

Literature Review

Despite the long history of published research studies, debates regarding school size and student performance remain active. The purpose of this literature review is to collect common findings in research published in North America and some other countries. Note: much of the research found refers to studies that are quite dated ie., 20 years+.

Canada

Appendix D, Educational Research School Size – Summary of Research, Jan, 2015: Toronto Catholic District School Board, Ontario, Canada

Much of the history of discussions of school size has focused two distinct issues: (i) the relation between school size and economic efficiency, and (ii) the relation between school size and student outcomes. Frequently, discussions offset issues of positive school climate made available in smaller schools with the significantly reduced per-pupil operating costs in larger schools. Discussions of secondary school size also introduce issues of programs and services made available only in larger schools.

Major policy movements in the United States in the 20th Century have led to a slow but steady increase in elementary and secondary school sizes:

“As a result, during the past seventy-five years in the United States the number of school buildings has decreased from almost 250,000 to approximately 95,000 (Kennedy, 2003). At the same time the K-12 public school enrollment has risen from about 28,000,000 students to over 53,000,000.” (Stevenson, 2006)

In Ontario, the trend appears to be somewhat different:

“In Ontario, the population of school-age children has been declining for more than a decade. The average school size has dropped from 879 students per secondary school in 2001, to 775 this year. In elementary school, the average school size in 1998 was 365 students; this year it is 329.” (People for Education, 2013)

USA

Elementary School Size and Student Performance: A Conceptual Analysis (2011): Eastern Michigan University, United States

Generally, large-school advocates used the economy of scale theory, popular among economics literature. Whereas, small-school advocates favored school connectedness theory, which emphasizes the relationships formed in smaller school settings. Topic studies investigate include student engagement, student achievement, student discipline, ethnicity, gender, socioeconomic status, and rural schools and poverty cost effectiveness and ability to offer diverse programs.

The research identifies that creating smaller schools within large schools through new design is a trend to achieve benefits of both small and large school models.

The ideal size of elementary schools has been an area of debate. Some researchers have tried to identify ideal sizes. For example, Eberts, Kehoe, and Stone (1984) studied 287 elementary schools' achievement scores and school climate indicators. School size had a negative significant effect on student

achievement for schools with more than 800 elementary students. Lee and Loeb (2000) analyzed 264 elementary schools in Chicago and discovered that school size influenced student academic performance. They reported that teachers in smaller schools with less than 400 students were more likely to know individual students and develop a professional relationship with students to ensure each student performs at high levels.

A few researchers have offered specific numbers as ideal school sizes for schools and these numbers are summarized above in Table 1(b). Goodlad (1984) recommended that elementary schools enroll no more than 300 students and Sergiovanni (1993) asserted that school size should not exceed 300 students so that true relationships and a sense of community can be developed within the school environment. Raywid (1999) reviewed research related to school size and developed a definition of the maximum size for schools. She asserted that elementary schools should not exceed 350 students. Similarly, Fine and Somerville (1998) recommended a maximum of 350 elementary students.

Leithwood and Jantzi (2009) concluded in an analysis of 57 school size and student achievement studies that elementary schools serving a culturally diverse or majority disadvantaged student population should not enroll more than 300 students. The researchers also stated that elementary schools that serve a more balanced mix of students from advantaged and disadvantaged backgrounds should not have more than 500 students in attendance for the optimal school size. Goodlad (1984) concluded that the struggles of meeting the needs of a large student population will continue as schools get larger. "It is not impossible to have a good large school, it is simply more difficult" (Goodlad, 1984, p. 309).

School Size, School Climate, and Student Performance (Kathleen, C., 1996): Environmental attitude scale for secondary school, high school and undergraduate students: validity and reliability study

The authors suggest avoiding making simple conclusions as the findings might be confounded by other variables, which might not be easily measurable in a causal investigation.

School Size, School Climate, and Student Performance (1996), K. Cotton: a review of multiples research papers. The Rural School and Community Trust, Washington, United States

Schools keep getting bigger and bigger. Between 1940 and 1990, the total number of elementary and secondary public schools declined 69 percent—from approximately 200,000 to 62,037—despite a 70 percent increase in the U.S. population (Walberg 1992; Howley 1994). Consequently, the average school enrollment rose more than five times—from 127 to 653. In today's urban and suburban settings, high school enrollments of 2,000 and 3,000 are commonplace, and New York City has many schools with enrollments nearing 5,000 (Henderson and Raywid 1994).

School districts, too, have decreased in number and increased in size during this time period. The 117,108 school districts that existed in 1940 have experienced dramatic consolidation; they have decreased by 87 percent—to 15,367 (Walberg 1992). Not surprisingly, the largest schools can generally be found within the largest districts (Williams 1990).

