

Small Schools, Big Changes:
School size, student achievement, and parent choice in
Wake County

An analysis of data regarding the development of
small and differentiated schools in Wake County.

Presented by the Issues Committee of Wake Education Partnership

*We know that small schools are good for our students, our teachers and our families.
They are safe places where teachers can be creative, and they help us on all the core issues important to us:
They improve attendance, discipline and help raise student achievement.”*

- Gary Chico, Board president
Business and Professional People for the Public Interest

The Issue: Schools and school districts are becoming larger and larger. Using theories of a “comprehensive high school” and economies of scale, the number of schools shrank 69% between 1940 and 1990, while the population of the United States grew 70%.ⁱ As public schools continue to adapt to changing expectations of parents and communities, the creation of smaller schools capable of strengthening ties between children and adults is becoming a topic of great interest. *BusinessWeek* magazine recently recognized school size as one of seven strategies to “fix” America’s schools.ⁱⁱ *Education Week* has also spotlighted school size in recent issues.ⁱⁱⁱ Large urban school districts such as New York and Chicago have been experimenting successfully for years with small, differentiated schools, and a growing body of research shows that small schools yield improved student learning as well as a more safe and inviting climate. National polls of charter school parents show that issues of size and choice are key factors in parent’s decision-making. Locally, Wake charter schools and the public school system have developed models of smaller schools with promising results.

Questions remain, however, about how small schools could be incorporated into a large school district, the feasibility of making such a move given the costs involved, and the implications for parent choice that a small school district would demand. Below are key findings, local information and possible challenges for a system of small schools in Wake County.

Small Schools Defined: There are two primary ways to establish a small school. Schools can be built as small, freestanding units, or they can be created as schools within schools (SWS) in larger buildings and paired with existing conventional schools or other small schools. A study of small schools in Chicago found that a majority of small schools were in this second category – they shared space with host schools or other small schools.^{iv}

SWS are more prominent in education – through career academies in secondary schools and “houses” at the middle school level. Much small school research covers both freestanding and SWS small schools, but emerging research points to the freestanding school as the structure with which small schooling achieves its best results.^v

Research has shown that size is the key variable in the success of small schools, rather than the populations they draw or the funding they receive.^{vi} Although researchers have shown that it is the number of students that correlates with academic success, the optimum size of a small school is a source of debate. Opinions vary on the size of a “small” school, but the numbers range from around 350 students for an elementary school^{vii} and about 600 students in a secondary school.^{viii}

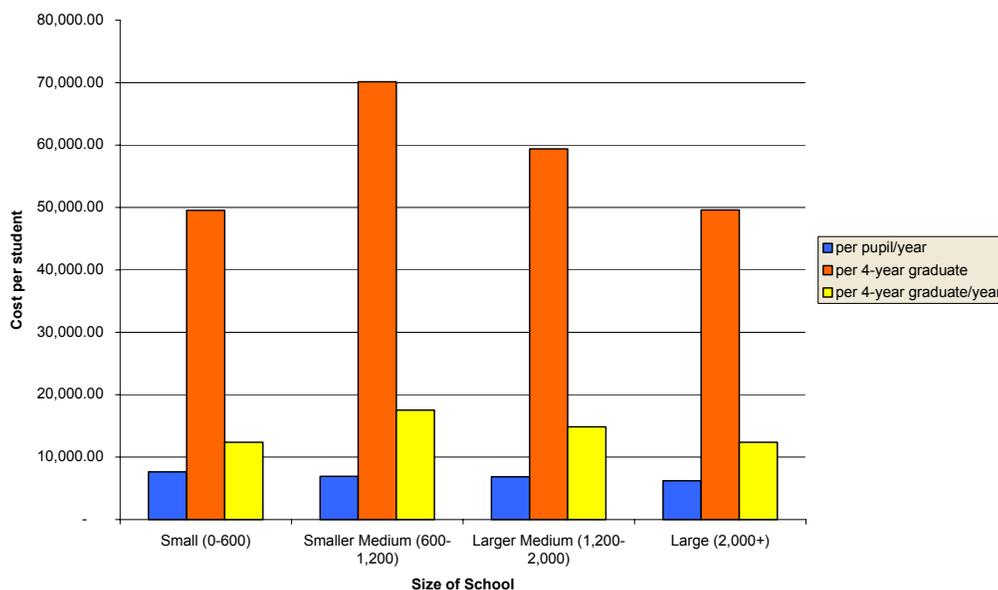
Summary of the Research: Research since 1964 has shown the behavioral benefits of smaller schools: better attendance, greater participation in extra-curricular activities and fewer attendance problems.^{ix} Dr. James Garbarino -- noted expert on school safety -- forcefully drew

the connection between smaller schools and decreased school violence in his March 8 presentation to Wake County citizens and educators.^x Current research still shows smaller school environments to have lower dropout rates and better student involvement in extracurricular activities.^{xi}

