Upper Grand District School Board: 2015 - 2016

Project Title	Using Adaptive Learning Technology to Engage Students in Mathematics
Description	The main focus of this project is to improve teacher's use of technology to inform instruction. Our project is built around a specific technology. DreamBox, a cloud-based Mathematics program. DreamBox provides timely feedback to both students and teachers. This project makes two assumptions: First, immediate feedback and a personalized mathematics program available both at school and home will result in improved students' mathematical knowledge. Second, access to timely data on student progress will inform teacher practice. Our investment in DreamBox has provided teachers with unprecedented access to information about their students' mathematical understanding. The program collects 44,000 data points on students for every hour they are on the program. One of the pillars of training is the use of this information to form small instructional groups. We anticipate needing to provide ongoing messaging around this practice. We will be pulling regular reports about how many teachers are accessing this information and how often. We will also be working with the company to determine how best to put the information in teachers' hands, if it is not being accessed independently. Additionally, we are in the process of integrating data from the DreamBox program with other data points collected throughout the Board. This information includes absences, report card marks, IEP's, EQAO results, etc. This information, when combined together will help provide clear indicators of At Risk students. We expect that this will also have a great impact on student learning.
Context	*Number of students:* 7,000 *Number of teachers:* 600 *Number of schools:* 65 *Grades/Program:* Gr.2-8
Impact on Students	We know that this initiative has had a significant impact on student engagement. Anecdotally, we constantly hear from teachers that their students love using DreamBox. This level of engagement is also echoed by our parents, some of whom are our trustees, who indicate that they have to tell their children to stop doing math and go to bed. These anecdotal comments about engagement are backed up by the numbers provided by DreamBox. On average, across our entire system, students using DreamBox have spent 42 minutes each week using DreamBox this school year. As additional evidence of its engagement level, our growth in usage has continued to grow since the inception of this initiative. At the beginning of this school year we had approximately 5000 students using DreamBox. This has climbed substantially throughout the year to more than 9000 students.

	We also know that this initiative is having a significant impact on learning. Anecdotally, teachers are saying that they see their students learning from this program. They hear DreamBox referenced in their Number Talks and during Collaborative Problem Solving. They also see a change in the perseverance of their students when it comes to math, and this is attributed to the program. Small numbers of teachers are logging into DreamBox regularly to identify learning needs and support those students with small group instruction. Teachers are also connecting DreamBox to home, so that parents are engaged in the learning that is happening at school.
	The Upper Grand DSB is using a number of methods to evaluate the effectiveness of DreamBox to improve student understanding of mathematics. Our preliminary results have shown a correlation between the amount of time a student spends on DreamBox and their increase in understanding of Mathematical concepts.
	To evaluate the impact of DreamBox we considered a number of different data sets including: report card data, DreamBox's own diagnostic evaluations and EQAO results.
	This spring we examined report card data to DreamBox. Our analysis showed no significant correlations between improvement in report card marks and usage of DreamBox by student.
	Research by DreamBox found students mathematical understanding increased by 3-5% in grade level for every hour of use. Our analysis based on the results of 2,067 grade 3 students from September 2015 to February 2016, reached a similar conclusion. Students who spent more than 1000 minutes using DreamBox achieved almost a full year of growth in five months. In the same time period, students who spent between 500 and 999 minutes in the program achieved a little over half a year's worth of growth. Students who used DreamBox for less than 500 mins achieved 25% growth.
	Our results also confirmed DreamBox's research that for every 12 minutes of engagement students' grade level increases by 1%. Interestingly, the more minutes a student is engaged in using DreamBox the longer the time period to increase in grade level understanding suggesting that students are increasingly challenged by the material.
Impact on Instruction	One of the main goals for this initiative is the change in practice that DreamBox can make possible. DreamBox collects over 44,000 data points on a child's understanding for every hour they use the program. DreamBox has the potential to provide an extra set of eyes in the classroom and to provide the teacher with more information about a child's level of understanding than they had before. The challenge to this is changing practice and getting teachers to log in to DreamBox to seek this information. We know that this is happening, but the

	change is slower than what we would like. About 20% of our teachers are logging into DreamBox once every week. We have seen examples throughout our Board of teachers who are using this information to conference with students, plan their whole-group lessons and create small instructional groups. We know, however, that 80% of our teachers are not using this data regularly. Our next step to promote change will be to offer licenses to teachers who will commit to seeking out the information in DreamBox and reassigning licenses to other teachers after a few months of ineffective use.
Impact on System	This initiative has continued to expand since its inception. Early positive feedback from participants in the pilot led to a rapid expansion in the Spring of 2015 from 750 licenses to 2,500. In the fall of 2015 we expanded again to 5,000 licenses. Word of mouth in the schools led to a grass-roots movement resulting in school purchasing of another 2,500. The Board then acquired another 1,500 licenses in January 2016. We are awaiting the results of the 2016 EQAO results to determine future purchases. The positive preliminary results were shared at System meetings of schools to support the effective use of data. Principals and staff from each school dug into their own DreamBox data to better understand their needs. Staff and administrators used the data to support changes in practice. Currently the Board's MISA Lead is working to ensure that data from DreamBox is accessible from the District's data warehouse. We are working to ensure that all systems are integrated to provide teachers with comprehensive access to timely data about student learning.