Education Research Brief

Closing Small Schools May be Ineffective and Inefficient

November 2014

SAVE OUR SCHOOLS

http://www.saveourschools.com.au
https://twitter.com/SOSAust

School size is a much debated policy issue. Closing small schools is a sensitive policy issue for many inner urban and country communities in Australia with low or falling enrolments as governments seek to reduce costs.

Arguments for closing small schools and consolidating enrolments into larger schools stem from two presumed benefits of larger schools: first, larger schools promote better quality teaching and learning and, second, they do so at lower costs than smaller schools, that is, larger schools are more economically efficient.

A new paper published by the OECD reviews the literature on the impact of school size on school outcomes and efficiency. It raises a number of issues that should be considered before closing small schools. It shows that small schools may provide better school outcomes for students, especially at the primary school level and for lower socio-economic status students. It also shows that the efficiency benefits of consolidating students in larger schools may be offset to some extent by other financial and social costs.

The following is a summary of the paper. Parts have been edited for ease of reading.

The effects of size on school outcomes

School size may affect students' academic outcomes through its influence on: the quality and the breadth of the curriculum, students' attitudes towards learning, the possibility to implement single-grade grouping of students, attendance rates. School size is also likely to affect non-academic aspects of students' lives and learning environment that also have an impact on student outcomes.

A common claim is that larger schools provide students with a broader range of subjects to choose from, including specialised courses, and that this improves student outcomes. However, not all scholars agree on this. A small school that focuses on a few core and high quality courses can also achieve high student outcomes, and much of the material covered in specialised courses in large schools can also be taught at regular courses in small schools. The research indicates that there is no reliable relationship between school size and curriculum quality, and that the strength of this relationship decreases as schools become larger.

School size has an impact on the extent to which schools are able to group students into single-grade groups. There is a considerable amount of research analysing the implications of multi- and single-grade grouping for students' cognitive and non-cognitive outcomes. The existing evidence suggests that multi-grade teaching does not necessarily have negative effects on students' outcomes, and that it could have positive implications for their attitudes and social behaviour.

Multi-grade teaching is frequently presented as a tool for promoting independent and individualised learning by enhancing students' self-reliance, but also as a form of organisation that provides opportunities for students' social development and peer- and cross-age learning and cooperation. Empirical evidence comparing the cognitive and non-cognitive outcomes of multi-grade and single-grade teaching is mixed, with most studies showing inconclusive results or no difference between these two types of teaching.

Students' attitudes towards learning and motivation for achievement are expected to be more positive in smaller schools. In small schools, teachers and students have a closer relationship, and teachers are able to respond to the individual needs of students. Teachers, parents and the students themselves tend to have higher academic expectations. However, evidence on this is meagre and the research results remain inconclusive.

One of the comparative disadvantages of larger schools frequently mentioned in the literature is that they have problems with discipline. In small schools, teachers typically know students more closely and can identify possible discipline problems, which can be more easily and quickly addressed before they reach a crisis stage. Research on this topic conducted in the United States has found reduced incidence of misbehaviour in smaller schools, fewer fights and incidents of serious violence, and lower rates of bullying and crime.

Some studies have found that smaller schools promote participation in extra-curricular activities among their students more than larger schools do. Smaller schools tend to promote a more equitable participation in extracurricular activities, while larger schools are typically more polarised with a group of very active participants and a large group of students who do not participate in any activity.

There is some evidence to suggest that students are likely to show a stronger sense of belonging in small schools and that this is a factor in less discipline problems. With fewer students, teachers and administrators typically know all students personally and can give more personalised attention to them. It is less likely that a student will be unnoticed or unattended. Moreover, because of the close interaction between school and community, teachers know where students come from and their particular family context very well.

There is also evidence that smaller schools are associated with higher attendance rates, and that students who change to smaller schools improve their attendance.

Recent studies relating school size to students' achievement have produced conflicting results, and the relationship between these variables tends to be small. One review of the literature published in 1996 reviewed 31 studies and found them to be approximately evenly divided between studies favouring small schools and studies that do not find a significant relationship between achievement and school size. None of the studies reviewed provided results in favour of large schools.

