

How Big is a Small School?:

A Review of the Literature on Absolute Secondary School Size

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Abstract: The United States has experienced a century-old trend towards school consolidation and growth. Perhaps nowhere else in American history has so much policy change over a generation affected so many with so little rationale, analysis or public scrutiny than in the case of school size. Much research has shown that true *small schools* deliver better results in academics, safety and connectedness when compared to their larger counterparts. However, efforts to measure, define and promote the *small school* have been weakened by constant shifting in the size of such schools, circular referencing resulting from an insufficient body of research, and an insufficient time given to accurately measure the impacts of restructuring. Although smallness can be relative and has a variety of factors, the author concludes that student enrollment is the only stable factor in need of consensus. To this end, the author develops literature review-based parameters on small school size:

Up to 230 students: Small college preparatory-style school

Less than 400 students: Small public school

Key Terms: *small schools* movement, authentic education, school consolidation, schools within a school, smaller learning communities

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*We eventually found that true **small schools** delivered better results in academics, safety and connectedness when compared to their larger counterparts, but only after we answered the key question: how big is a **small school**?*

HOW BIG IT GOT

For the past century, American school sizes have been growing. Steadily, they have been consolidated in search of presumed benefits like cost savings and social equity. Notwithstanding presumptions, there is little if any real research on the long-range impacts as we have shifted from a nation of small community schools to one of consolidated and increasingly larger secondary school sizes. From 1900 through 2000 the number of school districts dropped from 150,000 to 16,000 as school sizes grew. Over the first decade of the third millennium, the number of high schools with more than 1,500 students doubled (Mitchell, 2000). By 2010, 40 percent of the nation's secondary schools were enrolling more than 1,000 students. Imagine the stakes ...and practically no comparative research. What if we've made a mistake for the past century? Can we even fathom the impacts of a mistake of that size? With these questions in mind, we began researching school sizes, and here is one thing we came to find: Perhaps nowhere in American history has so much policy change affected so many with so narrow a rationale or so little public analysis or scrutiny.

Currently, the medium- and long-range benefits of *small schools* remain largely misunderstood and serially overlooked. The empirical research in support of smaller schools for our secondary school students is clear (Grauer, 2012c) however this information rarely makes its way to the rooms where policy is carved out—the

superintendent's office, the board of education, even the university schools of education—and the trend toward ever-larger schools continues. Even so-called *small schools* are growing in size, and a heretofore unexplored impact is on the horizon: If imperfectly conceived and improperly implemented, *smaller learning communities* will not succeed—at least not what's best about them—further fueling the trend to construct still larger schools.

Unfortunately, paralleling federal, state and district policy changes towards larger, more consolidated schools has been an almost universal dissatisfaction with the performance of our nation's secondary schools. Advocates have held that the main advantages of large schools include decreased costs and increased course offerings, neither of which has been either substantiated or even shown to be a public preference (Grauer, 2012b; 2012c). Worse yet--since consolidation has long been a given as the progressive solution to social justice in school--the comparative impacts of large versus small schools on social equity in communities and regions has rarely even been studied. By the year 2010, Americans were spending in the hundreds of billions—no doubt into the trillions--annually for public education with an unfounded, large school-focused design that was widely perceived as broken, if not in crisis. Indeed, the school consolidation movement caused a massive, century-old restructuring of American society that our research shows to have been inefficient and in critical respects unsuccessful.

Our research team hypothesized that the safest and single-most effective model of schooling, the *small schools* model, was overlooked by policy makers and school designers—and that what little attention it got tended to make it appear marginal. We had heard *small schools* were not viewed as feasible, equitable, or cost-effective, but could not find data to show this. It took a while to surmise the real problem: Nobody even knew what a *small school* was.

THE *SMALL SCHOOLS* MODEL

The purpose of this paper is to clarify the term *small school*, so that we can recognize a “true” *small school* when we study one and so the *small school*'s effectiveness can, for the first time ever, be reliably measured. In setting out, we became aware that in conversations about *small schools*, from cocktail parties, to think tanks, to federal agencies, the term *small school* was used as though there were some general understanding of its meaning. For the previous couple generations, it appeared as though across the country people were shaking hands and agreeing on something, then walking away with different, conflicting presumptions of what that something was. There were plenty of studies on the effectiveness of *small schools*. But even the most extensive, expensive studies were routinely talking about entirely different kinds and sizes of organizations. Is *small* a wishy-washy adjective, or could it be a term we can agree on and that policy makers and researchers can bank on? We needed a clear understanding of what turned out to be not such a simple question: How big is a *small school*?

First, a disclaimer: student enrollment counts alone will not a successful *small schools* make! For instance, without a good principal and a clear purpose, no school size thrives. However, this same disclaimer has up to now served only to block greater understanding of absolute school size. Since enrollment numbers are the critical factor in determining smallness, understanding the numerical limits on smallness became the critical area for our research. Identifying and setting limits on these numbers is the purpose of this paper.

The value of identifying absolute size for *small schools* will not be apparent to everyone, particularly large district policy makers and those with ongoing vested interests in the current prevalent model, including in many cases university schools of education and researchers. For starters, some readers will immediately consider the research to be impractical, and of little more than theoretical value. It may, however, be of immediate value in the development of charter schools, alternative schools, parochial schools, home schools, and private independent schools. Ultimately, however, as *small schools* benefits are advanced in research, even the largest schools

shall increasingly be looking for ways to break down schools or divide them into sub-schools, such as is occurring in “schools within a school” (SWASs) or “smaller learning communities” (SLCs) programs.

