

A Broader, **BOLDER** Approach to Education

Background papers



CONTEXTUAL FACTORS



the connection between social class and student achievement as measured by standardized test scores of basic skills is well known. In dispute is whether the differences, on average, in the achievement levels of disadvantaged and privileged students are a function of (1) the quality of schooling they receive; (2) background characteristics (family, community, social, and economic) that influence achievement after controlling for instructional quality; or (3) school quality and background characteristics acting in concert.

To shed light on these issues, researchers have focused on a number of specific social class differences, including childrearing and literacy practices; health characteristics; housing stability; economic security; neighborhood crime; and peer influences.

For example, a recent calculation estimates that several distinct child health differences along with differences in maternal health (maternal depression, in particular) explain approximately 25% of the black-white achievement gap.¹ Another, using data from Texas, estimates that differences in residential mobility explain approximately 14% of the black-white gap and 8% of the gap between children from low-income families and others.² Estimates for other social class differences would likely explain more of the achievement gap.

None of the many background characteristics influencing achievement operate separately. They interact with each other as well as with children's unique genetic endowments. For any characteristic or group of characteristics predicting low achievement, some children possessing them will achieve at higher levels than those characteristics alone might predict.

Taken together, however, these effects suggest a cumulative disadvantage for lower-class children that depresses average performance, even with high-quality instruction. In other words, on average, with equally high-quality instruction, children from disadvantaged families will achieve at lower levels than those from families without these disadvantages.

Research thus suggests that strategies to improve lower-class children's performance will be more effective if they combine school improvement efforts with policies to narrow social and economic inequalities.

—Richard Rothstein

Endnotes

1. Currie (2005).
2. Hanushek, Kain, and Rivkin (2004).

References

- Barton, Paul. 2003. *Parsing the Achievement Gap. Baselines for Tracking Progress*, October. Princeton, N.J.: Policy Information Center, Educational Testing Service.
- Barton, Paul, and Richard J. Coley. 2007. *The Family: America's Smallest School*, September. Princeton, N.J.: Policy Information Center, Educational Testing Service.
- Brooks-Gunn, Jeanne, and Greg J. Duncan. 1997. "The Effects of Poverty on Children." *The Future of Children*. 7(2): 55-71.
- Brooks-Gunn, Jeanne, et al. 2003. "The Black-White Test Score Gap in Young Children: Contributions of Test and Family Characteristics." *Applied Developmental Science*. 7(4): 239-52.
- Carnoy, Martin, Rebecca Jacobsen, Lawrence Mishel, and Richard Rothstein. 2005. *The Charter School Dust-Up. Examining the Evidence on Enrollment and Achievement*. Washington, D.C.: Economic Policy Institute
- Coleman, James S., et al. 1966. *Equality of Educational Opportunity*. Washington, D.C.: U.S. Department of Health, Education, and Welfare, Government Printing Office
- Comer, James P. 1988. "Educating Poor Minority Children." *Scientific American*. 259(5): 24-30.
- Currie, Janet. 2005. "Health Disparities and Gaps in School Readiness." *The Future of Children*. 15(1, Spring): 117-38.
- DeNavas-Walt, Carmen, Bernadette D. Proctor, and Robert J. Mills. 2004. *Income, Poverty, and Health Insurance Coverage in the United States: 2003*. U.S. Census Bureau, Current Population Reports, P60-226. Washington, D.C.: U.S. Government Printing Office.
- Grissmer, David, and Elizabeth Eiseman. Forthcoming. "Can Gaps in the Quality of Early Environments and Non-Cognitive Skills Help Explain Persisting Black-White Achievement Gaps?" In Katherine Magnuson and Jane Waldfogel (eds). *Steady Gains and Stalled Progress: Inequality and the Black-White Test Score Gap*. New York: Russell Sage Foundation.
- Hanushek, Eric A., John F. Kain, and Steven G. Rivkin. 2004. "Disruption Versus Tiebout Improvement: The Costs and Benefits of Switching Schools." *Journal of Public Economics*. 88(9-10, August): 1721-46.
- Hart, Betty and Todd R. Risley. 1995. *Meaningful Differences in the Everyday Experience of Young American Children*. Baltimore: Paul H. Brooks Publishers.
- Hoffereth, Sandra L., and John F. Sandberg. 2001. "How American Children Spend Their Time." *Journal of Marriage and the Family*. Vol. 63 (May): 295-308.
- Jacob, Brian, and Lars Lefgren. 2007. "What Do Parents Value in Education? An Empirical Investigation of Parents' Revealed Preferences for Teachers." *The Quarterly Journal of Economics* 122 (4), November: 1603-37
- Jencks, Christopher and Meredith Phillips (eds.). 1998. *The Black-White Test Score Gap*. Washington, D.C.: Brookings Institution.
- Jencks, Christopher, et al. 1972. *Inequality. A Reassessment of the Effect of Family and Schooling in America*. New York: Basic Books, Inc.
- Lareau, Annette. 1989. *Home Advantage: Social Class and Parental Involvement in Elementary Education*. London: Falmer Press.
- Lareau, Annette. 2003. *Unequal Childhoods*. Berkeley, CA: University of California Press.
- Lemke, Mariann, et al. 2002. *Outcomes of Learning. Results From the 2000 Program for International Student Assessment of 15-Year-Olds in Reading, Mathematics, and Science Literacy*. NCES 2002-115. Washington, D.C.: U.S. Department of Education, Office of Educational Research and Improvement.
- Maynard, Rebecca A., and Richard J. Murnane. 1979. "The Effects of a Negative Income Tax on School Performance: Results of an Experiment." *The Journal of Human Resources*. 14(4): 463-76.
- Mishel, Lawrence, Jared Bernstein, and Sylvia Allegretto. 2007. *The State of Working America 2006 / 2007*. An Economic Policy Institute book. Ithaca, N.Y.: Cornell University Press.
- National Center for Chronic Disease Prevention and Health Promotion. 2001. *Women and Smoking. A Report of the Surgeon General*. Washington, D.C.: Centers for Disease Control and Prevention, U.S. Department of Health and Human Services.
- National Center for Chronic Disease Prevention and Health Promotion. 2002. *Pediatric Nutrition Surveillance 2001 Report*. Washington, D.C.: Centers for Disease Control and Prevention, U.S. Department of Health and Human Services.

