Education and Urban Society

http://eus.sagepub.com

Influence of Social and Community Capital on Student Achievement in a Large Urban School District

Erik Porfeli, Chuang Wang, Robert Audette, Ann McColl and Bob Algozzine

Education and Urban Society 2009; 42; 72 originally published online Sep 23, 2009;

DOI: 10.1177/0013124509343373

Education and Urban Society
42(1) 72–95

DOI: 10.1177/0013124509343373
http://eus.sagepub.com
SAGE

Influence of Social and Community Capital on Student Achievement in a Large Urban School District

Erik Porfeli, Chuang Wang, Robert Audette, Ann McColl, and Bob Algozzine

Abstract

Education professionals and policy makers have been working to "close the achievement gap" for some time. Differences in school performance for children from diverse and different family backgrounds have been at the core of past and present social, political, and education reform initiatives and practices. Previous research suggests that student characteristics and social capital (i.e., supportive aspects of social structures and people) predict academic achievement. In the present study, we examined the impact of school demographics, including distributions of exceptional children, and community capital (i.e., financial, human, and social capital in a family) on educational achievement as an opportunity to reframe the perspective on blame and explore the benefits of intentional diversity and integration on the educational advancement for all children. One result showed that community capital was a strong predictor of academic outcomes. We also found that the concentrations of students with academic gifts, behavior problems, or mental retardation and interesting interactions among these variables had differing impacts on academic achievement at the school level.

Keywords

achievement gap, community capital, opportunity to learn

University of North Carolina at Charlotte

Corresponding Author:
Bob Algozzine, BRIC/EDLD/COED, Charlotte, NC 28223
Email: rfalgozz@uncc.edu

Introduction

Spurred by *No Child Left Behind*, recent changes to state and federal legislation have called for greater attention to improving the educational outcomes for all children (National Center on Educational Outcomes, 2003; No Child Left Behind Act of 2001, 2002; Thurlow, Nelson, Teelucksingh, & Ysseldyke, 2000) and substantial professional, legal, and financial resources have been devoted to "closing the gap." Regardless, markers defining differences in achievement between and among children, adolescents, and young adults in America's schools remain remarkably rigid and intractable to variation (Barton, 2003; Braun, Wang, Jenkins, & Weinbaum, 2006; Education Trust, 2003a, 2003b, Ferguson, 2003; Ferguson & Metha, 2004; Greeson & Carter, 1976; Hirsh, 2005; Kozol, 1991, 2005; National Center for Education Statistics, 2005; Odden & Picus, 2000; Porfeli, McColl, Wang, Algozzine, & Audette, 2006; Rothstein, 2004; Sirin, 2005; U.S. Department of Education, 2001, 2006).

If, as some argue, the achievement gap springs from the structure of and practice *within* schools (cf. Center for Education Policy, 2007; Teale, Paciga, & Hoffman, 2007), then changing schools from within (e.g., curriculum, student motivation, and class size) will presumably mitigate the apparently intractable gaps in educational achievement. In this context, laws and legislative mandates are ruled methods to bring about change viewed as necessary and possible but, which is unrealized for projected and/or undefined reasons. We take a different view in this study and direct attention to community capital as a powerful predictor of school performance and the intractable gap in achievement across different groups of students in America's schools.

On Defining Community Capital

The concept of *community capital* is grounded in Coleman and his colleague's work (1966) which pointed to financial, human, and social capital in a family as powerful influences on schooling. The *financial capital* is the income of the family; it is important in providing a stable environment and the resources needed for learning. *Human capital* is the inherent value of people as reflected by their skills, capacities, and adaptive behaviors accumulated through education, work, and other life experience. Parents' education and occupational prestige is often a proxy for the human capital of a family because it has the potential to profoundly create and shape the learning environment for the child in the home. *Social capital* is essentially human capital realized through the dynamic exchange between people establishing and maintaining relationships. Social capital would evidence when a literate parent reads to a child or a college-educated parent affirms the importance of higher education by helping their child prepare their application materials or taking them on college tours. On a broader level, social capital reflects in parents' efforts to establish strong expectations and an adaptive moral grounding for children to help them move successfully through school.

