School libraries & student achievement in Ontario

The Ontario Library Association

a study by Queen’s University and People for Education

April 2006
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Numerous international studies have demonstrated a link between student achievement and the presence of professionally staffed and accessible school libraries. Studies have also shown that reading enjoyment is a significant factor in improving student performance not only in literacy, but in science and mathematics as well.

Pedagogical trends around the world have moved toward a reliance on large-scale testing and setting targets for achievement in literacy and numeracy. And while concerns are being raised about students’ literacy skills, resulting in the introduction of specialised literacy programs, there has been little commitment to preserving one potential literacy asset – school libraries and their library staff.

In recent years, there has also been an international trend to reduce governments’ overall spending. In many cases, those reductions have resulted in declines in funding for public education. In particular, school libraries have been vulnerable to funding cuts, a trend that has been documented in the United States\(^1\) and across Canada.\(^2\)

This study provides the first Canadian analysis of the relationship between student achievement and library resources and staff. With funding from the Ontario Library Association, a unique partnership was formed between a Queen’s University research team and People for Education, a parent research group. The team collaborated to examine data from EQAO, Ontario’s provincial assessment body, and data from People for Education’s ongoing inventory of resources in Ontario elementary schools to examine the following question:

**Do school library resources and staff have an impact on students’ attitudes toward reading and on their scores on large-scale standardized tests?**

The study includes assessment data from more than 50,000 students and over 800 of Ontario’s publicly-funded elementary schools.
The province of Ontario is presently developing new policy to improve students’ literacy and numeracy skills. The new policy will have both pedagogical and funding implications. Considering the results of this study, it is imperative that resources and staff in school libraries be protected as the new policy is being developed.

Summary

People for Education collaborated with a Queen’s University Faculty of Education team, to examine data from two sources: the Education Quality and Accountability Office (EQAO) 2004/05 grades 3 and 6 reading test scores and attitudinal information, and People for Education’s 2004/05 Tracking results for school library staffing, hours open, collections, and fundraising.

This data was correlated on a school-by-school basis to examine whether a link existed between higher student achievement on provincial tests and school library staff and resources.

We have highlighted the results that have possible policy implications, and have focused on results that involve trained library staff. Among the findings:

- Grade 3 and 6 students in schools with teacher-librarians are more likely to report that they enjoy reading.
- Schools with trained library staff are more likely to have a higher proportion of grade 6 students who attained level 3* or higher on reading tests.
- Schools without trained library staff tend to have lower achievement on the grades 3 and 6 reading tests (both in terms of average achievement and attaining level 3 or higher).

Implications

EQAO student surveys also show that over the last five years there has been a steady decline in the percentage of students who reported that they like to read. At the same time, there has been a steady decline in the percentage of elementary schools with teacher-librarians.

The international education evaluations of the Organisation for Economic Co-operation and Development (OECD) have shown a consistent relationship between positive reading attitudes and higher student

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* (achievement meets the provincial standard)
Reading enjoyment had a positive effect on reading achievement in all countries, with a higher level of reading enjoyment associated with a higher level of achievement. Canada was among the countries where the effect was the greatest.

OECD Programme for International Student Assessment Study, 2000

achievement. Positive reading behaviours have been shown to have strong positive associations literacy on mathematics and science results. Declines in staffing and resources in Ontario school libraries, and the current preference for literacy programs over library programs are threatening the viability of an educational resource that may have benefits to students.

In the following report, we examine the results of our study in detail. We also outline other current research on the effects of school library resources on student achievement, school libraries in relation to students at risk, students’ enjoyment of reading as a predictor of academic success in all subjects, and the current state of school libraries in other provinces and specifically in the province of Ontario.

Recommendations

This study confirms previous international research that there is a relationship between a school library’s staff and resources and the achievement and enjoyment of reading of its students. Because of this result, we believe it is imperative to protect Ontario students’ access to library resources and trained professional staff while new literacy policy is being developed and while further study on the impact of school libraries is undertaken.

We recommend that the Ontario government:

1. immediately update the education funding formula salary benchmarks, so that funding for school libraries can be spent on school libraries; and

2. develop policy to ensure all Ontario students, regardless of the size of the schools they attend or their geographic location have access to well-stocked and professionally staffed libraries.
Analysis and results

Method
The study was conducted by People for Education in partnership with the Assessment and Evaluation group at Queen’s University Faculty of Education, under the leadership of Dr. Don Klinger and Dr. Lyn Shulha. The Queen’s researchers conducted the data analysis and provided a literature review. Data from two sources – the Education Quality and Accountability Office (EQAO) and the People for Education annual survey of elementary schools – were correlated and examined.

