



Summary: 2010 Building Roads for Students' Success

Who was involved?

- All nine school boards in the Ottawa Region were invited to participate.
- Eight school boards were able to participate in at least one portion of the project.
- Six school boards participated in the **quantitative portion** of the study
- Eight School boards participated in the **qualitative portion** of the study.
- The project was supported by a University partner from Queen's University, and two University Partners from Carleton University

Methods

- **Quantitative Analyses**— School boards submitted data sets with previously defined variables. Hierarchical Linear Modeling (HLM) analysis was completed using board data sets
- **Qualitative Analyses** — Board contacts worked with SEF Leads from each board to organize and conduct teacher focus groups. Interviews were conducted with SEF Leads, and Elementary Principals
- A **critical review** of the School Effectiveness Framework was completed by University Partners.

Introduction:

During the 2009-2010 year, the Ontario Ministry of Education provided funding to each regional Managing Information for Student Achievement Professional Network Centre (MISA PNC) to undertake activities designed to expand and strengthen education research and evaluation capacity within and among school boards, MISA PNCs, regional networks and the Ministry. These projects were to focus on the use of evidence to inform practice and increase student achievement.

The Ottawa Region MISA PNC partnered with university researchers for a project that aimed:

1. To better understand the extent individual, class and school factors were associated with successful academic outcomes for students, and
2. To better understand the impact of the School Effectiveness Framework (SEF) on classroom practice.

“Building Roads for Students’ Success” included both a predictive modeling approach (quantitative portion) and a review of policies, structures and practices (qualitative portion) associated with school improvement efforts primarily associated with the SEF. A full report complete with all analyses and in-depth discussion, as well as a fourteen page executive summary of this project are also available. This document is intended to provide a short overview of the project.

Participants and Methods

Please see sidebars to the left of this text.

Quantitative Analyses:

Quantitative analyses were primarily completed using Hierarchical Linear Modeling (HLM) and guided by the underlying principle that student achievement is a complex construct not easily explained by the examination of single variables or reliance on single outcome measures.

HLM provides a means to simultaneously separate and explore student effects and school effects to better understand differences in educational outcomes. Previous years of MISA funding was intended to enable boards to organize databases to access student achievement and outcomes more efficiently. Participating school boards were asked to upload board data sets to a central secure website through the use of a standardized template that allowed for relatively easy merging of data. However, data preparation was challenging due to variations in availability and practice of information storage, recording and tracking, highlighting the need for further harmonization of data management procedures between school boards.

Student level variables examined included gender, number of parents/family structure, IEP status, immigrant status, first language, attendance, suspensions (number of days and occurrences), report card marks for language arts, mathematics and science, learning skills and EQAO results where appropriate.

School level variables examined included school type (public/catholic), French program (extended/immersion), percentage of students with an IEP, immigrant status, percentage of English language learners, absentee rates and suspension rates.

Separate analyses were conducted for elementary (K-6), intermediate (7-8) and secondary (9-12).

Quantitative Results: Elementary Student Analyses (K-6)

Three sets of multilevel analyses were performed using the Kindergarten to Grade 6 data. Highlights of the results follow:

- School level factors usually accounted for less than five percent of the school level variance.
- Work habits were the strongest predictor of student achievement.
- Grades for language arts, math and science had a stronger correlation to each other than to their corresponding EQAO assessment.
- Approximately 85% of the variance in students' EQAO scores is attributable to student level factors, the remaining 15% is attributed to the schools these students attend.
- Students with an IEP obtained EQAO scores approximately 0.1-0.2 of a level lower than others.
- In the absence of other variables females reported high scores than males. However in the presence of other variables females score lower than males on the reading portion of the EQAO.
- Students in French immersion had slightly lower EQAO scores; as did English language learners.
- Schools that had both an English and a French program track had lower EQAO scores.

Quantitative Results: Intermediate Student Analyses (Grades 7&8)

- The great majority of the variance between students' language arts, math and science marks was found to be due to student level factors rather than school level factors.
- Work habits/Learning Skills were strongly related to achievement marks.
- Female students have higher language arts marks and male students higher average math marks.
- Factors that resulted in slightly higher average marks for students were: being from a two-parent family, being in a school with a French language program track or a school structure that included secondary school grades (for science), or schools with higher numbers of immigrant students (for language arts) or English language

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Ottawa MISA PNC Member Boards

Algonquin and Lakeshore Catholic District School Board

Catholic School Board of Eastern Ontario

Hastings and Prince Edward District School Board

Limestone District School Board

Ottawa Catholic School Board

Ottawa Carleton District School Board

Ottawa Children's Treatment Centre

Renfrew County Catholic District School Board

Renfrew County District School Board

Upper Canada District School Board

learners (for math and science).