More recent research has examined the relationship between school size and student academic performance. For years, researchers have agreed that there is little academic support for large, comprehensive high schools.^{xii} Kathleen Cotton’s 1996 review of small schools research – one of the most comprehensive literature reviews on the issue to date – found that “student achievement in small schools is at least equal – and often superior – to student achievement in large schools.” Cotton did find differences in performance between students from wealthier and poorer backgrounds – wealthier students seem to be less impacted and, in some cases, more satisfied with large comprehensive high schools than poorer students. The findings in Cotton’s review remained when other factors such as student and teacher attributes and location were held constant. Other large-scale studies of current research also show that students learn more and better in small schools.^{xiii}

One reason for the development of larger and more comprehensive schools in the first place involved the cost savings derived from economies of scale. Recent research, however, has begun to examine the costs and benefits of smaller schools. A 1998 study of small schools in New York City found that, while small schools cost more per pupil, the higher graduation and lower dropout rates of these schools resulted in a lower cost per graduate.^{xiv} Table One below uses data from this report to compare cost per pupil, cost per graduate and cost per graduate per year in academic high schools in New York City. This same report notes a U-shaped curve in per-pupil expenditures and school size – noting that schools over 2,000 students begin operating at a “diseconomy” of scale.^{xv}

Table One -- Cost comparison between pupils and graduates of academic high schools in New York City



One recent study of small schools in the Chicago area has provided an overview of the challenges and rewards found in small school creation. *Small Schools, Great Strides* examined small public schools in Chicago and came to the following conclusions:

- Students in Chicago’s small schools had higher attendance and lower dropout rates than in comparable comprehensive schools;
- Teachers in Chicago’s small schools, although no different in qualifications or training than their peers in larger schools, felt more effective and more satisfied in small school environments; and,
- Administrators in Chicago’s small schools were able to be more flexible and student-focused in creating school policies and procedures.^{xvi}

Implications: Small schools research holds significant policy implications for school systems and administrators. Researchers are now examining the costs and outcomes of integrating smaller schools into school districts.

As the Chicago school study found, small schools are more fragile institutions – dependent on key staff and leadership to weather “foundational” years.^{xvii} Attention must be paid to recruiting and retaining these key school leaders. In addition to stability, small schools need time to develop their organizational focus and build parent relationships. Providing these “soft resources” are not always the strength of large school districts that rely on a comprehensive model.

One obvious implication for districts moving towards small schools involves construction and reorganization. While researchers have stated that it is possible to restructure schools with existing resources, no one has yet examined the resource implications for undertaking the construction or reorganization of schools for smaller capacity enrollments.^{xviii}

Another key form of district support involves an appreciation of the necessary differentiation that small schools bring to a district. School districts must embrace the concept that, as one small school advocate noted, “Almost anything learned well is better than many things learned poorly.”^{xix} The trade off in moving to a smaller schools model is that schools lose their comprehensive nature – all programs cannot be available at all schools. Organizing centrally in a manner to support the divergent focuses of many smaller schools presents a management challenge at the district level.

Support of differentiated schools depends on a policy of parent choice on the district level. Since school models will not be able to provide all services to all students, mechanisms must be in place to ensure that parents can learn about and choose schools that meet their individual student’s needs. Research of charter schools has shown that these two issues – school size and parent choice – ride together in surveys of parent satisfaction.^{xx} Districts considering a move towards a small-school model or the inclusion of small schools must develop structures that allow parent choice and decision-making while maintaining a commitment to prevent racial or socio-economic balkanization that would ultimately limit parent choice.