Through the baby boomer 1960s and 70s, through the *Gen X* 1980s and 90s, and into the new millennium, schools were consolidating and school sizes were increasing, as were drop-out rates, with very little accompanying social science research on the impact of these unprecedented sizes. Also during this period, we found, the size of what was called a *small school* was growing. Meanwhile, supposedly for financial considerations (which remain unsubstantiated), some *small schools* and *small schools* research had been abandoned in favor of much more sweeping, big institutional changes. Why?

In 2011, we launched the Coalition for Small Preparatory Schools (CSPS) to find out—to advance research and networking in this fertile and understudied field—and eventually we discovered some striking answers. In this position paper, we’d like to introduce the reader to powerful research that helps us define *small schools* in a way that will enable them to unleash their efficiency, cost-effectiveness, and power.

ABSOLUTE GROUP SIZE

What we know about group size, organizational dynamics, and behavior in social networks is, of course, not confined to schools. To date, however, this powerful research has been widely disregarded as a part of school design and organization.

Consider: the average number of friends on Facebook is 120 to 130, just short of the size of a typical community in ancient hunter-gatherer societies: In starting out on our research into small school size, we were fascinated at these historical bookends. When Malcolm Gladwell came out with [The Tipping Point](#), there was an instant outpouring of attention focused on all kinds of organizational group sizes (Gregory, 2000). Gladwell used data from a British anthropologist, Robin Dunbar who had found an upward limit for groups focused on sharing values and cooperation. Dunbar set the

approximate parameters of between 100 and 230 as the maximum number of meaningful social connections individuals can cognitively handle: the best size for a successful "village." Dunbar, selecting a sensible middle number, called this "the rule of 150." Typically at 150, Dunbar believed, people don't need institutionalized hierarchies—people naturally specialize, as we need them to. There is social mobility, a sense of meritocracy, and a maximized sense of belonging. Mature communities such as Amish and Hutterite— even most military companies around the world—seem to follow the same rule. Gladwell and others believed that, beyond *Dunbar's Number*— around 150—the human mind must resort to some combination of hierarchical schemes, stereotypes, clique identities, and other simplified models in order to understand so many people and their roles and relationships. Humans tend to have personal thresholds on the number of others they can acknowledge. High school environments which are intimate enough succeed at minimizing the amount of bullying, social threat, or disunity. Gladwell furthered that 150 would also be the best size for schools in disadvantaged neighborhoods, because *small schools* are best equipped socially to counteract the "poisonous atmosphere of their surrounding neighborhoods." They are the most resistant to division and alienation ("Tribalism," 2011). To borrow from biology, a small school can function as a micro-climate; yet as the school gains in size, it ceases to function this way and it increasingly mirrors and perpetuates the conditions (and pathologies) of its surrounding ecosystem.

While we embraced the findings of Dunbar, Gladwell, and a host of others, we also regretted, and still do regret, the focus on *small schools* primarily as an anecdote to impoverished or disadvantaged social circumstances. We wondered: What if researchers and policy makers gave *small schools* a serious look as potentially the most promising grounds for the most promising students and communities? What if *small schools* were developed not only as fix-its, but as efforts to identify, produce and measure the best possible educational formations? Could we locate a superior school format and organization, an optimum or even naturalistic architectural and group process stratagem for high school? Once again, given the stakes, we found it stunning

that these questions had been so seldom considered.

Continuing Dunbar's work, Bernard and Killworth subsequently estimated 231 as the optimum size of a person's social network, which of course matched Dunbar's upper end. (They had used university campuses as their locations) (Wasserman & Faust, 2005). 231 people would sustain a social network within one degree of separation (Buchanan, 2002).

In 2009, the best seller Tribal Leadership: Leveraging Natural Groups to Build a Thriving Organization (Logan, King & Fischer-Wright, 2008) provided a deepening understanding of the power of "tribes" of 150 people or less, where everyone knows everyone else. Beyond 150 people in the group, highly effective groups with shared values may, in a natural way, create sub-tribes so that the 150 cap would be preserved; unfortunately, sub-groups like this are seldom part of the design or evolution of our large schools. Tribal Leadership illustrated both the limits and enormous potentials of group size in team building and the development of strong, durable, inspired, and innovative culture.

Management and social networking consultant Christopher Allen found that once a company grows past 200 "you are really starting to need middle-management, but often you can't afford it yet. Only when you get up past that, maybe at 350-500 people, does middle-management start really working, primarily because you've once again segmented your original departments possibly again reducing them to Dunbar-sized groups" (Allen, 2004)—Tribal Leadership called these "sub-tribes." Allen's work provided us with a vital clue as to what could have been going wrong, since many schools of between 400 and 500 students had been labeled as "small."

Our next question would be: How do the above findings from anthropology, sociology, organizational behavior, and social networking line up with developments in education in general and in the *small schools* movement in particular?

HOW BIG IS A *SMALL SCHOOL*? – A REVIEW OF THE LITERATURE

What follows is a small sampler: selected cases which we consider to be

representative of the evolution of enrollment sizes at *small schools* over the past generation—a trajectory we offer in our effort to identify and establish a prevailing notion of “small.”

- Less than 700 students: The famed 1959 Conant study on school size recommended that no secondary school have a graduating class of fewer than 100 students (Conant, 1959). At that time, 30 percent of secondary schools were in this category, and by 1977, 50 percent were “consolidated.” (Foster & Martinez, 1985)

- 300-400 Students: Deborah Meier famously pioneered *small schools*. Her Central Park East Secondary School, starting in 1984, broke down schools of over 1000; capped at 450 students, Meier reported clear gains in student safety and performance at the time of its first graduating class in 1991. Meier eventually defined “smallness” as between 300 to 400 students for urban public schools. Hence, with enrollments of 450, the famous Central Park East experiment was not “small,” but merely “smaller” than anything public in New York City (Meier, 1996).