National Center for Education Statistics. 2007. *Digest of Education Statistics 2006*. NCES 2007-017. Washington, D.C.: U.S. Department of Education, Office of Educational Research and Improvement.

National Center for Education Statistics. National Assessment of Educational Progress, NAEP Data Explorer. <http://nces.ed.gov/nationsreportcard/nde/> Accessed on April 17, 2008.

Orfield, Antonia. 2007. *Eyes for Learning*. Lanham, Md.: Rowman & Littlefield.

Rothstein, Richard. 2004. *Class and Schools: Using Social, Economic and Educational Reform to Close the Black-White Achievement Gap*. New York: Teachers College Press.

Rothstein, Richard, Martin Carnoy and Luis Benveniste. 1999. *Can Public Schools Learn From Private Schools? Case Studies in the Public and Private Nonprofit Sectors*. Washington, D.C.: Economic Policy Institute.

Sanbonmatsu, Lisa, Jeffrey R. Kling, Greg J. Duncan, Jeanne Brooks-Gunn. 2006. "Neighborhoods and Academic Achievement: Results from the Moving to Opportunity Experiment." National Bureau of Economic Research Working Paper No. 11909, January. Orfield, Antonia. 2007. *Eyes for Learning*. Lanham, Md.: Rowman & Littlefield.

Rothstein, Richard. 2004. *Class and Schools: Using Social, Economic and Educational Reform to Close the Black-White Achievement Gap*. New York: Teachers College Press.

Rothstein, Richard, Martin Carnoy, and Luis Benveniste. 1999. *Can Public Schools Learn From Private Schools? Case Studies in the Public and Private Nonprofit Sectors*. Washington, D.C.: Economic Policy Institute.

U.S. General Accounting Office. 1994. *Elementary School Children: Many Change Schools Frequently, Harming Their Education*. GAO/HEHS-94-45. Washington, D.C.: U.S. General Accounting Office.

SCHOOL IMPROVEMENT EFFORTS



there has been substantial research done on the potential for smaller class sizes, improvements in teacher quality, and school-based accountability to reduce achievement gaps.

Smaller class size

The evidence on class size comes in two forms, empirical studies of large data sets and a well-known randomized field trial, called the Tennessee STAR (Student/Teacher Achievement Ratio) project. The latter provides the most compelling evidence. In a series of oft-cited reviews of the empirical studies that explore how school inputs affect student achievement, the economist Eric Hanushek concluded that, taken together, these empirical studies provide no evidence of a systematic relationship between class size and student achievement (see, for example, Hanushek (1997)). Hanushek's approach and conclusions, however, have been criticized on methodological ground by Hedges, Laine, and Greenwald (1994) and Alan Krueger (2002). Based on a re-analysis by Krueger (2002) of the same empirical studies reviewed in Hanushek's work, Krueger concludes that these studies show that, after other factors that affect student achievement are appropriately controlled for, smaller class sizes do indeed appear to generate higher student achievement.

The most compelling support for small class sizes emerges from the well-known study of class size in the early grades in Tennessee called project STAR (Student/Teacher Achievement Ratio). This project, financed by the Tennessee Legislature, ran for four years in the mid-1980s and is highly touted because it was based on an experiment in which students were randomly assigned to classrooms of different sizes. Kindergarten, first, second, and third graders in classes of 13-17 students were compared to classes of 21-25 students. The initial study concluded that smaller classes generated gains in achievement scores, especially in kindergarten, first grade, and for minority children (see Finn and Achilles (1990) or the summary by the Harvard Statistician Frederick Mosteller in 1995). A careful follow-up study by Alan Krueger (1999) explicitly addresses some of the flaws in the implementation of the STAR experiment and confirms the positive findings. The largest increase in test scores emerges for students the first year they attend a small class. After that year, additional time spent in a small class has a positive, but weaker association with test scores.