Considering the financial, human, and social capital of families begs more complex models than those built on singular variables such as race or income. Contrast, for example, parents who are poor and uneducated but commit their time and energy to finding educational opportunities for their child against highly educated parents who devote all of their time and energy to their lucrative careers. In which family will a child benefit the most from the family's capital?

By relating measures of financial, human, and social capital, researchers have explored such questions. For example, research has demonstrated that social capital is a meaningful predictor of adolescents' ability to move out of or avoid disadvantageous circumstances (cf. Furstenberg & Hughes, 1995; Teachman, Paasch, & Carver, 1996). Even after controlling for parents' education and income, adolescents who experienced favorable social capital (at the family or community level) were more likely to graduate from high school, enroll in college, be working, be economically stable, avoid a teenage pregnancy, avoid criminal activity, and/or maintain functional mental health relative than their peers who were exposed to less social capital.

On Valuing Diversity in Schools

Educators, parents, policymakers, and citizens want and need to know the extent to which all students, including those with disabilities, are profiting from their educational programs (Bielinski & Ysseldyke, 2000; Lehr & Thurlow, 2003; National Center on Educational Outcomes, 2003; Thurlow & Wiley, 2004). The first reauthorization of the Individuals with Disabilities Education Act (IDEA 97) and its revision (Individuals with Disabilities Education Improvement Act of 2004 [Public Law 108-446]) included provisions requiring that states and districts to include students with disabilities in their assessment systems with accommodations where appropriate. In a spirit akin to the No Child Left behind Act of 2001 (2002), this legislation aimed to address gaps in how children with and presently without disabilities were included in the educational system. Since the data and results from large-scale assessments are readily available in electronic form, they represent important sources for markers of progress being made in efforts to close the achievement gap and leave no child behind (Bielinski & Ysseldyke, 2000). These data banks also provide a rich source of information for posing questions about the extent to which students with disabilities are achieving academically relative to their peers without disabilities, and if differences exist between these two groups, for helping to identify the essential causes and consequences of them.

Thus far, the picture painted with most of these data is concerning. For example, the achievement gap between students with disabilities and their peers without disabilities continues to grow at a steady rate across grades (Trimble, 1998) and is akin to the large achievement gap noted between wealthy and impoverished groups of children (Porfeli et al., 2006). Passing rates on standardized end of grade or course tests also suggest that students with disabilities are failing at disproportionate rates (Ysseldyke et al., 1998). The title of Thurlow et al.'s (2000) report, *Where's Waldo?: A Third Search for Students with Disabilities in State Assessment Reports* suggested a continuing concern evident in the troublesome findings regarding inclusion of students with disabilities in state assessment reports (e.g., participation levels varied from 33% to 97%) and their performance (e.g., differences between rates of students meeting state standards ranged from 20% to 50% for students with disabilities and their peers without disabilities).

The purpose of this research was to examine the extent to which concentrations of exceptional children differ across schools with varying levels of community capital (e.g., a more inclusive marker of socioeconomic status) and to evaluate the influence of those factors on school-level achievement. Given ongoing inclusion and accountability issues, we were interested in how exceptional students distribute across elementary schools and how this and other demographic characteristics bear on the academic achievement of these schools. We were interested in the issue of equity and its effects on the chronic and intractable achievement gap observed in America's schools. Two research questions focused our research:

Research Question 1: To what extent do school, student, and community characteristics and achievement vary across elementary schools in a large urban school district?

Research Question 2: To what extent do school, student, and community characteristics predict achievement in elementary schools in a large urban school district?

With no disrespect intended or implied and no intent to trivialize the issue, we asked "*Where does Waldo go to school and what influence does it have on the school's performance reflected on state assessments*?" We reasoned that this information was important in efforts to make clear the implications of knowing what students are included in reports of large-scale testing results.

Method

We described and evaluated the influence of school, student, and community demographics on academic achievement. We documented community capital and distributions for students with disabilities as well as for academically gifted students (i.e., those who demonstrate or have the potential to demonstrate outstanding intellectual aptitude and specific academic ability) and used them to predict achievement.