Another literature review published in 2005 found that the majority of evidence indicates that students' achievement is better in small schools, but that there is also evidence in favour of large schools. It said that the overall effect may depend on mediating variables such as socioeconomic background or grade level.

A more recent review of ten empirical studies of the relationship between school size and academic achievement in primary schools found that six reported a negative relationship between size and achievement and three found non-significant relationships. It also reviewed 19 studies on secondary schools. Five of those found that as school size increased so did achievement, six found that results improved over a band of larger size and then declined as size increased further, and eight found that achievement declined as school size increased.

An important consideration in assessing the relationship between school size and school outcomes is that it may be mediated by other variables, such as social class or school grade.

In the literature, size-related benefits and disadvantages are frequently construed as being enjoyed equally by all students, but this may not be the case. In fact research indicates that size tends to have a differential impact on student outcomes depending on socioeconomic status. Students from disadvantaged backgrounds tend to achieve better results in small schools.

Small schools are also associated with greater achievement for students of lower grades, while student outcomes of higher grades are maximised in larger schools. The literature indicates that primary and middle school grades were more adversely affected by school size, while secondary school students may benefit from the advantages offered by large schools.

The effects of size on school efficiency

One of the most common arguments in favour of larger school sizes, which is also frequently mentioned as a reason for consolidation, is that larger schools are more cost-efficient than smaller schools. The main reason for efficiency increasing with size is that schools face economies of scales, so that larger schools can reduce costs while maintaining their effectiveness or even improving it. Nevertheless, larger school sizes usually come with certain difficulties and changes that can actually increase schooling costs.

In terms of scale economies in capital spending, larger schools may benefit from price benefits of scale, that is, resources can be purchased at lower unit costs when bought in larger quantities by negotiating bulk purchases of equipment or facilities. Hence, an investment in equipment made in large schools may result in lower unit costs than in smaller schools.

Large schools can also benefit from scale economies of increased dimension and the benefits associated with larger units of capital. For a large school it may be profitable to employ more efficient equipment, like a heating plant or a communications system, while in smaller schools such an investment would not be feasible given the reduced size of operation. Larger schools can invest more in facilities such as libraries, computer rooms, laboratories and sports facilities.

The opportunities for scale economies present in capital spending also affect operating costs. Larger schools can benefit from bulk buying and acquire more material supplies per student to lower unit costs number of students increases. Larger schools can also spread the costs of school administrators and support staff such as librarians or counsellors over more students. Larger schools have more opportunities to deploy their resources more efficiently. They can achieve appropriate class sizes across the entire curriculum and in specialised subject areas.

However, transportation costs can offset the benefits from scale economies. These are frequently mentioned as the main disadvantages of school consolidation in terms of costs. Consolidated schools have to confront higher transportation costs since students and staff have to travel longer distances to reach the schools. Many studies fail to include transportation costs in their analyses, which leads to overstating the benefits of consolidation. Studies also often fail to include the opportunity cost of commuting time. The value of children's commuting time would reduce the savings available from consolidation. Transportation is, surprisingly, one of the most understudied issues in the debate about school closure and consolidation.

Besides the cost of transportation, longer commuting time may negatively impact students' lives by increasing fatigue, reducing attentiveness in class, or reducing the time available for

recreational activities and interaction with the family. Additional disadvantages are caused by transportation schedule arrangements that do not allow students to participate in extra-curricular or sport team practices.

Similar to research on the effectiveness of schools of different sizes, studies of efficiency also show conflicting results. Some found a negative relationship between size and costs, indicating that schools gain scale economies as they get larger, and others found that while smaller schools initially face economies of scale when increasing school size these turn into diseconomies of scale beyond a critical number of students.

Effects on the surrounding community

An efficiency analysis of school consolidation, closure or merger should consider the non-educational impacts of schools as possible costs or benefits of consolidation. Some of the effects that have been covered in the literature are: the implications of schools on social capital and community cohesion and the use of school facilities as a centre for non-school activities.

Schools, especially in small rural and remote areas, are a source of social capital and community cohesion. Schools act as a meeting point and a place for interaction and the forging of bonds within the community. By providing a space for interaction and bonding and by promoting a community identity, schools increase the amount of social capital within the community, thereby facilitating cooperation and coordination for mutual benefit among community members.

