Math Help Services at Howard S. Billings Regional High School

"The school-wide implementation of Math Help Services has contributed to a significant increase in Mathematics success rates in the first year"

A report on the rationale for implementation, school observations and overall results in Mathematics courses required for certification of secondary studies

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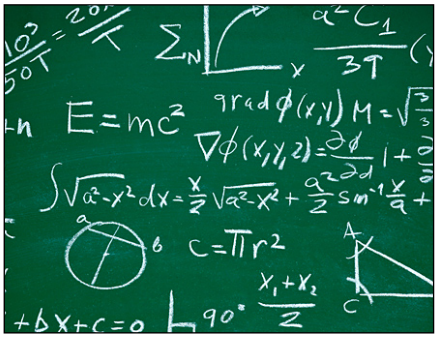
Rationale

As a school, we have been striving to develop strategies to improve our teaching practice, increase student learning and promote greater student success in general. The development and implementation of our school's Management and Educational Success Agreement has given us this opportunity; the primary goal being to increase the school's graduation rate (Grade 10 Mathematics is a prerequisite course required for the certification of studies in Quebec in order to graduate from secondary school).



Our Mathematics team has prioritized the integration of technology in classroom practice as a major strategy to improve students' success in Mathematics. We have also been investigating methods and tools to increase student engagement, specifically in Mathematics. The team chose student success rates in Grade 10 Mathematics as indicators, so as to reflect on our strategies and accurately measure success in the course, as well as obtaining a graduation prerequisite.

Upon learning of Math Help Services software, we decided to utilize the program at every grade level, in order to implement the above-mentioned strategies and hopefully attain our goals.

Implementation Requirements

The implementation process was integral for the initiative to be effective and successful. The requirements for this process were as follows:

- the school administrator assumed an active role during the implementation process & in the maintenance of the initiative
- the Mathematics Department Head was supportive and also played an active role with Mathematics teachers
- a strong consensus for software use was established amongst teachers before implementation
- teachers attended professional development sessions with Math Help Services support personnel
- network and hardware requirements were met before teacher use of the software

- students had multiple access points throughout the school (i.e. library, classroom, lab, personal devices, etc.), especially for students who are economically disadvantaged and/or do not have Web access at home
- time was allocated and scheduled for teachers to meet with Math Help Services support personnel to ensure adequate understanding, mutual feedback and communication, on an ongoing basis

Observations & Feedback

Teachers

The teachers generally found the service efficient and effective in many ways. The points below best summarize their feedback regarding Math Help Services software:

- Math Help Services provides immediate feedback whether it be teacher or student directed;
- instructional videos and answers to assigned work are available 24/7;
- teacher-created assignments can be uploaded;
- differentiation of instruction is possible for students-at-risk;
- repetition and reinforcement of weak content areas are easily addressed;
- integration of various devices and platforms, due to web-based applications increases accessibility;
- student engagement in classwork and homework has increased in many instances;
- the interactive workbooks are an effective tool for teaching
- pedagogical and technical support is always available - communication is prompt from support personnel for any issues related to program use.

Students & Parents

Parents and students alike have provided positive feedback regarding Math Help Services software. Students liked the accessibility of the program through various devices and platforms. They also liked having immediate feedback on completed work and the option of accessing instructional videos. The ability to request remedial assignments also was a popular option for those students experiencing difficulty. Parents enjoyed seeing their children engaged in the learning process and provided positive feedback on the notification of completed assignments and their child's mark. Generally, levels of engagement and empowerment were increased amongst students. Parents were more involved in their child's learning, as a result of greater communication. This phenomena has also provided an unexpected increase in the ownership and accountability of all stakeholders in Mathematics instruction and learning.

Administration

Based on observations and feedback from staff, students and parents, we are extremely satisfied with Math Help Services software. Our student resource and off-site teams have also benefitted tremendously. Our resource teachers and special needs technicians have started to use the program as a remediation tool. The increase in accessibility of curriculum, evaluation, instructional videos, repetition and formative feedback have prevented students who are assigned to off-site locations or are justifiably absent, from falling behind during the current year. The software has also benefitted students requiring tutorials and students required to complete summer school. Economically, the fee for use of the software is comparable to a workbook fee and far more accessible, encompassing (assignments, workbooks, tutorials, etc.) and interactive for students. Ecologically, there has also been a reduction in paper use. Above all, our results in Grade 10 Mathematics courses required for certification, have increased.

Results

As mentioned in the rationale for implementation, we chose to measure and assess the results of our Sec.4 CST Mathematics (regular) and Sec.4 SN Mathematics (advanced) Mathematics courses, given that these courses have a uniform ministry/state examination and the results are issued by the ministry/state, based on their school mark and their uniform examination mark. These courses, being required for graduation from secondary school, are generally the most meaningful to students when obtaining certification of studies for secondary school. These factors increased the reliability and validity of the indicator and corresponding results. The results are based on the success rates of students (approx. 190 in total) in the above-mentioned courses, from the 2011-12 school year as compared to the results from the 2012-13 school year (as of August for each year). Math Help Services software was introduced at HSB in August of the 2012-13 school year*. The results are as follows:

Success Rate / Courses	*Sec.4 CST Mathematics*	*Sec.4 ST Mathematics*
Success Rate 2011-12 (> or = 60%)	**57%**	**91%**
Success Rate 2012-13* (> or = 60%)	**67%**	**96%**

Conclusion

We were very encouraged and validated in our efforts to positively impact student results by the 10% and 5% increase in student success rates, in Sec.4 CST Mathematics (regular) and Sec.4 ST Mathematics (advanced), respectively. Teacher professional improvement, student engagement, stakeholder communication and student results have all increased. It is important to mention that the school administrator, in collaboration with the Mathematics Department Head, play a key, active role in the successful implementation of the program, as well as school organization and a participative leadership style. School resources, material, human and financial, must be made available for the successful implementation of this program. Given the overall positive experience and change, we highly recommend Math Help Services. Through the use of Math Help Services software and other innovations, we hope to continue to improve our teaching and learning outcomes in the years ahead.

Gary S. Tennant