

EDMONTON PUBLIC SCHOOLS

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TO: Stuart Wachowicz, Director Curriculum

FROM: Thelma Voegtlin, Consultant Research Support Services

SUBJECT: School Size and Student Achievement: Key Ideas from Research And Literature

PURPOSE: To review research and literature on school size and look for connections or a linkage between school size and student success, as defined by acceptable achievement levels and/or school or course completion.

The studies and literature demonstrating a connection between school size and achievement will be examined using the following questions as guidelines: What is a small school? Why did the question of school size appear? What are the characteristics of small schools? What does the research say about school size and achievement as measured by standardized tests? What does the research say about school size and course completion/graduation? And finally, what implications does this research have for Edmonton Public Schools?

Introduction

Although there are some conflicting findings, a review of the literature relating to school size and achievement, although not exhaustive in scope and depth, suggests that smaller learning communities, primarily smaller high schools, are more effective than larger high schools, although there are some conflicting findings (Bomotti & Dugan, 2005). Some quantitative research evidence suggests that small school size is associated with higher student achievement under certain conditions; small schools promote improved achievement equity and small schools appear to be especially important for disadvantaged students. (Franklin & Crone, 1992) Most of the research and literature focuses on the high school or middle school level with very little being completed at the elementary school level (Alspaugh & Gao, 2003). Bomotti & Dugan (2005) reviewed most of the research done on the relationship between small learning communities and student achievement in high school. They discovered that most of the studies examined used associational statistics and methodology. True experimental designs, meaning the study had a control group and an experimental group with randomly assigned membership, were nonexistent. This means that the majority of these studies examined the association between factors, in this case, size and achievement. Without control groups, one factor cannot be considered causal for another. Therefore, within these studies, small size cannot be said to cause increased student achievement.

All studies and literature examined are based on American schools, with the exception of one. According to the CBC website, this study was done by Michele Schmidt, a

psychology professor at Simon Fraser University in Vancouver. The study looked at how school size affected students, parents and the community. It showed that students felt safer, attended school more faithfully and were less likely to drop out. Unfortunately, verification of this study has proved to be elusive.

What is a small school?

The definition of a small school in number of students enrolled varies between researchers and whether they are defining an elementary, middle, or high school. Irmsher (1997), Raywid (1999) and Howley (2000) suggest an enrollment of 350 as the upper limit for elementary schools. Wasley & Lear (2001) suggest an enrollment between 200 and 400, being closer to 200. Klonsky (2007) states that a small elementary school is one that has less than 300 students enrolled and less than 500 students at the high school level. Other numbers mentioned, but not necessarily within a specified context, were fewer than 500 students (Johnson, 2002), 300 – 400 (Meier, 1996), less than 400 (Lee & Loeb, 2000) 200 – 400 students, while large is more than 900 (Howley & Bickel (2002). A study by Wasley et al (2000) found that fewer than 400 students makes possible certain structures and practices that are conducive to student learning.

Why did the question of school size appear?

Krysiak & DiBella (2002) state that the rise of urban America and the decline of rural America stimulated the growth of large schools. After the war, there was a move to the cities, increased urban sprawl, and a baby boom resulting in increased school size. It was the feeling of the time that large schools with between 500 - 2000 students could offer more comprehensive instructional programs of greater quality, provide teachers the opportunity to track their students according to ability and put less strain on community resources (Wasley, 2000). An additional benefit was the availability of extracurricular activities in large secondary schools.

Recently there have been pressures felt in the American educational system that have encouraged educators to examine school size and the efficacy of large schools. These pressures include failing schools, the changing demographics of public education and new challenges of educating the growing numbers of minority students, as well as student violence (Raywid, 2002). Krysiak & DiBella (2002) suggest that the movement toward small schools is a strategy for enhancing school safety and reducing school violence, bullying, teasing and harassment.

Wasley (2002) believes that there is a renewed appreciation for the basic freedoms we enjoy and the advantages that a democracy provides its citizens. It is her speculation that school size influences whether or not teachers are able to help students build crucial citizenship skills. Meier (1996) agrees, stating, "Smallness is a prerequisite for the climate and culture that we need to develop the habits of heart and mind essential to a democracy. Such a culture emerges from authentic relationships built on face-to-face conversations by people engaged in common work and common work standards."

Wasley (2002) also concludes that the standards movement and an increasing consensus that all students can learn help drive the demand for smaller schools.

What are the characteristics and perceptions of small schools?