Most researchers agree that small classes can be beneficial in the early grades, and that the benefits persist through time, particularly for minority students (Nye, Hedges, and Konstantopoulos (2004)). For policy purposes, however, three caveats are worth noting. First, reducing class size is expensive because it requires additional teachers and classrooms. Hence, positive effects on student achievement alone do not make it a cost-effective strategy. Second, one must be careful in extrapolating the results from the Tennessee STAR experiment to a statewide reduction in class sizes. California's policy of reducing class sizes

throughout the state in 1996 highlighted the fact that smaller class sizes will generate higher achievement only if there are sufficient teachers to maintain teacher quality in tandem with the expansion of classrooms (Jepsen and Rivkin (2002)). Finally, Murnane and Levy (1996) provide evidence from a small sample of schools in Austin, Texas, that smaller class sizes alone are no guarantee of achievement gains.

Teacher quality and professional development

Even more important than class size for student achievement is teacher quality. Extensive research supports the conclusion that good teachers are crucial for student achievement. Some of these studies measure teacher quality by looking directly at their average effects on student test scores and then show that students who are exposed to low-quality teachers for several years in a row are at a significant disadvantage relative to students with high-quality teachers. Using Texas data on elementary school students, Hanushek, Kain, and Rivkin (2005) show that a one standard deviation increase in teacher quality at the grade level will increase student test scores by roughly 10% of a standard deviation. Using data on high schoolers in Chicago, Aaronson, Barrow, and Sander (2003) show that a one standard deviation improvement in teacher quality in ninth-grade math is associated with a gain equal to 10-20% of the average math gain test score.

Other studies document that teacher credentials, such as their years of experience (especially at the beginning of their teaching careers), their licensure test scores, and the type of certification they have are predictive of student achievement (see, for example, Clotfelter, Ladd, and Vigdor (2007a and b) and Goldhaber (2008) for an overview). At the high school level, the research shows that teachers who are certified in the fields they teach generate higher learning than those who are not, especially in the fields of math and science (Monk 1994 and Clotfelter, Ladd, and Vigdor 2007b). Evidence from North Carolina consistently shows that Nationally Board Certified teachers are more effective than those who are not Board Certified (Goldhaber and Anthony 2007; Clotfelter, Ladd, and Vigdor 2007a and b), but research in Florida is more mixed (Harris and Sass 2007).

At the same time, research clearly documents that teachers, as defined by their credentials, are unevenly distributed across schools with the schools serving the most disadvan-

tagged students typically having the teachers with the weakest credentials (Boyd et al. 2008; Clotfelter, Ladd, and Vigdor 2007a). This pattern reflects the incentives within the teacher labor market and will require that policy makers take explicit actions if they wish to offset it. Research on strategies to make it easier for low-performing schools to attract and retain high-quality teachers is still in its infancy, but some evidence is emerging that financial bonuses in North Carolina increased retention in low-performing middle and high schools in that state (Clotfelter, Glennie, Ladd, and Vigdor forthcoming). Additional evidence from New York City documents the potential for new pathways into teaching such as the New York Teaching Fellows Program to reduce the number of un-certified teachers and to improve student achievement (Boyd, Grossman, Lankford, Loeb, and Wyckoff 2006).

In regards to professional development for teachers, research suggests that such strategies have not been productive in terms of improving teaching and learning. Evidence suggests, however, that professional development can be productive provided it is longer and deeper than the standard one-shot workshop; it focuses on instruction that is subject specific; and it is aligned with the instructional goals and curriculum materials in schools. (For an overview of the relevant research, see Hill 2007).

Accountability and better use of data for decision-making within schools

The experience with high stakes accountability for schools indicates that educators respond to test based accountability by changing their behavior, although not always in ways intended by policy makers, and that such accountability generates small gains in learning, particularly in math (see Figlio and Ladd (2008) for an overview of the behavioral and achievement effects of school-based accountability). Jacob (2005) documents the positive effects of Chicago's accountability system on both reading and math scores.

The research on how accountability affects racial achievement gaps is mixed. Carnoy and Loeb (2002) indicate that state-based accountability has reduced the racial achievement gap, as measured by proficiency at the basic level on NAEP but other studies have found more mixed results (e.g., Hanushek and Raymond 2005). More research is needed on the best ways to use data on low-stakes tests within schools to promote better outcomes.

