings. These approaches have helped to reframe Read & Write from being thought of as a program for students who struggle with written language to being used by all student at all levels of proficiency. This initiative has changed the way that we see Assistive Technology being used in our system. Read & Write aids all learners in our system.</p>