- 600 Students: Early experiments like Meier’s and Ted Sizer’s Coalition of Essential Schools were successful due to inspired leadership and the relatively small size of their subject schools: at around 600 students, Coalition schools were not absolutely small but they were at least 500 students smaller than the urban schools they broke down. Inspired, early-movement by people like Meier and Sizer advanced interest in design features of smallness and intimacy, and helped students, but did not analyze or evaluate numbers limits.

- 600 Students: In 1996, the National Association of Secondary School Principals (NASSP), in a report called “Breaking Ranks: Changing an American Institution,” concluded that “high schools must break into units of no more than 600 students so that teachers and students can get to know each other better.”

- 300 Students: In a report years ahead of it’s time for its findings, the U.S. Department of Education’s “Violence and Discipline Problems in U.S. Public Schools: 1996-97” defined “small” as “fewer than 300 students,” stating: “more than half of *small school* principals report either no discipline or minor discipline problems,

compared to only 14 percent of big school principals. Furthermore, compared to schools with fewer than 300 students, big schools (1,000 or more) were shown to have 825 percent more violent crime, 270 percent more vandalism, 394 percent more fights and assaults and 1000 percent more weapons incidents (Mitchell, 2000). The report's implied *small schools* enrollment cap, 300 students, would not last long among the nation's *small schools* proponents, especially in urban public schools where the smallness "experiments" were primarily going on. Significant in this report, we began to see dramatic impacts when we crossed clearly below the 400 student threshold.

- 400 Students: By 1999, the overcrowded Albuquerque Public Schools determined to aim for prototype schools of 650 students, even while noting, "These numbers are more than 50% larger than the maximum effective sizes for high schools" (i.e., their true prototype idea would have been capped at around 400 students) (U. S. Dept. of Education, National Center for Education Statistics, 1996-97).

- 200 – 400 Students: Into the 2000s, numbers kept dropping in concert with more dramatic results we kept finding. A 2000 study by the Bank Street College of Education found that students in Chicago *small schools* knew each other better, and as a result, fought far less frequently than their peers in larger schools in the city. These schools were enrolling 200 – 400 students. These same students had higher grade point averages, higher achievement test scores, higher attendance rates, and lower dropout rates than their peers in larger schools.

- 100 Students: The State of Nebraska analyzed a *small schools* parameter of less than 100 students in rural areas, in which they showed: "Only 3 percent of those attending high schools with fewer than 100 students dropped out, compared to a statewide average of 15 percent" (Mitchell, 2000).

- 100 - 400 Students: In 2002, Lee and Loeb identified *small schools* as having enrollments of less than 400. Lee and Loeb (2002) examined 264 Chicago elementary schools and found that teachers in small schools (less than 400 students) take more responsibility for students' academic and social development, and that this in turn enhances student achievement. They noted that small schools facilitate more intimate

and personal relationships among both teachers and students, and that it is these relationships that impact student learning. On the basis of this and complementary research, between 2000 and 2006, Cincinnati, Ohio, established a series of high schools of that size to replace several large underperforming large ones and saw four-year graduation rate rise from 51% at large schools to 79% in smaller ones (Nathan and Thao, 2007). Once again, a drop in secondary school size showed better results (although still no one had tested or questioned the optimal size).

- 300 or Less Students: In 2002, a study of rural schools concluded that the “best academic outcomes and cost-effectiveness are seen in rural schools, including high schools, with well under 75 students per grade as an upper limit, not an optimum size” (Lawrence, et al., 2002).
- 100 – 400 Students: In 2006, Jimerson noted, “Researchers on small high schools ...cite enrollment numbers varying from 100 to 400.”
- 200 Students: In 2006, an Australian study identified *small schools* as those under 200 (Broadhurst, 1970).
- 280 Students: By 2007, Amy Biehl High School in the city of Albuquerque had dropped down to an enrollment 280 and the findings started to thicken. One teacher described: “I know the students I teach. I know who they are and how they learn.... When I was teaching at my previous [large] school, I had no time to understand my students....I could barely remember their names and the school’s focus was not on the teaching and learning of our students, but on bureaucratic concerns” (Nathan and Thao, 2007).
- 200 Graduates: In 2007, Newsweek Magazine analyzed school quality and found that “Nearly 250 schools on the full Newsweek list of the top 5 percent of schools nationally had fewer than 200 graduates” (Mathews, 2008). No representation was made that these were *small schools*; they were only “smaller.”
- 250 - 550: Studies of New York City's *small schools* of choice (SSCs) over the first decade of the new millennium provided evidence that a large system of small public high schools can be created and can markedly improve graduation prospects for many

disadvantaged students. From 2002 to 2011, New York City closed more than 20 underperforming public high schools, and opened more than 200 new secondary schools. SSCs were intended to be viable alternatives to the neighborhood high schools that were closing or in jeopardy (Bloom, et al., 2010). Each SSC was designed for between 250-450 students who would work closely with a core group of teachers and other adults. The trouble was, many of those SLCs eventually expanded to include 500 and even 550 students in them (Oxley & Kassissieh, 2008). The City's Gates Foundation funded study included over 21,000 high school students and found higher graduation rates and college readiness among small schools students of around 400 students (Hu, 2012)

- Less than 400: In a candid, 2012 conversation, Deborah Meier reflected back on her time in the now legendary Central Park East small school: "We were a 7-12 school--80 students per grade. And indeed we found that when the total got near 400 we found the staff cohesion difficult to sustain--too many people at too many meetings! It's the number of staff who should be able to sit around the same table/circle that counts the most." (Meier, personal communication, January 17, 2012).