—Helen F. Ladd

References

- Aaronson D., L. Barrow and W. Sander. 2003. "Teachers and Student Achievement in the Chicago Public High Schools." Federal Reserve Bank of Chicago, Working Paper Series: WP-02-28.
- Boyd, D., P. Grossman, H. Lankford, S. Loeb, and J. Wyckoff. 2006. "How changes in entry requirements alter the teacher workforce and affect student achievement." *Education Finance and Policy*. 1(2): 176-216.
- Boyd, D., H. Lankford, and J. Wyckoff. 2008. "Increasing the Effectiveness of Teachers in Low-Performing Schools." In H. F. Ladd and E.B. Fiske (eds.) *Handbook of Research in Education Finance and Policy*. New York and London: Routledge, pp. 535-50.
- Carnoy, M. and S. Loeb. 2002. "Does external accountability affect student outcomes? A cross-state analysis." *Educational Evaluation and Policy Analysis*. 24(4): 305-331.
- Clotfelter, Charles T., Helen F. Ladd and Jacob L. Vigdor. 2006. "Teacher-Student Matching and the Assessment of Teacher Effectiveness." *Journal of Human Resources*. vol. 41, number 4, Fall, pp. 778-820.
- Clotfelter, Charles T., Helen F. Ladd and Jacob L. Vigdor. 2007a. "Teacher credentials and student achievement: Longitudinal analysis with student fixed effects." *Economics of Education Review*. 26: 673-82.
- Clotfelter, Charles T., Helen F. Ladd and Jacob L. Vigdor. 2007b. Teacher credentials and student achievement in high school: A cross-subject analysis with student fixed effects. Available as an NBER working paper and as a CALDER working paper (Caldercenter.org).
- Clotfelter, Charles, Elizabeth Glennie, Helen F. Ladd, and Jacob L. Vigdor. Forthcoming. "Would Higher Salaries Keep Teachers in High Poverty Schools? Evidence from a Policy Intervention in North Carolina." *Journal of Public Economics*.
- Figlio, David and Helen F. Ladd. 2008 "School Accountability and Student Achievement." In Helen F. Ladd and Edward B. Fiske (eds.), *Handbook of Research in Education Finance and Policy*. Routledge Press. pp. 166-82.
- Finn, J. D and C.M. Achilles. 1990. "Answers and Questions about Class Size: A Statewide Experiment." *American Educational Research Journal*. Vol. 27, 557-77.
- Goldhaber, Dan. 2008. "Teachers Matter, but Effective Teacher Quality Policies Are Elusive." In Helen F. Ladd and Edward B. Fiske (eds) *Handbook of Research in Education Finance and Policy*. Routledge. pp. 146-65.
- Hanushek, E.A. (1997). "Assessing the Effects of School Resources on Student Performance: An Update." *Educational Evaluation and Policy Analysis*. 19(2): 141-64.
- Hanushek, E and M. Raymond. 2005. "Does School Accountability Lead to Improved School Performance?" *Journal of Policy Analysis and Management*. Vol. 24, no. 2: 297-329
- Hanushek E.A., J.A. Kain, and S.G. Rivkin. 2005. "Teachers, Schools, and Academic Achievement." *Econometrica*. Vol. 73 (March): 417-58.
- Harris, D.N and Sass, T.R. (2007) "The Effects of NBPTS-Certified Teachers on Student Achievement." CALDER working paper (caldercenter.org)
- Hedges, L., R. Laine and R. Greenwald. 1994. "An Exchange, Part I: Does Money Matter? A Meta-Analysis of Studies of the Effects of Differential School Inputs on Student Outcomes." *Educational Researcher*. 23(3): 5-14.
- Hill, Heather C. 2007. "Learning in the Teaching Workforce." *Future of Children*, vol. 17, no. 1 (Spring), pp. 11-127.
- Jacob, B. 2005. Accountability, incentives and behavior." *Journal of Public Economics*. Vol. 89, 5-6 (June), pp. 761-796.
- Jepson, C. and Rivkin, S. 2002. "What is the Tradeoff Between Smaller Classes and Teacher Quality?" Working Paper 9205. National Bureau of Economic Research.
- Krueger, Alan. 1999. "Experimental Estimates of Education Production Functions." *The Quarterly Journal of Economics*. Vol. 114 (2): 497-532.
- Krueger, Alan. 2002. "Understanding the Magnitude and Effect of Class Size on Student Achievement." In L. Mishel and R. Rothstein, eds., *The Class Size Debate*. Chapter 1. Washington, D.C.: Economic Policy Institute.
- Lankford, H. Loeb, S. and Wyckoff, J. 2002. "Teacher Sorting and the Plight of Urban Schools: A Descriptive Analysis." *Educational Evaluation and Policy Analysis*, 24(1), 38-62.
- Murnane, Richard J. and Frank Levy. 1996. "Evidence from Fifteen Schools in Austin, Texas" in Gary Burtless, ed. *Does Money Matter?* Brookings. pp. 93-96.

Ladd, H.F., T.R. Sass and D.N. Harris. 2007. "The Impact of National Board Certified Teachers on Student Achievement in Florida and North Carolina: A Summary of the Evidence." Prepared for the National Academies Committee on the Evaluation of the Impact of Teacher Certification by NBPTS. Available at www.caldercenter.org.