Throughout the literature, there appears to be consistent thought about the characteristics of small schools and their influence on student behavior and indirectly, student achievement. The following characteristics have been categorized into the following themes for purposes of discussion: Staffing, Relationships, Community, Accountability and Safety.

Staffing

In small schools, the organization is seen to be flat, with broadly distributed leadership (Wasley & Lear, 2001). Meier (2002) agrees stating that there is a strong sense of collegiality among teachers, rather than one strong leader. She also mentions that teachers tend to like one another and make time for conversation which helps them tolerate the time they must be together. Also, big decisions are made by the same people who must implement them, giving teachers a sense of ownership and accountability. As schools grow, they become more bureaucratic, with more specialized instructional programs and more formal human relationships (Lee & Loeb, 2000)

Professional development in small schools is seen to be on-going, embedded and site specific (Wasley & Lear, 2002). While instructing, teachers are more likely to form teaching teams, integrate subject matter content, employ multiage groupings and use alternate assessments. There is a greater emphasis on learning that is experimental and relevant to the world outside school (Galletti, 1999). Teachers are able to honor student choice through development of projects and other learning activities within a course (Wasley & Lear, 2002). People feel appreciated for the work they do (Meier, 2002).

Relationships

It is perceived that relationships between students, teachers, parents and community are of paramount importance in small schools. Teachers demonstrate a more positive attitude about their responsibility for student's learning and therefore students learn more (Lee & Loeb, 2000). There are more intimate and personal social relations among teachers and students (Lee & Loeb, 2000), teachers take a personal interest in students (Johnson, 2002) creating a sense of belonging (Meier, 1996). Small environments encourage teachers to innovate and students to participate, resulting in greater commitment for both groups (Irmsher, 1997). They also promote academic excellence by engaging students in supportive, caring relationships (Bencivenga & Elias, 2003).

Parental involvement (Meier, 1996), including strong ties to the school and positive relationships with their children's teachers (Meier, 2002) as well as on-going regular

communication (Wasley & Lear, 2001) are more easily established in small schools. Everyone knows everyone in the school (Krysiak & DiBella, 2002).

Community

Successful small schools collaborate with organizations and communities outside the school (Irmsher, 1997), and engage the community in educating young people (Wasley & Lear, 2002). It is interesting that the phrase “successful small schools” is used by Irmsher, although successful is never clearly defined. Logically, it would appear that there are small schools that are unsuccessful.

Accountability

Wasley & Lear (2002) feel that small schools are able to develop a culture of hard work, high aspirations, respect for others and expectations that all students will succeed. This is due, in part, on the ability to concentrate on a few goals and insist that all students meet them. Learning is higher in schools with a direct level of collective responsibility (Lee & Loeb, 2000), and there is increased morale and accountability in small schools (Drysiaik & DiBella, 2002). French & Goldberger (2003) state that small size makes it easier for a school to develop a shared sense of purpose and a goal of high academic achievement, including delivery of a rigorous core academic program to all students.

Safety

Krysiak & DiBella, (2002) suggest that small schools destroy the anonymity that is the cause of many forms of school violence. Anonymity breeds contempt, anger and physical danger (Meier, 1996). Therefore, small schools offer a safer, more productive, and more secure learning environment for both students and teachers (Krysiak & DiBella, 2002).

Although small schools are seen to have many positive characteristics and benefits for students, teachers, parents and communities, it is cautioned that downsizing cannot, by itself, guarantee that school transformation will unfold or that marvelous teacher and student performance will occur (Irmsher, 1997).

Small Schools and Achievement as Measured by Standardized Tests

Alsbaugh & Gao (2003) studied the achievement of 5th graders on five standardized tests. Their findings indicate that there was a decline in achievement as school enrollments increased. Findings of this study imply that small schools appear to have an academic achievement advantage which was more evident in relatively impoverished areas than for schools from affluent areas. Howley & Bickel (2002) state that disadvantaged students demonstrated higher scores in a small setting while the more affluent improved in a larger school size.

In another study by Lee & Loeb (2000), achievement gains in mathematics and reading in high school were largest in schools with enrollments between 600 and 900 students. Schools that were smaller or larger than this had lower average gains, with schools enrolling more than 2 000 students being the most disadvantaged. School size was seen to be a more important factor in determining learning in schools enrolling many economically disadvantaged and/or minority students.