The Education Quality and Accountability Office (EQAO) administers annual assessments of grade 3 and grade 6 students to measure achievement in reading, writing and mathematics. In these assessments, students are also required to respond to a questionnaire about a variety of topics, including their attitudes towards reading. The data for these analyses came from the 2004/05 student assessments.

People for Education has collected information about Ontario’s elementary schools and their libraries since 1997. This study uses the data for 2004/05 on library staffing, hours open, collections, and fundraising. The 2005 data was collected from 880 schools, equalling 22% of Ontario’s elementary schools and 22% of its total student population. Schools in all of the province’s 72 school boards participated.

When data from both sources were combined, the study examined EQAO data for 26,643 grade 3 students from 707 schools and 27,565 grade 6 students from 668 schools.

Results

Enjoyment of reading
The presence of a teacher-librarian was the single strongest predictor of reading enjoyment for both grades 3 and 6 students.

Larger schools tended to have higher average reading enjoyment scores, and are also more likely to have teacher-librarians.

EQAO asks grades 3 and 6 students to provide responses to questions about attitudes towards reading including, “I am a good reader” and “I like to read.”

Schools with teacher-librarians could be expected to have reading en-
joyment scores that were 8 percentile points higher than average. Taken province-wide, this would result in a school’s average reading enjoyment score becoming higher than approximately 330 elementary schools. While modest in an absolute scale, it must be noted that this score reflects the average change for all of the grade 3 and grade 6 students within the school.

Schools with grade 3 students who enjoyed reading are also more likely to have grade 6 students who enjoyed reading. If this factor is extended, we can speculate that the presence of a teacher-librarian might affect reading throughout a child’s education. Larger schools tended to have higher average reading enjoyment scores, and are also more likely to have teacher-librarians.

**Reading achievement**

*Grade 3*

Library staffing is associated with an increase in grade 3 reading performance.

Of the factors associated in this study with the reading test scores of grade 3 students within a school, library staffing was the only significant factor related to libraries. Schools that rely on others* to staff the library tended to have lower achievement both in terms of the average achievement of all students and in relation to the number of grade 3 students who would obtain at least a level 3 score.

*Grade 6*

The presence of trained library staff is associated with higher achievement in reading for grade 6 students.

Researchers examined three factors to assess their effect on the average reading test scores of grade 6 English language students within a school: fundraising activities, the presence of trained library staff, and the number of hours a school library was open. Schools with a teacher-librarian or library technician could be expected to have reading achievement scores that were approximately 5.5 percentile points higher than the average. Province-wide, this would be equivalent to moving up approximately 180 schools above the average for achievement.

* People other than teacher-librarians, library technicians, or other school staff.
Four factors were used to predict the proportion of grade 6 students obtaining level 3 or 4 on the reading assessment. The two library-related factors associated with more students achieving level 3 or 4 were the presence of either a teacher-librarian or a library technician. This set of factors accounted for 5.3% of the variability between schools in the proportion of grade 6 students obtaining level 3 or 4 on the reading assessment.

This finding is significant and has implications for education policy. Research has shown that the reasons for the vast majority of variance in student achievement are unidentified. Researchers have concluded that factors associated with the abilities and background of the individual child can account for up to 90% of the difference in test scores. Other research has shown that up to 50% of the difference can be attributed to socio-economic factors, with the remainder of the difference unidentifiable. Consequently, when it is possible to identify a factor that is associated with over 5% of the difference in student achievement, it has implications for education policy.

It is evident that there is a stronger relationship between the presence of trained library staff and higher student achievement in Grade 6 than there is in Grade 3. We can hypothesize that this result reflects a greater use of library resources and staff as students mature academically.
What other research shows

School libraries and student achievement

Although no Canadian research in this area has been published before this study, a substantial body of North American research links the positive impact of school libraries and school library media specialists on student test scores.7 Keith Curry Lance has conducted state evaluations for Colorado, Alaska, Iowa, Pennsylvania, Texas, Oregon, Massachusetts, and New Mexico schools.8 His findings consistently report that students in schools with well-staffed, -stocked and -funded libraries score from 10% to 25% higher on standardised tests than students in schools with poorly resourced libraries. Furthermore, the more hours that the school library is open, the higher the achievement levels of the students. Lance has found that for student achievement, after poverty, “The next strongest and most consistent factor is the quality of the school library program.”9

A study of Massachusetts schools in 2000 concluded that students in schools with full-time teacher-librarians achieved higher on standardised tests than students in schools without full-time teacher-librarians.10 In evaluations by other researchers, these positive associations between school libraries and higher test scores are echoed.11

Enjoyment of reading and student success

In particular, reading behaviours such as reading enjoyment, reading diversity and time spent reading for enjoyment had strong effects on reading, mathematics and science results.