Monk, D. H. 1994. "Subject Area Preparation of Secondary Mathematics and Science Teachers and Student Achievement." *Economics of Education Review*. Vol. 13(2): 125-45.

Mosteller, Frederick. 1995 "The Tennessee Study of Class Size in the Early School Grades." *The Future of Children*. Vol. 5, no. 2. Critical Issues for Children and youths, pp. 113-27.

Nye, Barbara, Larry V. Hedges, and Spyros Konstantopoulos. 2004 "Do Minorities Experience Longer Lasting Benefits from Small Classes?" *The Journal of Educational Research*. 98(2): 4-100.

BENEFITS OF QUALITY PRE-SCHOOL AND HEALTH INTERVENTIONS



the purpose of this note is to briefly summarize research on the benefits of pre-school programs and the role they might play in closing achievement gaps. In doing so, we distinguish programs serving children of different age groups, in particular, programs serving children under the age of three and those serving children age three to five. Children have different developmental needs at these stages of early childhood, and thus the effect of a program is likely to differ depending on the child's age.

As indicated in the report, the overall message from the research suggests positive cognitive and social impacts on the lives of low-income children who participated in quality education programs prior to entering formal schooling (see recent reviews by Blau and Currie 2006; Waldfogel 2006). Moreover, to the extent that disadvantaged children benefit more from programs than more advantaged children, the provision of such programs can play an important role in closing achievement gaps (see, for example, Magnuson and Waldfogel 2005; Waldfogel and Lahaie 2007).

Children under age three

The quality of early education programs for infants and toddlers varies widely in quality in the U.S. (Blau 2001; Shonkoff and Phillips 2000; Smolensky and Gootman 2003; Vandell and Wolfe 2002). Some programs for infants and toddlers are of very poor quality, whether measured by child-to-staff ratio, teacher qualifications or direct observation. But, at the other end of the continuum, some infant and toddler care is of very high quality.

The best-quality center care has been shown to yield important benefits for children, with particularly large benefits for the most disadvantaged children. When center-based care is of high quality, it enhances infants' and toddlers' cognitive development, and it does so without causing behavioral or other problems (Barnett 1995; Currie 2001; Karoly et al. 1998; Karoly, Kilburn, and Cannon 2005; Waldfogel 2002, 2006).

Children age three to five

For older preschoolers, the evidence from randomized experiments of model programs, as well as studies of more typical pre-school programs, indicates that children age 3 to 5 benefit from attending quality pre-school education programs.

Randomized experiments of model programs have shown that high-quality pre-school programs produce substantial cognitive gains, particularly for disadvantaged children (Barnett 1995; Currie 2001; Karoly et al. 1998; Karoly, Kilburn, and Cannon 2005; Waldfogel 2002, 2006); reduce later problems, such as crime (Carneiro and Heckman 2003); and enhance the future productivity of the workforce (Heckman and Masterov 2004).

Head Start, a national program serving disadvantaged children, has positive effects on cognitive performance and behavior, as shown in a recent randomized study (Puma et al. 2005).

Even more typical school- or center-based care programs produce cognitive gains (see review in Meyers et al. 2004; see also NICHD Early Child Care Research Network and Duncan 2003). Pre-K programs have been found to be particularly effective at raising cognitive scores (see, e.g., evidence from Oklahoma in Gormley and Gayer 2005; Gormley et

al. 2005; Magnuson et al. 2004; Wong, Cook, Barnett, and Jung 2008). Although attending pre-school has sometimes been found to be associated with more behavior problems, this is not the case for children attending pre-kindergarten and kindergarten in the same school (Magnuson, Ruhm, and Waldfogel 2007). Analyses of high-quality pre-kindergarten programs suggest that the savings from lower expenditures on K-12 education, child welfare, and the criminal justice system—in addition to benefits from less crime, higher earnings, and increased tax revenues—exceed the program costs (Lynch 2007).