If we define a blustery day as "a day when the wind outside evokes the emotions of childhood sea stories," we could easily forget that a blustery day is not so unless the wind is also blowing at a good Force 5 or more. Throughout the many 2000s experiments with smallness, our extensive literature search turned up virtually no rationale for labeling one school *small* or *large*, but noted that no studies of schools with less than 400 students showed anything but substantial gains. Interestingly, we rarely found a school identified as "medium" in size to turn up in research, even though schools of up to around 400 were often compared with those of over 800 or 1000. Theorists were surmising that the middle sizes would produce neither economies of scale nor quality gains.

Research continued showing us how the *small school* featured higher measures of safety and a sense of connectedness and belongingness (in student, teacher,

administration and parent relationships) such as are implicit in most small organizations and communities, not just education (Cotton, 1996). As we believe is illustrated above, the variation in numbers referred to as “small” needed to be addressed if a *small schools movement* was to advance. We needed to determine if a *small school* was really small, or rather just smaller than something else. What was the absolute size of a *small school*?

FINDING #1: There was no consensus on the question, “How big (or small) is a *small school*?” and so *small schools* research was unreliable.

As our research continued, we began to see parallel, opposing national trends: school consolidation and some desire for *smaller learning communities*. The impacts of steady consolidation, in particular, revealed themselves in disturbing patterns of public dissatisfaction, while *small schools* research appeared divergent and uncoordinated, thereby unable to garner large-scale trust. Large, consolidated schools seemed anything but the “great equalizers” they were originally conceived to be; at the same time, we also noted that the term *small school* was often muddled with the politics and fear that accompanies all fundamental systems and social change, as the reader will discover. Meanwhile, in little pockets, unaligned with a broader movement, talk of “smaller” schools was seeming almost like a panacea. Ironically, this is where the trouble started.

STRAW MEN & OTHER RESEARCH PROBLEMS FOR *SMALL SCHOOLS*

What made a school small? How would you design one? What were the requirements and limits? When was it not small anymore? What was a large school? Were there medium sized schools? There were no answers. Our own *small school*, The Grauer School in Southern California, had set an 150 enrollment cap at it’s founding, allowing for a cap of around 200 people on the campus regularly, but the research was more or less intuitive: We knew things about group dynamics, ancient tribal sizes, war games, feeding the multitudes, etc., which were not going to pass muster on a wider

scale. We needed empirical research.

To a handful of millennial school officials from local to national, including major grant funders, *small schools* became a flavor of the month and schools were labeled *small* regardless of specific size considerations and design features. It was almost as though the label was considered to be the same as real change. Funders and policy makers, public and private, were creating medium and larger sized organizations incapable of close-knit or “tribal-style” relationships--such as schools of 500--watching them perform in diverse ways, and concluding that *small schools* got questionable or unworthy results. In reality, all that was ultimately questionable about *small schools* was their size. As this paper and companion research eventually revealed, the benefits of the true *small school* were overwhelmingly, profoundly positive—if you actually measured *small schools*.

A few clear enrollment parameters on *small school* size started to insinuate themselves. For instance, we knew that schools of 500 did not have the features of intimacy, safety and community that *small schools* feature. Our concern was that, with communities and researchers co-opting the meaning of “small” for schools of 500 students, this important movement would stall out.

Research was opening up the field for numbers confusion, perhaps because there were not enough *small schools*, particularly in the public sector. Like gossip in an old-time village, many of the *small schools* research studies were citing each other. Four or five urban school studies were cited and recited again and again, so as to make the literature sound thicker than it was. For instance, a small facet of the Gates Foundation work entailed some funding of a *small schools* organization called Center for Collaborative Education, which arbitrarily defined *small schools* as between 50-400 students (Feldman, Tung, & Ouimette, 2003), all the while citing evidence of *small schools* efficacy in the Boston Pilot Schools project (which claimed to limit school size to 500), but the only rationale for school size made in the Boston Pilot Schools report was a citation for the Center for Collaborative Education ((Feldman, Tung, & Ouimette, 2003)! And no one noticed the pretzels. Also, work on small elementary schools was routinely

cited in secondary schools research, and researchers were quoting each other in stating that *small* high schools should naturally be larger than *small* elementaries, though empirical evidence for this was nowhere to be found.

A separate paper could be written on circular *small schools* research. The concept of circularity gets even more pretzeled when we consider the reality that, in the end, “smallness” can only amount to a group size that people consider to be small—and rarely did the researchers or policy makers work in the schools they were calling *small* (Ted Sizer and Deborah Meier being wonderful exceptions). Nevertheless, we at least needed a starting point, a design feature, a benchmark with some data behind it. By the time the first decade of the new millennium had passed, the sum total of conflicting definitions, relative size differences mistaken for absolute, and very limited and occasionally circular research had imbued the field of school size with a sense of confusion, and some funding agencies and policy makers wanted out.

THE “OTHER” DESIGN FEATURES OF A TRUE *SMALL SCHOOL*

Husbands and Beese (2004), in their review of *small schools* literature, were the first researchers we could find to make note that there was no consensus on an ideal size for a *small school*. Estimates at the time were ranging from 50 to 900 students. For lack of a definition or useable parameters, rather than seeking clarity on the issue, authors of the years immediately following the new millennium were abandoning the whole concept of small. New York City planners noted: “*Small Schools of Choice* (SSCs) are more than just small ...They emphasize strong, sustained relationships between students and faculty” (Bloom, et al., 2010). But these additional features or requirements proved to be a tempting distraction from finding absolute size parameters as a starting point. One influential study urged educational reformers to focus less on the ideal size than on “exploring how smaller school size can improve educational opportunities offered...” (Gladden, R.M. as cited in Husbands and Beese, 2004).