Franklin & Crone (1992) reported on a study done in Louisiana schools using criterion and norm-referenced tests as a measure of student achievement. Correlations between the test scores showed no relationship between achievement and either size or school type. However, size did appear to be related to achievement among schools of low socioeconomic status. The socioeconomic status of a school appeared to have much more significant impact on student outcomes than does school size. The Louisiana schools which demonstrated the highest level of student achievement on standard tests had the following characteristics: a low percentage of the student population on free lunch, a low percentage of students suspended, a low percentage of student dropouts and a high student attendance.

Small Schools and Achievement as Measured by Graduation/Course Completion

Klonsky (2007) states that smaller classes at smaller schools promote improved pupil performance; students are less likely to drop out and more likely to graduate. A study in Chicago explored the concept of a "school within a school" in which large schools are divided into smaller groups that contain a small group of teachers. The teachers met every day for one hour and work through common agreements and understandings, accept shared responsibility for students, agree on instructional approaches and build as much coherence as possible in the curriculum. Findings were that the students in the "small school" stayed in school, completed their courses, and received higher marks than students in the host school. (Wasley, 2002). Bailey (2000) determined that nearly every study of educational attainment finds that small schools have a significantly greater ability to graduate students than do large schools. Studies have shown that large school size contributes to increased dropout rates by lowering the quality of school climate. When students feel like members of a school community, they tend to stay and graduate.

Conclusion

Bailey (2000) looked at twenty-two major studies which examined academic achievement by school size. Findings indicate that no large schools are superior to small schools. Fourteen studies find equivalent achievement, and eight studies find small schools superior.

The relationship between size and student achievement is not clear, although some research indicates that small schools facilitate higher achievement as measured by standardized tests and/or course completion. Walker, Petril, Plomin (2005) state that although it is well established that school characteristics and socio-economic status are associated with academic achievement, these correlations are not necessarily causal. Robertson (2001) states that for small schools to be truly effective, they must function

differently than large schools, not just contain fewer students. Smallness allows for better functioning but doesn't guarantee it. Size alone is not enough. A school's ability to implement a high-standards curriculum for all requires autonomy on matters of staffing, budget, curriculum, governance and time (French & Goldberger, 2003).

Newmann & Wehlage (1995) findings indicate that student learning can meet high standards if educators and the public give students three kinds of support: teachers who practice authentic pedagogy, schools that strengthen professional community, and supportive external agencies and parents.

What implications does this research have for Edmonton Public Schools?

The majority of elementary and junior high schools within Edmonton Public already meet the size criteria as established by the research as being a small school, while some of the high schools would be considered large. In some cases, two schools might be merged into one and still be considered a small school, with an enrollment of 200 to 400. It is important to note that although most researchers agree that small size is beneficial, all agree that size, by itself, does not guarantee academic success. There are many other factors that seem to be of significant importance, and that ultimately factor into improved academic achievement.

Questions for further thought might be: How can the benefits of small schools continue to be experienced, as schools become larger through amalgamation because of economic necessity? Is there a perception among students and parents that the quality of education received has deteriorated as a result of amalgamation? Have the displaced student's marks declined as measured by HLAT's and Provincial Achievement Results? Has satisfaction with the district declined because of displacement?

Another area of interest to explore would be to examine schools with high achievement results and ascertain the characteristics and perceptions of the school as determined by principals, teachers, parents and students. Is there a correlation between academic achievement and student, parent and teacher satisfaction as determined by survey results?

On-going research within the district could provide answers to some of these questions and provide direction that would continue to ensure quality education for all students.

APPENDIX I - Bibliography

BIBLIOGRAHY

- Abramson, P. (2000, May). How school size affects academic achievements. *School Planning and Management*. 39(5) 86.
- Allen, R. (2002, February). Big Schools: The Way We Are. *Educational Leadership*. 59(5). 36.
- Alspaugh, J.W. (1994, Summer). The relationship between school size, student teacher ratio and school efficiency. *Education*. 114(4) 593.
- Anonymous. (2002, January) Still stumped over school size. *The Education Digest*. Ann Arbor. 67(5), 31.
- Bailey, J. (2000, January). The Case for Small Schools. *Center for Rural Affairs*. Walthill, NE
- Bencivenga, A.S. & Elias, M.J. (December, 2003). Leading Schools of Excellence in Academics, Character and Social-Emotional Development. *NASSP Bulletin*. 87(637) 60.
- Bomotti, S.S. & Dugan, J.S. (2005, February). Smaller Learning Communities: A Synthesis of Evidence-Based Research. A report prepared for MPR Associates, Inc., Berkeley, CA
- Franklin, B.J. & Crone, L.J. (1992) School Accountability: Predictors and indicators of Louisiana school effectiveness. Paper presented at the annual meeting of the mid-South Ed. Association, Knoxville, TN. (ERIC Document Reproduction Service No. ED354261)
- French, D. & Goldberger, Susan. (2003, November). Creating Schools That Work: Lessons for Reform from Successful Urban High Schools. Center for Collaborative Education. Boston, MA
- Galletti, S. (1999, May). *The Education Digest*. 64(9). 15.
- Gewertz, C. (2005, February). Chicago Board Moves to Scale Down Schools. *Education Week*. 24(21). 5.
- Gladfelter, H.R. (2000, May) Arizona study: School size has limited impact on scores. *Education Daily*. 33(98) 4.
- Howley, C., Strange, M., & Bickel, R. (2000). Research about school size and school performance in impoverished communities. Clearinghouse on Rural Education and Small Schools, Appalachia Educational Laboratory.