—*Sharon Lynn Kagan and Jane Waldfogel*

References

- Barnett, W. Steven. 1995. "Long-Term Effects of Early Childhood Programs on Cognitive and School Outcomes." *The Future of Children*. 5(3): 25-50.
- Blau, David. 2001. "The Child Care Problem." New York: Russell Sage.
- Blau, David & Janet Currie. 2006. "Pre-School, Day Care, and After-School Care: Who's Minding the Kids?" In *Handbook on the Economics of Education*, edited by Eric Hanushek and Finis Welch. Amsterdam: North Holland.
- Carneiro, Pedro & James J. Heckman. 2003. "Human Capital Policy." In Benjamin W. Friedman (ed) *Inequality in America: What Role for Human Capital Policies?* Cambridge, Mass.: MIT Press.
- Currie, Janet. 2001. "Early Childhood Intervention Programs: What Do We Know?" *Journal of Economic Perspectives*. 15: 213-38.
- Gormley, William & Ted Gayer. 2005. "Promoting School Readiness in Oklahoma: An Evaluation of Tulsa's Pre-K Program." *Journal of Human Resources*. 40: 533-558.
- Gormley, William, Ted Gayer, Deborah Phillips, & Brittany Dawson. 2005. "The Effects of Universal Pre-K on Cognitive Development." *Developmental Psychology*. 41(6): 872-884.
- Heckman, James J. & Dimitriy V. Masterov. 2004. "The Productivity Argument for Investing in Young Children." Working paper 5. Washington, D.C.: Investing in Kids Working Group, Committee for Economic Development.
- Karoly, Lynn, Peter Greenwood, Susan Everingham, Jill Hoube, Rebecca Kilburn, Peter Rydell, Matthew Sanders, & James Chiesa. 1998. *Investing in Our Children: What We Know and Don't Know about the Costs and Benefits of Early Childhood Interventions*. Santa Monica: RAND.
- Karoly, Lynn, M. Rebecca Kilburn, & Jill S. Cannon. 2005. *Early Childhood Interventions: Proven Results, Future Promise*. Santa Monica: RAND.
- Lynch, Robert G. 2007. *Enriching Children, Enriching the Nation: Public Investment in High-quality Prekindergarten*. Washington, D.C.: Economic Policy Institute.
- Magnuson, Katherine, Marcia Meyers, Christopher Ruhm, & Jane Waldfogel. 2004. "Inequality in Preschool Education and School Readiness." *American Educational Research Journal*. 41(1): 115-157.
- Magnuson, Katherine, Christopher Ruhm, & Jane Waldfogel. 2007. "Does Prekindergarten Improve School Preparation and Performance?" *Economics of Education Review*. 26: 33-51.
- Magnuson, Katherine & Jane Waldfogel. (in press). "Pre-School Enrollment and Parents' Use of Physical Discipline." *Infant and Child Development*.
- Magnuson, Katherine & Jane Waldfogel. 2005. "Child Care, Early Education, and Racial/Ethnic Test Score Gaps at the Beginning of School." *The Future of Children*. 15(1): 169-96.
- Meyers, Marcia, Dan Rosenbaum, Christopher Ruhm, & Jane Waldfogel. 2004. "Inequality in Early Childhood Education and Care: What do We Know?" In Kathy Neckerman (ed). *Social Inequality*. New York: Russell Sage Foundation.
- NICHD Early Child Care Research Network & Greg Duncan. 2003. "Modeling the Impacts of Child Care Quality on Children's Preschool Cognitive Development." *Child Development*. 74: 1454-75.
- Puma, M., S. Bell, R. Cook, C. Heid, & M. Lopez. 2005. *Head Start Impact Study: First Year Findings*. Washington, D.C.: U.S. Department of Health and Human Services, Administration for Children and Families.
- Shonkoff, Jack P. & Deborah A. Phillips. (eds). 2000. *From Neurons to Neighborhoods: The Science of Early Childhood Development*. Washington, D.C.: National Academy Press.
- Smolensky, Eugene & Jennifer Gootman. (eds). 2003. *Working Families and Growing Kids: Caring for Children and Adolescents*. Washington, D.C.: National Academy Press.
- Vandell, Deborah & Barbara Wolfe. 2002. *Child Care Quality: Does It Matter and Does It Need to Be Improved?* Washington, D.C.: Office of the Assistant Secretary for Planning and Evaluation, U.S. Department of Health and Human Services.
- Waldfogel, Jane. 2002. "Child Care, Women's Employment, and Child Outcomes." *Journal of Population Economics*. 15: 527-48.
- Waldfogel, Jane. 2006. *What Children Need*. Cambridge & London: Harvard University Press.
- Waldfogel, Jane, & Claudia Lahaie. 2007. "The Role of Pre-school and After-School Policies in Improving the School Achievement of Children of Immigrants." In Jennifer E. Lansford, Kirby Deater-Deckard, and Marc H. Bornstein (eds). *Immigrant Families in Contemporary Society*. New York: Guilford Press.
- Wong, Vivian, Thomas Cook, Steven Barnett, & Kwanghee Jung. 2008. "An Effectiveness-Based Evaluation of Five State Pre-Kindergarten Programs." *Journal of Policy Analysis and Management*. 27(1): 122-54.

CHILD AND ADOLESCENT DEVELOPMENT



Children develop strong emotional bonds to competent caretakers (usually parents) that facilitate development. Many kinds of development, in social, psychological, emotional, moral, linguistic, and cognitive areas are critical to future academic learning. The attitudes, values, and behavior of the family and its social network strongly affect such development.

A child whose development meshes with the mainstream values encountered at school will be prepared to achieve at the level of his or her ability. The meshing of home and school fosters further development. When a child's social skills are considered appropriate by the teacher, they elicit positive reactions. A bond develops between the child and the teacher, who can now join in supporting the overall development of the child.

In 1968, we initiated the Yale Child Study Center pilot project in two New Haven schools that were so dysfunctional that it was impossible to carry out an effective instructional program. Our task was to create a strategy that would overcome the staff's resistance to change, instill in them a working understanding of child development, and enable them to improve relations with parents.