Additionally, school districts that have experimented with smaller schools such as New York and Chicago are large urban centers that have long ago lost substantial numbers of middle class parents to suburban districts or other educational options. Moving towards small schools may paradoxically be easier in systems where hopes for integration and diversity have already been lost, and more difficult in integrated, countywide systems more commonly found in the South.

Local small school initiatives have implications on the state level as well. Experts have implied that explicit goals and values may be ideal for the development of small schools, that may have myriad ways of imparting the same curriculum.^{xxi} Current accountability models should be examined to ensure they are compatible with the differentiation present in systems that incorporate smaller schools. As always, districts and states will have to work on issues simultaneously to resolve any policy barriers to the development of effective small schools.^{xxii}

Local Context: Locally, Wake County has worked on some issues of school size and differentiation. Wake County is home to a number of charter schools, many of which work on a small model and seem to achieve substantial results on North Carolina End-of-Grade tests.

Additionally, different elements of the community have made school size a part of their positions and opinions regarding public education. At the 2001 Wake Education Summit, addressing school and class size was one of the top five priorities identified by participants for Wake County Public Schools to address in the future.^{xxiii} An independent review of performance and spending in Wake County schools recommended an examination of school size for continued performance gains in Wake public schools.^{xxiv} In addition, the Citizens Advisory Committee on School Facilities and Construction – a group made up of supporters and opponents of a failed 1999 school bond referendum charged with developing an acceptable school construction plan – recommended smaller schools in their report to the community following defeat of the 1999 school bond proposal, stating:

that the capacity models for new schools - the total number of students to be accommodated - be reduced to the lowest number feasible. Current models of 650 students per elementary, 1100 per middle, and 1600 per high create schools that are too large and bureaucratic to promote effective, efficient, flexible learning environments.^{xxv}

Wake County's Partnership Elementary, Kingswood Elementary, and Centennial Middle schools have experimented with a small school model and begun to feed the challenges and promises of this model back to the system as lessons learned. A public evaluation of the findings from this work would add an important dimension to the small-school conversation in Wake County.

Local Challenges: Challenges and tradeoffs found within the implementation of small schools for Wake County include:

- *Facilities:* Wake County would be challenged to create a system within which small schools could develop. Although no researcher or policy analyst has recommended a complete small-school system, Tables Two and Three examine the costs associated with constructing a system of small schools to demonstrate the enormity of the problem.

Table Two – Small school implications for Wake elementary schools^{xxvi}

Wake Elementary Schools, currently	78
Wake Elementary Students, October 2000	48,649
Wake Elementary Schools at 350 students per school	139
Net increase in elementary schools in a small school district	61

Table Three – Small school implications for Wake high schools^{xxvii}

Wake High Schools, currently	17
Wake High Students, October 2000	25,782
Wake High Schools at 600 students per school	43
Net increase in high schools	26

By adapting existing plans for Wake County schools, school administrators in the Facilities Department estimate the cost of constructing lower-capacity schools to range from \$5.7 million for an elementary school to \$17.5 million for a high school. These figures include all materials and supplies needed to open a school for occupancy by students, but exclude the purchase price of the school site. Table Four compares estimated small school construction costs to costs for constructing current Wake Schools:

Table Four – Cost of current Wake school models to small school cost estimates^{xxviii}

	Small school model		Current school model	
	Student Capacity	Cost	Student Capacity	Cost
Elementary	350	\$5,769,781	700	\$10,016,905
Middle	700	\$15,514,057	1000	\$20,192,541
High	700	\$17,451,624	1600	\$36,413,679