The performance of Canada’s youth in reading, mathematics and science: OECD PISA Study.12

The analysis of EQAO and People for Education data shows a significant association between reading enjoyment and the presence of a teacher-librarian.

The international education evaluations of the OECD have shown a consistent relationship between positive reading attitudes and higher student achievement. In the Programme for International Student Assessment (PISA) results, Canada was among the countries where the effect was the greatest.13 Based on the PISA results and this study, it is possible to conclude that a teacher-librarian supports reading enjoy-
"Libraries play an essential role in stimulating students to improve their own achievement and foster a love of reading and learning."

Gerard Kennedy, Minister of Education. May 26, 2005

Research indicates that struggling adolescent readers need opportunities to choose their reading materials. This is critical for readers who may have had many years of failure and who may associate reading only with low-level information retrieval, dry writing exercises, assessment, or busywork.

Think Literacy Success: The Report of the Expert Panel on Students at Risk in Ontario

ment, and hence contributes to higher student achievement.

The EQAO attitudinal data used in this study was based on how students identified with the statements. “I like to read” and “I am a good reader.” Over the last five years, the EQAO has noted a steady and significant decline (a 21% decline for grade 3 and a 25% decline for grade 6) in the number of students reporting that they like to read. Over the same period, there has been a steady decline in the number of school libraries staffed by teacher-librarians.

Libraries and equalizing opportunities for success

Some students may be at risk of failing because of such factors as low family income, single parent status, and recent immigration. School libraries offer access to printed, audio and electronic resources that help to equalise opportunities for success for students whose families are unable to provide these resources.

Lance has studied the effect of school libraries on students at risk, using such indicators as the percentage of minority students, the percentage of free lunch students, and the percentage of adults in the community who graduated from high school. He found that, “Students at schools with better funded library media centres tend to achieve higher average reading scores, whether their schools and communities are rich or poor and whether adults in the community are well or poorly educated.”

The Ontario Ministry of Education’s Expert Panel on Students at Risk acknowledged the benefits of access to library resources for students at risk. Its 2003 report says: "Students need the opportunity to select their own reading material at least as often as they read material selected by the teacher, and they need access to a wide variety of accessible materials. These are critical factors in ongoing reading achievement." The presence of a well-stocked and staffed school library can be an essential element for the success of these students.
School libraries in Canada

According to Statistics Canada, the decline of school libraries has been a national trend. In the early 1990s, the federal government reduced its transfer payments by billions of dollars. These payments fund provincial social, health and education programs. In response, many provinces made substantial cuts to education funding. Because the fundamental elements of education – the classroom teacher, the administrative staff, the building – had to be sustained, elements outside the core became vulnerable. Libraries, once seen as integral to schools, became increasingly susceptible to funding cuts.

A recent study sponsored by Heritage Canada and the Association of Canadian Publishers, *The Crisis in Canada’s School Libraries*, describes the national decline of school libraries, and emphasizes their importance to students and Canadian culture. After years of reduced funding, school libraries have deteriorating collections, and declining levels of staffing. Many school libraries are now staffed by parent volunteers or students, and are closed for long periods of the day or whole days of the week.

In Alberta schools in 1998, there were 252 teacher-librarians working half-time or more, compared to 550 in 1978. By 2000, there were only 106 teacher-librarians in the province’s public schools.

A 2002 report by the Edmonton Public Library states that “the erosion of school libraries and teacher-librarian positions” was having an impact on the city’s public libraries. The report documented a 30% increase in the circulation of public library materials to juveniles between 1991 and 2001. It also noted significant declines in students’ research skills, and increased demands by students on public library staff for assistance.

In British Columbia, provincial funding for teacher-librarians has been reduced from 1:400 students, with paid clerical assistance, to 1:700 with no clerical assistance allocated.