- Factors that resulted in slightly lower average marks for students were: having an IEP, higher absenteeism, and being suspended/in a school with higher suspension rates.

Quantitative Results: Secondary Student Analyses (Grades 9-10)

Multilevel analyses were conducted using Grade 9 and 10 credit accumulation and Grade 9 EQAO scores as dependent variables. OSSLT results and language art or math achievement were not included for this project. Due to missing data issues, other EQAO scores and school level data for socioeconomic status or teacher/student ratios were not included.

- Similar to the elementary and the intermediate analyses the majority of the variance was at the student levels, however the school that a student attends does account for more variance at the secondary than at the other levels. Further analysis revealed that much of the school variance was explained by student level variables, thus indicating that schools in Eastern Ontario appear to serve different populations of students which exacerbate observed school differences.
- Being in a two parent family was associated with higher achievement
- Factors associated with lower achievement were high absenteeism, suspensions, and having an IEP.
- Female students scored slightly lower in applied and academic Grade 9 EQAO math.
- Immigrant students did more poorly in the applied math course than the academic math course, indicating that there may be two distinct immigrant populations being served in these schools.
- Math achievement served as a strong predictor for EQAO success, and students in larger schools tended to do slightly better in applied math than students in smaller schools.

Summary of the Critical Review of the SEF Framework:

Although many of the theoretical foundations on which the SEF is based have intuitive appeal, most of the success realized through its implementation are anecdotal and based on small group/individual reports rather than supported by empirical research at the school or classroom level. Typically there are no centrally collected data in schools or school boards regarding practices or processes, making it difficult to determine if successes result from implementation of the SEF or other efforts. Some of this difficulty results from principals and teachers reporting incomplete understanding of the document, resulting in them working with only some of the concepts presented within the SEF framework. It was suggested that there is a need to continue research to create systematic, evidence-based mechanisms to support principals and teachers in delineating the most effective learning and assessment practices for student success.

Project Leads and Contact Information

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Summary of Qualitative Results from Focus Groups and Interviews: Impact on School Policy & Student Learning:

- Teachers and school administrators reported that school culture seems to be improving and this was attributed to the SEF's emphasis on increasing accountability and consistency; however teachers' perceptions differ from school administrators' in the extent to which they believe the SEF is benefitting student learning and their teaching practices.
- Both teachers and school administrators reported an improved sense of collegiality, attributed to the fact that by having to be more accountable they engaged more in meaningful interactions with their colleagues.
- Teachers expressed concerns that an increased focus on students who can progress from a level 2 to a level 3 may neglect level 1 students; that the over-emphasis on literacy and numeracy may result in a loss of skills in other areas such as the arts; and requested more support from the boards in order to implement the SEF as it is intended.
- Views as to whether the SEF had an impact on learning were mixed: while many agreed that the SEF may have turned the focus of teaching onto the acquisition of higher level thinking and critical analysis, there was also agreement that this approach tended to benefit a specific group of students and concern was voiced that the gap between struggling and achieving students is widening.
- Teachers felt that there is a disconnect between the processes and learning occurring in class and the type of learning that is evaluated by EQAO testing.

Implications for Practice & Further Study

- While the foundations for the SEF have been well established, the actual mechanisms that increase school effectiveness and result in better outcomes is less clear.
- Principals do not refer to the document on a regular basis, and it appears that the majority of teachers in the eastern region of Ontario schools still have limited knowledge of the document itself.
- Data integration across school boards is a challenge for subsequent analyses and monitoring. While improvements have been made in electronic data management, there remains a real gap in available data to evaluate school policies and practices.
- The majority of the differences in student outcomes can be attributed to individual school variables, but at the secondary level there are greater between school variations, possibly attributable to differential selection of students due to specialty programs. This variation will have important implications for the SEF when it moves forward to the secondary level.
- EQAO results have moderately high correlation with report card marks, and learning skills are even more highly correlated with marks. However it remains unclear if teachers do actually attempt to separate evaluation of learning skills from marks.

The Ottawa Region MISA PNC would like to thank the Ministry of Education, our University Partners and the classroom teachers, principals and student success leads who participated in focus groups and interviews, as well as school board staff and contacts whose contributions made the successful completion of this project possible.