- *Diversity:* Wake’s magnet program has worked on a model of school differentiation and parent choice that has achieved national recognition. The magnet model, however, continues to struggle with issues of diversity and still clings to a comprehensive model that limits the full potential of differentiation and innovation at these sites. A district that serves as a national model for successfully using Magnet Schools to achieve student diversity clearly places great value on retaining these gains and the strength of the Magnet program itself. How might small and differentiated models of schooling also retain gains made in student diversity? Can planning for small and innovative school designs include goals for achieving diverse student populations as well as for academic achievement? At what cost to implement?
- *Culture:* As public servants, administrators and the Wake County Board of Education have tended to view the fair treatment of all schools and students as providing the same core components at each of Wake’s 122 public schools. Despite the success of the Magnet program described above, some have argued that even the Magnet programs are essentially the same beneath the programmatic sizzle offered to attract students. How might school administrators and policy makers successfully establish models of smaller or differentiated schools that will allow for true diversity of mission for schools in Wake County? What steps are necessary to foster a climate where educational innovation – especially school design – is a fundamental part of public education in Wake County?
- *Resources:* The ability of Wake County Public Schools to respond to sustained gains in student enrollment while at the same time allocating time and money to embark on differentiated models of schooling may present the greatest challenge of all. How can time and funding be set aside to advance small and differentiated models of schooling?
- *Growth:* Explosive growth in Wake County is another issue that challenges movement to a small school model. With 101,000 students currently and growth of 3,000 new students a year, Wake citizens are hard pressed to fund the construction of large schools to meet the demands of an exploding student population. These issues make the policy of smaller schools more political than in other school districts. As the recent controversy over moving Stough and Carroll schools to a new schedule indicate, parental trust and ownership will be important factors for the school system to address as they move forward with new initiatives and policies that support small schools.
- *Consensus and Leadership:* The Office of Magnet Schools in the Wake County Public Schools is the only identifiable locus for school design within the administration. By all appearances, the Magnet Office continues to use thematic approaches to education that are not substantively different from the traditional comprehensive public school. Also, members of the school board wrestle with the future of the single Wake public school that seems to provide a smaller learning environment and something other than a comprehensive program. Therefore, where will leadership for school differentiation emerge within the administration? How will consensus be reached among Wake educational policy makers?

Conclusions: Among many school reformers, school size is either a “precondition” or a “key ingredient” of successful school reform.^{xxix} Research suggests that the effects of smaller schools are good for students. A parent choice district including small, differentiated schools could be good for all Wake County parents as well. As research indicates, a great deal of work must be done at the system level to support even a few schools’ transition to smaller student bodies and differentiated curricula. Systemic steps to enable the development of smaller schools represents the spirit of “top-down support for bottom-up reform” that has been the tenor of reform efforts for the last decade or so. Community leadership and vision for change will be key ingredients for the movement of Wake County into a system that either contains small schools or is made exclusively of them.

Appendix One: Sample Wake County Small Schools

Exploris Middle

Under the leadership of Ann Bryan, Exploris has become a model small charter school and an example of the type of focus small schools can use to provide state-mandated curriculum. With 180 students, Exploris teachers use the focus of “global citizenship” to create activities and curriculum that encourage deeper understanding of cultural connections. Exploris Middle School’s composite End-of-Grade test scores were at 95% last school year for grades 6-8.

Partnership Elementary

Founded in 1998, Partnership Elementary was conceived as a charter public school – designed to be small and competitive – that would work within Wake County Public Schools budget. With an enrollment of 304 for the 2000-2001 school year, Partnership has been awarded the Governor’s Entrepreneurial Award in 1999. In the 1999-2000 school year, Partnership increased its percentage of students at or above grade level from 72% to 91%. The school, located in the old Raleigh Public Schools Central Office, is run by two “Senior Partners” and relies on teacher teaming and required parent involvement to support student achievement. In the Wake County Public Schools 1999 parent satisfaction survey, Partnership consistently scored higher than the average for all elementary schools on questions dealing with parent involvement, basic curriculum, student behavior and environment. Partnership’s current goal is to increase its free and reduced lunch population from 12% to 23% by 2003. Currently, 28% of Partnership’s student body is minority.

Kingswood Elementary

Located in Cary and home to 303 students, Kingswood Elementary has achieved outstanding gains in student achievement earning honors as one of the top 25 Most Improved Schools in North Carolina for 1999 and 2000. Kingswood’s student population is 20% free and reduced lunch, 23% African American and 47% non-white minority. In 2000, the composite performance score on End-of-Grade tests was 95.3% -- meaning that Kingswood has attained Wake County’s goal 2003. Under the leadership of Sue Sisson -- the 2000 Wake County principal of the year -- staff at Kingswood volunteered to convert teaching assistant salaries to teacher salaries, thus reducing class size.

Wiley Elementary

Wiley Elementary, recently awarded the Blue Ribbon Award from the United States Department of Education, is home to 410 students – 37% of whom receive free or reduced lunch. Wiley’s performance composite is 86.2% -- up from 77% in 1998. Principal Cecelia Rawlins cites school size as a key factor in Wiley’s success, stating, “I really believe our small size and stable population allows us to know every child’s strengths and weaknesses.”