Irmsher, K. (1997, July). School Size. *ERIC Digest 113*. Clearinghouse on Educational Policy Management. College of Education. University of Oregon.

Johnson, J. (2002, February) Do Communities Want Smaller Schools? *Educational Leadership*. 59(5). 42-45.

Klonsky, M. (2007). Are Smaller Schools the Answer? http://www.education-world.com/a_issues/issues048.shtml

Krysiak, B. & DiBella, C. (2002, July-August). Why Small Schools Now? *School Business Affairs*. 68(7). 25.

Lee, V. & Loeb, S. (2000, Spring) School Size in Chicago Elementary Schools: Effects on Teacher's Attitudes and Student's Achievement. *American Educational Research Journal*. 37(1). 3.

Meier, D. (1996, September). The Big Benefits of Smallness. *Educational Leadership*. 54(1).

Newmann, F.M. & Wehlage, G.G. (1995) Successful School Restructuring: A Report to the Public and Educators. Office of Educational Research and Improvement. Washington, DC.

Opdenakker, M. & Damme, J.V. (2007, April) Do school context, student composition and school leadership affect school practice and outcomes in secondary education? *British Educational Research Journal*. 33(2) 179.

Okpala, C.O., Smith, F., Jones, E., Ellis, R., (2000, Spring) A clear link between school and teacher characteristics, student demographics, and student achievement. *Education*. 129(3).487.

Olson, L. (2003, April) Students: Small schools challenging. *Education Week*. 22(32) 17.

Raywid, M.A. (1997/98, December-January). Small schools: A reform that works. *Educational Leadership*, 55(4), 34-39.

Raywid, M.A. (1999). Current literature on small school (ERIC Digest). Charleston, WV: ERIC Clearinghouse on Rural Education and Small Schools. (ERIC Document Reproduction Service No. ED 425049)

Raywid, M.A. (2002, February) The Policy Environments of Small Schools and Schools-Within-Schools. *Educational Leadership*. 59(5). 47.

Raywid, M.A. (2002, February) Accountability: What's Worth Measuring? *Phi Delta Kappan*. 83(6). 433.

Rydeen, J.E.(2004, September). Does Size Matter? *American School & University*. 77(1). 48.

Robertson, S. (2001, August). The Great Size Debate. Council of Educational Facility Planners International. Scottsdale, AZ. ED 459 594

School attendance better in small schools: B.C. research
<http://www.cbc.ca/canada/british-columbia/story/2007/09/03/bc-school.html?ref=rss>

Stevenson, K. (2006) School Size and Its Relationship to Student Outcomes and School Climate: A Review and Analysis of Eight South Carolina State-wide Studies. *National Clearinghouse for Educational Facilities*. Washington, D.C.

Thompson, J. (1994) Scale economies and student performance in Hawaii. *Journal of Education Finance*. 19. 279.

Wainer, H. & Zwierling, H.L. (2006, December). Evidence that smaller schools do not improve student achievement. *Phi Delta Kappan*. 88(4). 300.

Walker, S.O., Petrill, S.A., Plomin, R. (2005, February). A genetically sensitive investigation of the effects of school environment and socio-economic status on academic achievement in seven-year-olds. *Educational Psychology*. 25(1) 55.

Wasley, P. & Lear, R. (2001, March). Small Schools Real Gains. *Educational Leadership*. 58(6). 22.

Wasley, P. (2002, February). Small Classes, Small Schools: The Time is Now. *Educational Leadership*. 59(5). 6.