Schools frequently provide expanded services for the community through use of their facilities. These activities can be related to education, for example, as a study centre for young people and adults. They can also be used for other activities, as an information centre for municipal services, a work place for very small businesses, a space for the organisation of local cultural activities, or a polling station.

Implications of the research results

The evidence presented in the studies reviewed indicates that size affects different schools in different ways. There is no educationally-relevant absolute lower or upper limit to school size; much depends on the context. Nevertheless, when considering issues of school effectiveness and efficiency it seems that the point of diminishing returns to educational outcomes occurs with fewer students than is the case for economic efficiency. That is, effectiveness-related research recommends smaller schools than efficiency criteria would indicate.

Even though early research advised against smaller schools due to their limited curriculum and teacher specialisation, more recent results have shown that smaller schools with a strong required core curriculum could also produce students' achievement at high levels. This later research has indicated that students did not necessarily register for the specialised courses or extra-curricular activities offered by large schools, or that enrolment in these activities might be limited to specific student populations.

School size acts as a facilitating factor for other desirable or undesirable practices and features. Small schools may facilitate personalised teacher-student relationships, but they can also create professional isolation among teachers, or more reduced social networks for students.

The advantages and disadvantages of size need to be evaluated against a specific context. It seems clear from the existing debate in the literature and from the disagreement around specific policy proposals that there is no 'one-size-fits-all' solution to the question of school size. Researchers and policy-makers should substitute the predominant question of "What size is best?" by the alternative "Best size for whom, and under what conditions?"

Research has tended to overlook the interaction of school and district size with other characteristics of the schools or the student population. The effects of school size are usually construed as affecting equally all students. Socioeconomic background is one of the few moderators of school size effects to be found in the literature. Large schools are considered to act more as a sorting mechanism for children, allowing students from socioeconomically advantaged families to profit from the advantages that larger size offer. In contrast, because staff in smaller schools can focus on a core academic curriculum and they know every student; small schools can offer success for each of them. For this reason small schools are likely to benefit children of lower socioeconomic status.

The level of education is another factor that has been considered as a relevant mediator of school size. Students in primary schools tend to be more adversely affected by larger sizes than students in secondary schools, which suggests that primary schools should be kept proportionally smaller than secondary schools.

Educational decision-makers should keep the characteristics of their community and school in mind when examining school size policies. Authorities should take into account a wide range of factors before deciding on any changes in school size. Firstly, the educational benefits of changes in size should be considered, specifying which groups of students will benefit most and least from these changes. Next, travel distance and time as well as direct transportation costs are fundamental factors that need to be included in any assessment of likely policy effects.

Other issues that need to be considered are demographic trends (in terms of population density, population projections) as well as any trends in community and urban planning or settlements. Financial and economic considerations should go beyond operating and capital expenditures and attempt to include, to the extent possible, the social costs of closing schools.

Conclusion

Contrary to earlier studies arguing that larger schools were better, recent trends indicate there are benefits to smaller schools, and that there may be a limit to the positive effects of larger sizes.

There is no 'one-size-fits-all' solution in school size policies. Even if consolidation may improve school quality and efficiency in some contexts, it is unfeasible in others. Other alternative forms of organisation have proven effective in counteracting the disadvantages of small schools, without having to remove the school institution of its community.

School clusters and school federations, and other more informal forms of cooperation, have allowed smaller schools to obtain specialised teachers and courses, to organise larger groups of students for certain classes, and also to create a wider professional community for teachers and principals. For those cases where interaction with other nearby schools is unfeasible, information and communication technologies provide an innovative tool to combat isolation,

and positive experiences of their implementation show that they could be a useful tool for very remotely located schools.

Any decision on changes in school size must be made carefully, and it needs to be exhaustive in including all of the mechanisms and variables that mediate size effects. In that respect, existing studies have insufficiently reflected on the possible interaction effects between size and other school and context related variables. Grade level and social class have proven to be two strong mediators of size effects.

This indicates that policy-makers need to carefully consider which student populations will benefit or suffer from different school sizes. Changes in size policies should be conducted through an open and transparent process that permits the participation of the affected communities, and that clearly presents the arguments for changes in the school structure.