Centennial Campus Middle

Located on North Carolina State University’s Centennial Campus, Centennial Campus Middle School opened in 2000 with 462 students, 28% of whom received free and reduced lunch. Centennial Middle is intended to serve as a model for school-university and business collaboration and partnership. At capacity, Centennial will have 600 students, divided into academic “houses” to facilitate student/teacher relationships.

Appendix Two: School Enrollment in Wake County Public Schools, as of October, 2000

Elementary School	Enrollment		
Adams	690	Olds	248
Apex	1018	Partnership	250
Aversboro	464	Penny Road	545
Baileywick	578	Pleasant Union	661
Baucom	780	Poe	367
Brassfield	419	Powell	534
Brentwood	506	Rand Road	555
Briarcliff	573	Reedy Creek	740
Brooks	417	Rolesville	603
Bugg	451	Root	448
Carver	624	Salem	575
Cary	763	Smith	608
Combs	509	Stough	591
Conn	504	Swift Creek	554
Creech Road	496	Timber Drive	816
Davis Drive	1104	Underwood	360
Dillard Drive	683	Vance	564
Douglas	444	Vandora Springs	557
Durant Road	998	Wake Forest	826
Farmington Woods	690	Wakefield	554
Fox Road	772	Washington	605
Fuller	453	Weatherstone	676
Fuquay-Varina	736	Wendell	552
Green Hope	461	West Lake	1001
Green	762	Wilburn	961
Hilburn Drive	589	Wildwood	671
Hodge Road	696	Wiley	407
Holly Springs	860	Willow Springs	730
Hunter	688	Yates Mill	336
Jeffreys Grove	632	York	641
Jones Dairy	905	Zebulon	756
Joyner	550		
Kingswood	301	Total students	48649
Knightdale	705		
Lacy	541	Total schools	78
Leesville	491		
Leadmine Road	627	Average	623.7
Lincoln Heights	552		
Lockhart	702		
Lynn Road	597		
Middle Creek	453		
Millbrook	552		
Morrisville	944		
North Ridge	610		
Northwoods	669		
Oak Grove	959		
Olive Chapel	839		

School Schools – Big Changes

Middle Schools	Enrollment	High Schools	Enrollment
Apex	1039	Apex	1973
Carnage	1012	Athens Drive	1777
Carroll	897	Longview	57
Centennial Campus	461	Broughton	1676
Daniels	954	Cary	1736
Davis Drive	1248	East Wake	1741
Dillard Drive	1036	Enloe	2369
Durant Road	1452	Fuquay-Varina	1537
East Cary	894	Garner	2003
East Garner	687	Green Hope	1354
East Millbrook	1002	Leesville	1992
East Wake	968	Millbrook	1854
Fuquay-Varina	1118	Mary E. Phillips	123
Leesville	1071	Sanderson	1570
Ligon	870	Southeast Raleigh	1976
Lufkin Road	576	Wake Forest	1175
Martin Middle	1243	Wakefield	869
Mount Vernon	57		
North Garner	838	Total students	25782
Wake Forest	1046		
Wakefield	410	Total schools	17
West Cary	981		
West Lake	1370	Average	1516.6
West Millbrook	989		
Zebulon	945		
Total students	23164		
Total Schools	25		
Average	926.6		

Appendix Three: Additional Small School Resources

- 1) The National Dissemination Center for Career and Technical Education has written policy briefs on Career Academies as a successful school-within-a-school model.
<http://www.nccte.com/>
- 2) The Small Schools Workshop keeps the latest research and policy information updated on their website at <http://www.smallschoolsworkshop.org/>.
- 3) Many rural communities have been homes to small schools for years. The National Center for Education Statistics keeps a clearinghouse on rural education issues at <http://nces.ed.gov/surveys/ruraled/ruralresources.asp>.
- 4) The Appalachian Education Laboratory hosts the ERIC Clearinghouse on Rural Education and Small Schools at <http://www.ael.org/eric/index.htm>.
- 5) The Chicago Small Schools Coalition works to support the development of small schools in the Chicago metropolitan area. They are online at <http://www.smallschools.org/>.