In our pilot schools, organization and management, curriculum, instruction and assessment, and parent and staff development were all based on what helped the students develop and learn. As a result, the two pilot schools gradually moved from the two lowest positions in achievement in New Haven to a position near the top.

There is strong resistance at all levels of the education enterprise to accepting child and adolescent development as a central focus in school reform. Our response has been to continue to "grow the evidence" until the outcomes cannot be ignored.

There are well over 3 million teachers and administrators in the United States. Enabling this workforce to help all students develop well would go a long way toward addressing many of our most vexing and costly academic, economic, and behavioral problems. If we are to reach this goal, we will need to add the missing focus on child and adolescent development to the education of all educators.

—James Comer

References

Comer, James P. 2005. "Child and Adolescent Development: The Critical Missing Focus in School Reform." *Phi Delta Kappan*. 86:10 (June 2005): 757-763.

Comer, James P. 1993. *School Power: Implications of an Intervention Project*. New York: The Free Press.

Comer, James P. and Christine Emmons. 2006. "The Research Program of the Yale Child Study Center School Development Program." *The Journal of Negro Education*. Volume 75 (Summer): 353-72.

U.S. Department of Labor: Bureau of Labor Statistics. 2006. Teachers—Preschool, Kindergarten, Elementary, Middle, and Secondary. <http://www.bls.gov/oco/ocos069.htm#empty>

IMMIGRANTS



Immigrants entering the educational system are extraordinarily diverse, and their experiences resist facile generalizations. Some are the children of highly educated professional parents who have received initial schooling in exemplary educational systems, while others arrive from educational systems that are in shambles (Zhou 2001). Some outperform their native-born peers, while many others demonstrate persistent school-related problems and high drop-out rates (Ruiz-de-Velasco, Fix, and Clewell 2000; Suárez-Orozco and Suárez-Orozco 2007).

The educational needs, experiences, and trajectories of immigrant-origin youth will thus vary substantially depending upon their specific constellation of resources and the contexts of reception they encounter (Rumbaut and Portes 2001; Suárez-Orozco, Suárez-Orozco, and Todorova 2008). Newly arrived students tend to display highly adaptive *attitudes and behaviors* to succeed in school, though the longer they are in the United States, the more negative they become in terms of both attitudes towards school and hopes about the future (Rumbaut and Portes 2001; Steinberg, Brown, and Dornbusch 1996; Suárez-Orozco and Suárez-Orozco 1995; Suárez-Orozco et al. 2008).

While immigrant-origin students' hopes for post-secondary school attainment are often quite high, their actual *access and attainment* are all too frequently frustrated and disconnected from their ambitions (Chapa 2002; Gándara, Orfield, and Horn 2005; Orfield and Lee 2006; Telles and Ortiz 2000; Ruiz-de-Velasco et al. 2000). This "achievement-attitude paradox" (Mickelson 1990) identified in other minority and under-served populations is exacerbated for a significant number of immigrant children by a number of particular challenges, including high rates of poverty (Hernández, Denton, and Macartney 2007; Ruiz-de-Velasco et al. 2000) with the concomitant academic challenges this presents (Sirin 2006).

Furthermore, the majority of newcomer immigrants face the challenge of mastering English while keeping up with their native-speaking peers on other academic subjects. Second-language learners also face a particular challenge in performing well on standardized tests designed for native-born speakers (Muñoz-Sandoval, Cummins, Alvarado, and Ruef 1998). For example, on a standardized test of academic proficiency, three-quarters of a sample of diverse immigrant students who had been in the United States an average of seven years scored a full standard deviation below the mean when compared to their native-speaking peers (Suárez-Orozco, Suárez-Orozco, and Todorova, 2008). These results mimic national testing results, such as the most recent NAEP data—the so-called Nations' Report Card—where English language learners performed abysmally in the reading sections of the test. This performance problem extends to optimal performance on high-stakes state tests like the TAAS in Texas, the Regents exam in New York, or the MCAS in Massachusetts.

These English language-testing challenges present particular hurdles in the current context of high-stakes tests. While verbal proficiency can be developed within a couple of years, the level of language skills necessary to be competitive with native-born

peers in the classroom takes, on average, five to seven years to acquire under optimal conditions (Collier 1992; Cummins 1991; Klesmer 1994). Immigrant students are highly motivated to learn English but find that the task of doing so on the naïve time-frame set by policy makers is often quite insurmountable, leading to increasingly high drop-out rates (Suárez-Orozco et al. 2008).

Approximately half of the immigrant origin students who enter our public school system arrive at secondary school age—middle or high school—and such students encounter particular challenges: they need to play catch-up academically, they need to acquire academic English language proficiency, and they simultaneously need to earn the credits required to graduate and pass high-stakes tests in a time-frame comparable to their native-born peers (Ruiz-de-Velasco, Fix, and Clewell 2000). Some of these students face addi-

tional obstacles of inadequate preparation, and they may have repeated grades or have had interrupted schooling, and are hence over-aged for their grade level. Not surprisingly, students arriving after age 13 are particularly at risk of being “overlooked and underserved,” and as a group are most likely to drop out (Ruiz-de-Velasco et al. 2000).