Based on our findings, we did not have that urge at all! It did nothing to advance the search for optimal *small school* size.

We also found that oftentimes schools of between 500-800 were the “smaller” sizes recommended by large school boards, which often were dealing with high schools of two or three thousand in size; but as long-time *small school* educators, we knew both from personal experience and to an ethical certainty that *smaller* schools of that size were not *small*: they could not offer the level of relationships or personalization seen in the true *small school*, much less the safety. Schools of over 400 or 500 students tend to remain comprehensive, maintaining the design features, social stratifications, and teaching methodologies of the large school. No gain. Even if you have a school of 400 students, if that school features large class sizes, a departmentalized and not well integrated faculty, and teacher talk taking up 80 percent of the class time, that’s not a *small school* —it’s still a comprehensive school. Many of the Gates experiments turned in weak results because the smaller schools it funded, particularly those created by subdividing big existing schools, lacked the autonomy (and the smallness in numbers) to create the strong sense of investment by students and teachers that the schools’ smaller scale made possible (Toch, 2010). Shrinking a large comprehensive school was not going to address the system change called for, that much we knew. If *small schools* claimed or attempted to do what large, comprehensive schools do, the movement would fail. Hence, we deduced our next finding.

FINDING 2: A *small school*, it does not attempt to be all things to all people, and it is not a comprehensive school.

RELATIVE GROUP SIZE: NOT SMALL BUT SMALLER

Reliable data on how *small schools* will do in populous, urban areas were proving easier to get than any other *small schools* data; these schools had an added burden due to overcrowding and the greater diversity of educational needs; inner city disadvantaged districts also have chronically greater difficulties in retaining top teachers; hence, funders and policy makers appeared to be more willing to try solutions seen as riskier or more expensive—like small schools.

In a breakthrough study of enormous reach, starting in 2006 and continuing on till the present, the New York City “Small High Schools of Choice (SSC)” program began developing a “smaller is better” possibility. The New York program was serving a population almost exclusively comprised of low-income (83-84% on free-lunch program), students of color (over 90 % Hispanic or black) in underperforming schools (Bloom, et al, 2010). The program was able to document across the board positives, including increasing: the percentage of ninth-graders eligible for on-time promotion by 10.8 percentage points, the percentage of black males on track to graduate by the end of ninth grade by 8.5 percentage points, and the percentage of high school graduates by 6.8 percentage points.

New York’s “SSCs” were intended to serve 108 students per grade, for a capacity of approximately 430 students throughout grades 9-12 but, as previously mentioned, they allowed “small” to grow to 550, but late in the study righted the course back to around 100 per grade. New York added exciting clarity to the concept of “smaller school” (though not *small school*) that is, what could happen when you dramatically lower enrollment caps. The study’s significant “size” finding was that, within their local region, control group counterparts averaged 506 more students in their ninth-grade class than did schools attended by target SSC enrollees, points. Using this school size comparison, they concluded, “turning around our lowest-performing schools and thereby improving the academic prospects of this country’s most disadvantaged children is a realistic goal” (Bloom, et al., 2010).

We were aware of schools that have been downsized to no gain, but New York made us suspect that there were “thresholds.” Shrinking a large school just a little seemed to make costs rise just a little, but redesigning it with numbers like 500 less students seemed to pass such a threshold, and so “smaller” could have profound impacts. This raised another question for future study: if a school is not a *small school*, how much smaller must it be than a comparison school to get substantial results? (Naturally, we were well aware that other design features were also at work.)

We also held on to the theory that even if smaller is better, smaller is not the

same as truly *small*. For instance, we considered the case of Torrey Pines High School, a large, suburban high school in San Diego County serving at least one of the nation's wealthiest zip codes. In the 1990s, the school added a large wing that brought its student body to over 3000. In the same district, a local "school of choice" was designed for a maximum of around 1300 students—hardly intimate. This school of choice was routinely being referred to as "a *small school*," not because it was intimate or non-comprehensive, but because it was so much more so than its much larger neighbor. Here was a case where one so was much smaller than another neighboring one that it was relatively small, and cultural differences were obvious to community members; yet, both schools were fairly comprehensive in their program offerings.

In addition to urban, underserved schools and suburban schools, a parallel track of "smaller school" experimentation was going on in rural areas, such as in Nebraska. There, 73 percent of students in high school districts with fewer than 70 students enrolled in post-secondary institutions compared to 64 percent of those in districts of 600 to 999 high school students. (Note, Nebraska's large school numbers are actually much smaller than the above suburban and urban "smaller" schools.) According to the Nebraska Alliance for Rural Education, those who attended high schools with fewer than 100 students were significantly more likely to graduate and go on to college. Counter to popular conceptions about large school curricular choices, even the small, 100-200 student schools Nebraska found were able to offer core curricula comparable to schools of more than 1,200. Moreover, their *small schools* tended to be more flexible and allow teachers to exercise greater control over curricula. As a result, they were seeing innovative teaching methods, such as team teaching, integrated curriculum and multi-age groupings, all of which have been shown to improve student achievement (Mitchell, 2000).

We tried to account for the fact that many useful studies relied upon comparisons (relative numbers) and not absolute numbers, and we were able to identify several studies of "smaller schools" that had at least 500 students less than their

comparison schools. For example, additional to the Nebraska, San Diego, and New York City studies, above, the breakthrough 2003-2004 “National Survey of Schools and Staffing” study had found across the board benefits of public schools up to 750 students when compared to public schools of over 1200 (Nathan and Thao, 2007).

Consideration of relative sizes seemed unavoidable, and a potential minefield of endless digression we wish to bring to subsequent researchers’ attention; hence it is included herein. Alas, despite the lure of studying relative size and the undeniable need for more such research, we eventually realized the need to re-train our focus primarily on absolute school sizes, not relative school size, at least for the time being.