Smith and DeYoung (1988) identify several factors driving this long-term consolidation trend. One has been the desire of school administrators to "demonstrate their commitment to the forces of science, progress, and modernization" by seeking to make schooling "'efficient,' a notion importantly borrowed from the private sector" (3). Smith and DeYoung and many others note that James Conant's 1959 book, *The American High School Today*, greatly accelerated the momentum of the school consolidation

movement (Pittman and Haughwout 1987; Stockard and Mayberry 1992; Walberg 1992; Williams 1990). Conant argued that, in order to be cost effective and to offer a sufficiently large and varied curriculum, a secondary school had to have at least 100 students in its graduating class.

There is no clear agreement among researchers and educators about what constitutes a “small” or “large” school. Many researchers, however indicate that an appropriate and effective size is 300-400 student for an elementary school and 400-800 students for a secondary school.

High School Size: Which Works Best and for Whom?: Valerie E. Lee, Julia B. Smith, September 1997, United States

The study described in this article investigates the relationship between high school size and student learning. We used three waves of data from NELS:88 and hierarchical linear modeling (HLM) methods to examine how students’ achievement growth in two subjects (reading and mathematics) over the high school years is influenced by the size of the high school they attend. Three research questions guided the study: (a) Which size high school is most effective for students’ learning?, (b) In which size high school is learning most equitably distributed?, and (c) Are size effects consistent across high schools defined by their social compositions? Results suggest that the ideal high school, defined in terms of effectiveness (i.e., learning), enrolls between 600 and 900 students. In schools smaller than this, students learn less; those in large high schools (especially over 2,100) learn considerably less. Learning is more equitable in very small schools, with equity defined by the relationship between learning and student socioeconomic status (SES).

An important finding from the study is that the influence of school size on learning is different in schools that enroll students of varying SES and in schools with differing proportions of minorities. Enrollment size has a stronger effect on learning in schools with lower-SES students and also in schools with high concentrations of minority students. Implications for educational policy are discussed.

Europe

Update: Country Background Report for Denmark (OECD Review on Evaluation and Assessment Frameworks for Improving School Outcomes): National Agency for Quality and Supervision, Oct 2012

This update describes major changes concerning evaluation and assessment policy since the Country Background Report was first published in April 2011. The overview of the school system in Denmark is updated with new facts and figures on the primary and lower secondary school. Every section is marked with a number indicating the section of the original Country Background Report to which the update relates.

At the beginning of the school year in October 2011, Denmark had 1,5881 public schools (including special schools). The smallest school unit has just one student and the largest over 1,500 students. Nearly 40 percent of the schools have between 300-600 students and the average school size is 354 students. In the school year 2011/12, a total of 566,660 students attended the Danish public schools. A projection of the number of students in the Folkeskole to 2024/252 shows that the number will decline steadily from year to year, due to a decline in the Danish birth rate. Approximately 103,000 Danish primary and lower secondary school students attend 526 private, independent schools and approximately 27,000 students attend independent boarding schools for lower secondary students (including boarding schools with comprehensive special offer). As of September 2011 the share of

students in private schools was almost one fifth (18,2%) of the total student population, mainly because of the relatively high proportion of students who go to independent boarding schools as part of their lower secondary education. At ISCED level 1, the percentage of students in private schools was 16 percent in the school year 2010/2011.

Multi-National Organizations

School Size Policies: A Literature Review (2014), OECD Education Working Paper No. 106

(see link on webpage for full document)

The purpose of the OECD School Resources Review is to analyse how resource inputs in school systems should best be distributed, utilised and managed to optimise school outputs, encourage successful teaching and learning and promote continuous improvement. The Review provides analysis and policy advice to help governments and schools achieve effectiveness and efficiency objectives in education. More information is available at: www.oecd.org/edu/school/schoolresourcesreview.htm.

Recent demographic, economic and political trends have placed the issue of school size at the heart of school effectiveness and efficiency discussions. The subject of school size is particularly salient in remote and rural areas where the viability of small schools has been questioned. In spite of the relevance of school size policies, the literature on this issue is quite fragmented with few studies taking a comprehensive view on the implications of school size policies. This literature review attempts to bridge different strands of relevant research and describes existing country practices in order to provide a broader picture of the benefits and costs associated with different school sizes. The paper describes the different trends that have affected school enrolment and how different countries have managed school size policies, with a particular focus on school consolidation. It discusses the consequences of school consolidation and the alternatives to consolidation when schools are facing declining enrolment. It also reviews the different mechanisms through which school size affects the quality and efficiency of schools, and the existing empirical evidence on these effects.

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