Immigrant-origin youth are the fastest growing sector of the student population in a variety of advanced post-industrial democracies. The preponderance of evidence suggest that they arrive sharing an optimism and hope in the future that should be cultivated—almost universally they recognize that schooling is the key to a better tomorrow. Tragically, however, over time many immigrant youth, especially those enrolling in impoverished and deeply segregated schools, face poor odds. The future of our country will in no small measure be tied to the constructive harnessing of the energies of these new young Americans.

—*Carola Suarez-Orozco*

References

- Chapa, Jorge. 2002. "Affirmative Action, X Percent Plans, and Latino Access to Higher Education in the Twenty-first Century." In *Latinos: Remaking America*, edited by Marcelo M. Suarez-Orozco and Mariela Paez. Berkeley, California: *University of California Press*. pp. 375-388.
- Collier, V. P. 1992. A synthesis of studies examining long-term language-minority student data on academic achievement. *Bilingual Research Journal*. 16(1 and 2): 187-212.
- Cummins, J. 1991. Language development and academic learning. In L. M. Malavé and G. Duquette (eds.), *Language, Culture, & Cognition* (pp. 161-175). Clevedon, England: Multilingual Matters.
- Fulgini, A. 1997. The Academic Achievement of Adolescents from Immigrant Families: The Roles of Family Background, Attitudes, and Behavior. *Child Development*. 69(2): 351-63.
- Gándara, P., Orfield, G. and Horn, C. 2005. The Access Crisis in California Higher Education: Harbinger of the Future. *Educational Policy*.
- Hernández, D., and Charney, E. (eds.). 1998. *From Generation to Generation: The Health and Well-Being of Children of Immigrant Families*. Washington D.C.: *National Academy Press*.
- Hernández, D., Denton, N. and Macartney. 2007. Family Circumstances of Children in Immigrant Families: Looking to the Future of America. In *Immigrant Families in Contemporary Society*. Lansford, J., Deater-Deckard, K. and Bornstein, M. (Editors). (New York: Guilford Press)
- Kao, G., and Tienda, M. 1995. Optimism and achievement: The educational performance of immigrant youth. *Social Science Quarterly*. 76(1), 1-19.
- Klesmer, H. 1994. Assessment and teacher perceptions of ESL student achievement. *English Quarterly*. 26(3): 8-11.
- Mickelson, R. A. 1990. The attitude-achievement paradox among Black adolescents. *Sociology of Education*. 63: 44-61.
- Muñoz-Sandoval, A. F., Cummins, J., Alvarado, C. G., and Ruef, M. L. 1998. *Bilingual Verbal Ability Tests: Comprehensive Manual*. Itasca, IL: Riverside Publishing.
- Orfield, G. and Lee. 2006. *Racial Transformation and the Changing Nature of Segregation*. Cambridge, Mass.: Civil Rights Project at Harvard University.
- Ruiz-de-Velasco, J., Fix, M., and Clewell, w. B. C. 2000. *Overlooked & Underserved: Immigrant Students in U.S. Secondary Schools*. Washington, D.C.: Urban Institute.
- Sirin, S. R. 2005. Socioeconomic status and academic achievement: A meta-analytic review of research 1990-2000. *Review of Educational Research*. 75(3): 417-53.
- Steinberg, S., Brown, B., and Dornbusch, S. 1996. *Beyond the Classroom*. New York: Simon & Schuster.
- Suárez-Orozco, C., and Suárez-Orozco, M. 1995. *Transformations: Immigration, Family Life, and Achievement Motivation among Latino Adolescents*. Stanford, Ca.: Stanford University Press.
- Suarez-Orozco, C., and Suarez-Orozco, M. 2001. *Children of Immigration*. Cambridge, Mass.: Harvard University Press.
- Suárez-Orozco, C. and Suárez-Orozco, M. 2007. Immigrants and Education. In Reed Ueda, Mary Waters, and Helen Marrow (Editors.) *The New Americans*. (Cambridge, Mass.: Harvard University Press.)
- Suárez-Orozco, C., Suárez-Orozco, and M., Todorova, I. 2008. Learning a New Land: Immigrant Students in American Society. Cambridge, Mass.: *Harvard University Press*
- Telles, E. E. and Ortiz, V. 2000. Generations of Exclusion: Mexican Americans, Assimilation and Race. 2007. *Russell Sage Foundation Press*. Zhou, M. Contemporary Society and the Dynamics of Race and Society. 2001. Carola
- Suárez-Orozco. 2001. *America Becoming: Racial Trends and Their Consequences*. Volume 1. Smelser, N.J., Wilson, J., and Mitchell, F. (eds.), pp. 201-42.