SETTING THE NUMBERS (MERGING SMALL SCHOOLS AND SOCIAL SCIENCES RESEARCH)

Emerging social networking theory seemed to be paralleling *small schools* findings: organizations or “sub-divisions” of around 200 or less were safe, supportive, and effective. Still, it was hard to find more research on schools of around 200 or less. We found a handful of salient cases. In 2009 and again in 2010, two of the top five schools in the nation selected by U.S. News and World Report had up to around 200 students. Given the exceedingly slim odds, this could hardly have been an accident: The number of students at schools of around 200 or less nationwide was barely a blip on the screen. Statistically, how could two of such schools have ranked in the top five (and several more in the top twenty)?

The average college prep school (private high school) in the nation enrolled 298 students and the average among National Association of Independent Schools (NAIS) members was 378 (National Association of Independent Schools). The approximate 25% percentile (midway between smallest and average) of prep school enrollments coincided with the anthropological/sociological research produced by Dunbar, Bernard and Killworth, and others; hence, we were inclined to cap *small schools* at between 200 and 230.

We feared that public school policy makers, dealing with huge populations of greater academic and social diversity than independent preparatory schools, as well as

more diverse outcomes, would deem those numbers to be irrelevant. We were seeing consistent benefits in urban public schools at enrollments of 300-350, though, and likewise noting benefits dropping off at enrollments of 400 and up. Furthermore, thick research had supported the idea that, “There is less to be gained from enrollments in excess of 400 pupils than is commonly believed to be the case” (Lee & Loeb, 2002). To encompass this range, we created a designation for “small public” encompassing schools less than 400. This cap, or “less than 400,” was supported by at least six research studies (Husbands and Beese, 2001; Jimerson, 2006; Lee & Loeb, 2000; Nathan and Thao, 2007; National Center for Education Statistics, 1998; Wasley & Lear, 2001).

We also recognized less than 400 as the critical cap for successful “schools within schools,” or “smaller learning communities (SLCs).” This was a critical finding, as so many of the fledgling SLCs, as discussed above, were creating “communities” of 400 to 600 which we believed would function as comprehensive schools, lacking in the intimacy and safety of true *small schools*. We do not believe SLCs of 500 will succeed in offering the powerful *small schools* benefits cited above.

We now had our top enrollment parameters set, recognizing it was just a start, and understanding that other researchers might argue for a *small schools* cap of 400 or even 500 in the public setting-- those numbers we categorized as “medium” sized schools.

We developed and now offer up the above specific numbers as long overdue suggestions. The numbers of course cannot claim absolute precision; but they are powerful, the research is reasonably thick in support of them, and the numbers are in equal parts needed and seriously warranting further research and consensus building towards accepted, common parameters for *small school* size. Hence, our third major finding:

FINDING 3: Parameters for Secondary School Enrolment Size, Working Definitions

SECONDARY SCHOOL SIZE

3 - 230

Small college preparatory-style school

3 - < 400	Small public secondary school
231 - 399	Medium college preparatory-style school
400 – 500/750	Medium public secondary school
400+	Large college preparatory school
750+	Large public secondary school

These were breakthrough findings, as our research led us to *small school* enrolment parameters that were lower than we believed many might expect or hope for. We had key evidence that 500 was certainly not a *small school*, and probably not 400 either. The import of this will reveal itself below. The middle categories in the list, “medium,” are critical since this is the area commonly misrepresented—this category contains the “holes” almost all the inconclusive research has fallen into, such as smaller schools that are not true *small schools* or *smaller learning communities* which may not feature true *small schools* attributes. As shown in the chart, our numbers reflect considerable clarity in the parameters of *small schools* (since this was our focus), and less such clarity for *medium* and *large* schools.

As noted, some will find the above numbers to be smaller than expected. We understand the political and economic implications of suggesting smaller numbers than may be comfortable or expeditious for many, and have been motivated strictly by a desire to find some absolute numbers--a huge, significant gap in all previous research. Of particular concern is that several large cities have “smaller learning community” program developments in the development pipeline or newly underway and, should they exceed our numbers, we must reluctantly predict that false blame will ultimately fall on “inefficient” *small schools*.

On the other hand, those who look carefully into the research on high school size research will find a tour de force in profound benefits to students, so long as the researcher does not consider any schools, SLCs or SWASs of over 399 as *small schools* (or over 230 for preparatory schools). We believe this simple guidance can have a profound impact on a critical and costly area for our nation’s future.

STRAW MEN

In our lives and work, we attempt to abide by the principle: do not abandon a great idea for lack of good implementation. The *small schools* movement has suffered its worst setbacks for want of such a guiding principle.

By the turn of the millennium, the pressure to re-create a sense of community in schools had been exerting steady pressure on policy makers for nearly two decades, and the response was a series of efforts to create “house systems,” “smaller learning communities,” and uniquely organized charter schools. This reform was aimed primarily at high schools of over 1000 students in urban districts, notably including New York City, Philadelphia, Chicago, Atlanta, Boston, San Diego, Los Angeles, Oakland and Nashville, some of them under contract with the federal government (Oxley & Kassissieh, 2008). Additionally, there were whole-state initiatives to scale down schools in Arizona, New Jersey, New Hampshire, South Carolina and elsewhere. Like research on schools, research on SLCs and SWASs was conducted in an almost complete absence of any size parameters and, it seemed, *small* really meant *smaller*. By the time 2011 came around, these initiatives were losing steam rapidly. What happened?