- ⁱ Cotton, Kathleen. “School Size, School Climate and Student Performance.” Available: <http://www.nwrel.org/scpd/sirs/10/c020.html>, 1996.
- ⁱⁱ “How to Fix America’s Schools.” *BusinessWeek*. March 19, 2001. Available: http://www.businessweek.com/magazine/content/01_12/b3724001.htm.
- ⁱⁱⁱ Gewertz, Catherine. “The Breakup: Suburbs Try Smaller High Schools.” *Education Week*. May 2, 2001. Available: http://www.edweek.org/ew/ew_printstory.cfm?slug=33hs.h20.
- ^{iv} Bank Street College of Education. *Small Schools, Great Strides: A Study of New Small Schools in Chicago*. New York: Bank Street College of Education, 2000.
- ^v Ready, D., Lee, V., and LoGerfo, L. “Social and Academic Stratification in High Schools Divided into Schools-Within-Schools.” Paper presented at the 2000 Annual Meeting of the American Educational Researchers Association. New Orleans, LA.
- ^{vi} Cotton.
- ^{vii} Fine, Michelle and Sommerville, Jane eds. *Small Schools, Big Imaginations: A Creative Look at Urban Public Schools*. Chicago: Cross City Campaign for Urban School Reform, 1998.
- ^{viii} Maeroff, Gene. *Breaking Ranks: Changing An American Institution*. Washington: National Association of Secondary School Principals, 1996.
- ^{ix} Raywid, Mary Anne. “Current Literature on Small Schools.” ERIC Clearinghouse on Rural Education and Small Schools. Available <http://www.ael.org/eric/digests/edorc988.htm>, January, 1999. See also Barker, Roger and Paul Gump. *Big School, Small School: High School Size and Student Behavior*, 1964. Cited in Cotton.
- ^x Garbarino, Dr. James. March 8, 2001. Presentation for Wake County Public Schools.
- ^{xi} In addition to Cotton, see also Lee, Valerie and David Burkam. “Dropping Out of High School: The Role of School Organization and Structure.” Paper presented at *Dropouts in America: How Severe is the Problem?* conference at Harvard Graduate School of Education, January 13, 2001. Available: <http://www.law.harvard.edu/groups/civilrights/publications/dropout/lee.html>.
- ^{xii} Cotton
- ^{xiii} Ready, cited in Cotton.
- ^{xiv} Stiefel, L., Iatarola, P., Fruchtner, N., and Berne, R. *The effects of size of student body on school costs and performance in New York City high schools*. New York: Institute for Education and Social Policy, New York University, 1998.
- ^{xv} *Ibid.*
- ^{xvi} *Small Schools*.
- ^{xvii} *Small Schools*.
- ^{xviii} See, for example, Odden, Alan and Busch, Carolyn. *Financing Schools for High Performance: Strategies for Improving the Use of Educational Resources*. San Francisco: Jossey-Bass Publishers, 1998.
- ^{xix} Nehring, James. “A Nation of Boutiques.” *Education Week*, August 2, 2000. Available: http://www.edweek.com/ew/ew_printstory.cfm?slug=43nehring.h19.
- ^{xx} Peterson, Paul, et al. “An Evaluation of the Cleveland Voucher Program After Two years.” Program on Education Policy and Governance, Harvard University, June 1999, 1.
- ^{xxi} Darling-Hammond, Linda. “Restructuring Schools for High Performance.” In Susan Fuhrman and Jennifer O’Day, eds. *Rewards and Reform: Creating Educational Incentives That Work*. San Francisco: Jossey-Bass, 1996, 144-192.
- ^{xxii} *Small Schools*.
- ^{xxiii} Summit results available at www.wakeeducates.org.
- ^{xxiv} School Finance Advisory Committee. *Quality Matters 2001: A Wake Community Review of the Public’s Schools*. Available: www.wakeeducates.org.
- ^{xxv} Report of the Citizens Advisory Committee for School Facilities and Construction. Available: http://www.wcpss.net/citizens_advisory/final_report.html.
- ^{xxvi} Calculations based on numbers above and student counts from Wake County Public Schools, October 2000.
- ^{xxvii} *Ibid*
- ^{xxviii} Estimates from the Facilities Division, Wake Country Public Schools.
- ^{xxix} See, for example, Darling-Hammond.