According to the B.C. Ministry of Education, the total number of full-time teacher-librarians declined by 25% between 2001 and 2004.

The Literacy Coalition of New Brunswick reports that school library assistant’s hours have been reduced in recent years, and some school districts plan to further reduce access by two hours per week per year over five years. In some cases, school libraries are open only a few hours a week and staffed by volunteers.
School libraries in Ontario

Funding history
In the late 1990s, the Ontario government made dramatic cuts to education funding. At the same time, it introduced a new per pupil funding formula to allocate funding to school boards and schools. School library staffing is now funded at a rate of 1 teacher-librarian for every 769 elementary students within a school board. Yet People for Education tracking data shows that the average school in 2004/05 had 327 students.

Because some funding benchmarks have not been updated since 1997, school boards report at least a 10% gap between funding set in the funding formula for salaries, and the actual salaries paid by boards. Since funding for teacher-librarians is not protected, boards often use this money to cover shortfalls in funding for overall costs.

Staffing
The number of teacher-librarians in Ontario schools has declined dramatically over the last decade. Cuts in funding have caused some school boards to choose to have no on-site teacher-librarians in their schools, instead employing itinerant teacher-librarians, central librarian resource staff and/or library technicians, who do not have teaching certification and are paid significantly less. Alternative staffing also includes other teaching staff, parent volunteers or students.

As well, because of funding restraints, principals are routinely forced to choose between library staff music, physical education or arts specialist teachers. These factors result in significant variations in library staffing from school to school, from board to board, or from region to region.

People for Education’s 2004/05 research shows:

- 54% of Ontario elementary schools reported having a teacher-librarian for some or all of the time, compared to 80% in 1997/98;
- 10% of schools reported having a full-time teacher-librarian, a result that has been consistent since 2002/03, but represents a significant drop from 25% of schools in 1998/99; and

The percentage of schools with a library technician and no teacher-librarian has risen steadily from 12% in 1998/99 to 30% in 2004/05.26
Regional variations

Schools with small student populations do not generate enough funding to provide well-staffed libraries. Boards with large numbers of small schools, such as those in predominantly rural boards, face challenges in providing adequate administrative and classroom staff for their schools, and are less likely to provide trained library staff. As well, because boards are not required to report specifically on where they have spent their library funding, boards experiencing funding shortfalls may choose to use library funding to cover other expenses. Consequently, students across the province experience significant disparities in the staffing of and access to school libraries.

People for Education examined regional differences in staffing. The province was divided into four regions, based on the initial letter in their postal codes: Northern (P) Eastern (K), Southwestern (N) and South/Central. South/Central includes Toronto (M) and the surrounding area (L).

People for Education’s research shows that library staffing varies significantly across the province in 2004/05.

Teacher-librarian-to-student ratios ranged from a high of one teacher-librarian for every 1,526 students in Southwestern Ontario, to one teacher-librarian for every 673 students in South/Central Ontario.

87% of schools in South/Central Ontario reported having a teacher-librarian full- or part-time, compared to only 10% of schools in Northern Ontario.

Schools in South/Central Ontario were more likely to have a teacher-librarian in the school than other regions.

Northern Ontario schools were the least likely to have a teacher-librarian or library technician compared to schools in all of the other regions; over one-quarter of the Northern Ontario schools reported that the library was unstaffed, a significantly higher percentage than all of the other regions.
Schools in Eastern Ontario were less likely to have a teacher-librarian compared to schools in all other regions except those in Northern Ontario. Fifteen per cent of the schools in Eastern Ontario reported that their library was unstaffed, a significantly higher percentage than the percentage of unstaffed libraries in South/Central Ontario.
Conclusion

This study provides substantial evidence linking the presence of trained library staff to improved student achievement in Ontario schools. The enjoyment of reading is linked to the presence of teacher-librarians, and PISA studies have documented an association between reading enjoyment and student achievement. While this is the first Canadian study to demonstrate this correlation, these results echo findings in many other international investigations.

More studies need to be undertaken to continue investigating the impact of school libraries on student achievement in Ontario. In particular, it would be important to examine the data over time, explore the involvement of socio-economic status, and assess the effects of libraries and library staffing on students at risk. Further study is also needed to determine exactly which type of library program and staffing has the greatest effect on student achievement and on students’ attitudes toward reading. We need to answer the questions: What constitutes an exemplary library? What standards should be in place for school libraries? What are the differences in training for teacher-librarians among the provinces? How does library use differ between grades?