There is a fallacy well known to researchers--the straw man: We research theoretical things that are non-existent or inauthentic, such as a 500-student ersatz *small school*. We then apply our conclusions to real schools and real communities, creating a false attribution to non-straw, real *small schools*. Those schools that we falsely labeled *small*, of course, have not performed like real *small schools* and the false attributions cause us to discredit *small schools* in general, damaging the movement as a whole.

Our research was an effort to create working definitions, which would eliminate the straw men and enable research on “real” *small schools* to progress and refine. In the 1990s and into the new millennium, huge non-profit foundations such as the Joyce Foundation, The Pew Charitable Trust, and the Bill and Melinda Gates Foundation undertook programs of funding schools with caps of 500 students, under the auspices of

the advancement of *small schools*. One high profile study funded by Gates claimed to be the first nationwide survey to weigh the experiences of parents, teachers, and students regarding the performance of large and small high schools (<http://www.publicagenda.org/press-releases/small-high-schools-get-thumbs-parents>). The Gates Initiative epitomized much of what was going wrong in *small schools* research, and a review of this episode is enlightening.

The well publicized Gates study started out with the goal of creating schools which would not exceed 100 students per grade (Evan et al., 2006), and Gates funded think tank, the Washington School Research Center, noted small school gains in schools of “less than 400 students” (Fouts, Abbor & Baker, 2002). As the Gates study progressed, their own researchers pushed the upward cap to 600 students (grades 9 – 12) in defining *small schools*, further confusing the term, blurring its attributes, and weakening the distinctive advantages of the model. The Foundation justified the larger number by adding in some other, compatible design features such as collaboration time and more “personalization;” but, as they say down south, if you put lipstick on a pig it’s still a pig. 600 students is not a *small school*, and the Gates team provided no reason to believe it was. The study’s five-year length would have been long enough to start seeing pre-post results, but the Gates team was making substantial program modifications the whole time, not the least of which was the mid-stream imposition of “No Child Left Behind”--a real monkey wrench thrown in. Mid-stream, the Gates research team “deemphasized promotion of a particular school size, structure, or instructional philosophy in favor of an increased focus on outcomes for high-need students (Bill and Melinda Gates Foundation, 2011, p. 5 – 6).”

The major damage to the *small schools* movement this caused is not a responsibility of the Gates team; it is merely the associations that were made between their research and the *small schools* movement, of which the Gates initiative was never a committed part. The Gates research team, to excuse their lack of findings, eventually assembled “Prior research [that] suggested that such a change in mind-set and practice takes at least 3 to 5 years to implement deeply. ” In the end, after five years of flux, the

Gates research never benefitted from true pre-post analysis on any given school model, much less a *small schools* model. The Gates funding certainly helped many students, but \$350 million produced no *small schools* recommendations or understandings that we could find anywhere in their research; given the schools of 500 and 600 they worked with, we could have predicted they would not have found an economy of scale or clear *small schools* gains. However valuable their work and results (particularly in high poverty areas), the Gates Foundation studied medium and large sized schools, as well as an diverse handful of schools within schools which they lumped together under the general rubric of “small learning communities” (SLCs).

Fortunately, the above research flaws were avoided in the Gates-funded New York City Schools study. With a highly comparable target group as the previous Gates study (low-income African-American and Hispanic/Latino students), the New York SSC *small schools* study found dramatic changes in all quality measures, including substantially improved graduation rates, college readiness, and better attendance. New York Schools Chancellor Dennis M. Walcott noted, “This study shows conclusively that our new small high schools changed thousands of lives in New York City, across every race, gender and ethnicity — not only helping them graduate, but graduate ready for college” (Bloom, et al., 2010; Hu, 2012).

Notwithstanding the trials of discovering reliable research design, *small schools* findings, one Gates finding in particular confirms one of our own *small schools* research findings, and may have been embraced by the New York SSC project: “starting good new schools is easier than profoundly improving existing high schools” (Bloom, et al., 2010).

TWO NEWER VARIATIONS: SMALLER LEARNING COMMUNITIES AND SCHOOLS WITHIN SCHOOLS

Our nation’s 100-year path of school consolidations has changed the course of American civilization in ways too great to fathom. Research has confirmed that large schools do not provide a remedy for a segmented society: in fact, they tend to grow

into microcosms of such conditions, and they apparently create the conditions for future segmentation and inequity through the hard social stratifications they produce.

So it was, in the continued interest of more personalized, less bureaucratic schools that in the mid-1980s and on into the new millennium, policy makers continued in their efforts to create *smaller learning communities*. Large-scale schools, they again supposed, could offer financial benefits such as in maintaining large buildings rather than separate campuses for *small schools*; they could offer school-wide sports teams and extra-curricular activities. These aspects of consolidation were, of course, now age old. But what if we could somehow divide the large school into sub-tribes? Would that be affordable?

The 2001 United States federal budget contained grant money for districts willing to create smaller schools through the Smaller Learning Communities Program (SLCs). In the Oakland SLC program, for instance, students were randomly grouped into houses of about 150 students who were assigned to a consistent group of teachers. Additionally, each teacher was assigned approximately 20 students with whom they were expected to have ongoing, personal relationships. Chicago developed a similar program, allowing for groups of up to 200 students; Albany allowed for groups of 100 to 150 in the ninth grade, West Orange, New Jersey had ninth grade “houses” of 100. Baldwin Park, California, allowed for “houses” of up to 500 (<http://www2.ed.gov/programs/slcp/index.html>). These obviously well-intentioned districts devised the smaller units in an almost total absence of research on organizational behaviors in various group sizes.

It is hard to draw conclusions from such diverse numbers other than to suppose that educators widely and intuitively believe that there will be benefits in creating “tribe” size groups. Such programs have been shown to increase graduation rates, although outcomes are far less certain in SLCs than they are in true *small schools* (<http://www2.ed.gov/programs/slcp/index.html>). This is an area badly in need of research.