But People for Education research shows that Ontario school library staffing is continuing to deteriorate annually and steadily. It is important that we halt the decline in school library resources until this research is complete.

Recommendations

We recommend that the Ontario government:

1. immediately update the education funding formula salary benchmarks, so that funding for school libraries can be spent on school libraries; and
2. develop policy to ensure all Ontario students – no matter what the size of their school is or its geographical location – have access to well-stocked and professionally staffed libraries.
Appendix

Table 1: Examination of factors associated with Grade 3 achievement of Anglophone schools

<table>
<thead>
<tr>
<th>Factor</th>
<th>Average grade 3 reading Level</th>
<th>Proportion of Grade 3 students at Level 3 or 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundraising activities</td>
<td>0.21</td>
<td>0.18</td>
</tr>
<tr>
<td>Library staffed by others</td>
<td>-0.08</td>
<td>-0.09</td>
</tr>
<tr>
<td>Library staffed by other staff</td>
<td></td>
<td>0.09</td>
</tr>
<tr>
<td>FTE for library technician</td>
<td></td>
<td>0.09</td>
</tr>
<tr>
<td>Variance accounted for</td>
<td>5.7%</td>
<td>6.0%</td>
</tr>
</tbody>
</table>

n=646 schools
Order of variables is based on the order of entry in the stepwise regression

Table 2: Examination of factors associated with Grade 6 English Student achievement

<table>
<thead>
<tr>
<th>Factor</th>
<th>Average grade 6 reading level</th>
<th>Proportion of grade 6 students at Level 3 or 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fundraising</td>
<td>0.15</td>
<td>0.13</td>
</tr>
<tr>
<td>Number of students</td>
<td></td>
<td>0.10</td>
</tr>
<tr>
<td>Library technician</td>
<td></td>
<td>0.17</td>
</tr>
<tr>
<td>Teacher-librarian</td>
<td></td>
<td>0.12</td>
</tr>
<tr>
<td>Trained library staff</td>
<td>0.13</td>
<td></td>
</tr>
<tr>
<td>Library hours</td>
<td>0.10</td>
<td></td>
</tr>
<tr>
<td>Variance accounted for</td>
<td>4.9%</td>
<td>5.3%</td>
</tr>
</tbody>
</table>

Note: n=668 schools
Order of variables is based on the order of entry in the stepwise regression

Table 3: Examination of factors associated with average student reading enjoyment

<table>
<thead>
<tr>
<th>Factor</th>
<th>Reading enjoyment of grade 3 students N=707</th>
<th>Reading enjoyment of grade 6 students N=668</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teacher librarian</td>
<td>0.09</td>
<td>0.09</td>
</tr>
<tr>
<td>Not staffed</td>
<td>-0.13</td>
<td>-0.13</td>
</tr>
<tr>
<td>Public or Catholic school</td>
<td>-0.12</td>
<td>-0.10</td>
</tr>
<tr>
<td>Fundraising for library books</td>
<td>0.10</td>
<td>0.12</td>
</tr>
<tr>
<td>Students in total</td>
<td>0.10</td>
<td>0.12</td>
</tr>
<tr>
<td>Variance accounted for</td>
<td>8.4%</td>
<td>8.7%</td>
</tr>
</tbody>
</table>
Endnotes

1 See, American Library Association. “Library Funding.” <http://www.ala.org/ala/news/libraryfunding/libraryfunding.html>. For example: “In California, educators say strong school library programs help increase learning, but as other needs take priority, funding for school libraries has dropped from $28 to pennies per student. School libraries are not rehiring or replacing school media specialists, even as much as three years following lay-offs due to budget contractions. Instead, volunteers, comprised of parents and teachers, are filling in.”


11 See, for example, Donna Baumbach, Florida Media Study. <http://www.sbac.edu/~media/research.htm>.

12 OECD PISA Study, 32.

13 Ibid., 30.

14 Ibid.


17 Ibid., 20.
18 Coish, 7, “Recent evidence suggests that many full-time librarian positions in Canadian schools have been scaled back to part-time, eliminated altogether, or replaced by library technicians....There are also reports of downstream effects from reduced professional library staff, which include aging and depleted collections in school libraries and reduced access to the libraries that do exist.”


21 Edmonton Public Library. “School-related Services to Students,” (submission to the Alberta Commission on Learning, 15 Nov. 2002).

22 Haycock, 14.


25 Coish, 14.