In experimentation related to that on SLCs, “schools within a school (SWAS)” also

have offered a promising school design prospect. Here again, vague concepts of optimal group sizes hurt early, new millennial efforts to break down the schools: “Large high schools have frequently been broken up into *schools within a school* serving 200-500 students...but characteristics built into the design of most breakup efforts make it impossible for the SWAS to develop a small-school culture” (Gregory, 2001).

By the end of the first decade of the new millennium, *School within a school* evaluators eventually began to question these small learning units--even calling them “paper exercises”--in cases where school districts abruptly split a single big school into smaller ones within a single building. Dividing a school into fragments does not create a *small school*, unless intimate and distinctly led sub-groups or “tribes” have been created. Even in large, high profile studies, implementation has been poor (Gregory, 2001). Again with these straw men, the problem lay not with the *small schools* concept being tested, but only with the poorly implemented, reductionist model that was being employed.

Nevertheless, SWAS design is in early stages and offers a promising vision for large, comprehensive schools that wish to retain their large campus’s and team, but create safer, more intimate learning spaces. If we learn the true impacts of various designs, how to predict the effects of various school sizes, how to do the split-up properly, *schools within schools* could be places of superior learning and safety.

CONCLUSIONS

Small schools proponents have of course been correct in asserting that smallness is not the only component for success of the *small school* model, but the hang up this assertion creates is clear: numbers do make a difference. We can now see “true north.” A high performance organizational environment is not liable to be bigger than around 230 people, and a connected learning community not much bigger than 350. Maybe we’ll settle on numbers a bit bigger, maybe a bit smaller, but this is a start based upon analyses of hundreds of schools.

Billions of dollars have been spent in creating medium-sized schools with

attractive design features and labeling them as *small*. While this may have helped many students and districts, it has been unreliable and it ultimately made *small school* an incomprehensible term. Our recommendations are beyond simple: beyond a given enrolment threshold a school (or a *smaller learning community* of any kind) is no longer *small*--even difficulties in finding such a threshold must not obscure that fact.

Small schools and SLCs adhering to our size parameters can expect to see gains in safety, student academic performance, feelings of connectedness among stakeholders—this includes higher performance and connectedness of students from formerly marginalized or underserved groups. These findings—these benefits--have never been refuted in studies of true *small schools*¹. As many SLCs are in the design phase in several cities across the nation as of this writing, we urge policy makers to test our 399 student cap at least in some limited fashion and compare five-year data on safety, happiness, and academic performance (including graduation rates).

By 2010, learning from The Gates and Joyce Foundations (and others) we had gained a new perspective: work which was primarily done on *medium* sized schools, often mislabeled as *small*, helped expose a giant, unresolved hole in understanding of school design. Quite possibly, the medium sized school offers neither a sensible economy of scale nor a safe and connected environment. For this reason, despite concluding one of education's largest, most historical grant initiatives, by 2011, the Gates Foundation initiatives were already shifting focus from school size to teacher effectiveness—work that, perhaps ironically, could lead to larger schools and classes in the name of “standards, consistent across the states; improved data systems” (“Bill and Melinda Gates Foundation”, 2011) as well as a position on social justice and equality that might be tantamount to, “mediocrity for all.” A turn towards larger classes would be a pity for more than just *small schools* research. Big funders who turn back to massive, large-institution change efforts will lead us to social engineering and wide-scale school consolidation that is not student-centered, and not community led.

¹ In our companion white papers, we provide additional, extensive detail to the benefits and cost viability of true *small schools*.

Research on the comparative costs of small and large schooling, although outside the scope of this paper, is ongoing, promising, and exciting. Small schools will be affordable (Grauer, 2012a; Lawrence, 2002; Levin & Rouse, 2012).

We know that local communities are the source of authentic change derived from the hearts of real people and not institutions; we know that real leadership and lasting change is created from the self-determination of connected people--teachers and site-officials, community members--and not from the imposition of large bureaucracies and systems.

Luckily, we can all observe some changes in small communities in America, even if it is just a few more charter schools. There is early evidence that the U.S. population is tiring of the over-institutionalization they perceive in our nation. Small cities across the country are re-zoning so people can walk to work. "Farm to table" produce is moving into communities and even schools. Many elder care facilities are in re-design so they can be more interactive in their communities. Schools do not need to be at the edge of town—their near forgotten zoning heritage is "residential."

Small communities based upon well-balanced life and authentic, personal relationships are possible in each school, even in overcrowded districts. Research on and experimentation with SWAS continues and some are sized to show real results if they can sustain for the requisite few years—like watching a child grow, we will see developments after a while. A new "special interest" can be the real kids each of us interacts with tomorrow, no matter how high up our offices, no matter how big our campuses.

In school, all that is sacred is the relationship between teacher and student: the relationship between the generations. True *small schools* focus on this, and they make all key decisions to facilitate this: "Will this decision help us know students better or not?" True *small schools* shall continue with the flexibility to create learning environments and physical spaces that our students need in order to develop caring relationships with adults who personally challenge them to succeed, one at a time.

The United States, in its communities, has a long and rich history in trying various educational methods to enrich the student and teaching experience; over the past century, this has included powerful forces for system institutionalization and presumed economies of scale. We need not let this be the prevailing trend. If we can find a source of hope that our schools can become greater places of compassion, safety and humanness—if we can find a way to restore to communities the means to determine their own solutions and to create relationships that make sense for them—this, for us, is the most sensible way, even to deal with the impossible.

End/

Inquiries about this article are welcome at: info@smallschoolscoalition.com or on the Coalition of Small Preparatory Schools website, <http://smallschoolscoalition.com/>

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