Setting and Participants

We analyzed data from elementary schools (*N* = 80) in an urban school district in the Southeast. Twelve elementary schools were not included because of missing data concerns that were not systematically associated with the principle variables employed in this study. The district is among the 25 largest public school systems in the United States and the largest in the state, with an enrollment of more than 120,000 prekindergarten through 12th grade students. The ethnic distribution is in Table 1 and suggests that the majority of the students in this district are either African American (46.0%) or European American (34.4%). The district currently has more than 150 schools with 92 elementary, 36 middle, 17 high schools as well as 10 special schools.

The total number of elementary students enrolled in the participating district was 55,394, and among them, 9,801 were kindergarteners, 9,550 were first graders, 8,957 were second graders, 9,077 were third graders, 9,123 were fourth graders, and 8,886 were fifth graders. The average student enrollment in the schools was 629 (*Range* = 226-1372). Table 1 contains additional demographic information. Minority enrollments (65%) as well as socioeconomic and second language markers reflect the overall district demographics and represent similar characteristics to those of the 100 largest public elementary school districts in the United States (cf. National Center for Education Statistics, 2003). Though we accept the limitations of conducting our study in a single school system, we believe the demographic diversity in the district was sufficient to minimize concerns that restrictions in ranges of key variables may have biased the outcomes of our analyses.

Procedures

Data were available from public Web-based sources maintained by the school district to create indicators of *community capital* (e.g., the percent of the children receiving free and reduced lunch within a school), *special education*

Table 1. Selected Characteristic of Participating Elementary Schools

Characteristic	Mean (%)	Standard Deviation	Range
Student racial/ethnic distribution			
African American	46.0	24.7	89.6
European American	34.4	27.7	88.4
Hispanic American	12.1	11.2	12.1
Asian American	4.0	2.7	12.9
Native American	0.8	0.6	2.8
Multiracial	3.1	3.4	32.1
Socioeconomic markers			
Paid lunch	45.8	28.6	94.9
Free lunch	45.9	27.1	94.1
Reduced lunch	7.4	3.5	14.7
Parents earning < $25K	21.9	13.6	52.8
Limited English proficiency	5.5	5.1	21.7

concentration (the percent of children with an "academically gifted" classification and the percent of children with a disability), and *academic achievement* (the percent of students earning passing scores on end-of-grade standardized academic achievement tests). Information pertaining to the quality of life of the communities surrounding each school was also available from a study conducted by Metropolitan Studies Group (2004). The quality of life was a component of *community capital* rated stable, threatened, and fragile.

Measures

We were interested in school, student, and community characteristics and academic achievement. We defined and operationalized all variables with fully documented computer accessible data available in local, state, and national Internet resources. We checked and verified the accuracy of all information transfers to ensure that we maintained the technical adequacy reflected in the original scores.

School, student, and community characteristics. The *total enrollment* and the *percent of African American children* in each school were included as control variables. We used them as a way of addressing the potential confounding impact of school size and race on the presumed moderator model in the regression analyses (see below) because previous research suggests that both are associated with the independent and dependent variables of interest (cf. Braun, Jenkins, & Grigg, 2006; Coladarci, 2006; Lubienski & Lubienski, 2006; Uyeno, Zhang, & Chin-Chance, 2006).

Student characteristics of interest were the percent of children with an “academically gifted” classification and the percent of children in the following categories: learning, speech, mental retardation, behavioral disorders, and other disabilities. We computed all of the two-way interactions between the disability percentages and the academically gifted percentages across the schools to examine if and to what extent the percentage of academically gifted students in a school moderated the (in most cases negative; see Table 3) impact of the relative concentration of students with disabilities on academic achievement. To engage in some exploratory analyses after testing the core moderator model, we also computed all other two-way interactions between the disability concentrations.

We employed principal components factor analysis to assess the psychometrics and construct the variable with the resulting factor scoring coefficients. Community capital emerged from a principal components analysis of the aforementioned indicators representing human, financial, and social capital as a psychometrically strong construct. The first component explained 69.5% of the variance and all of the loadings were greater than 0.60. All of the indicators of community capital loaded on this component in the expected directions. This component and the associated scoring coefficients defined and operationalized the standardized (i.e., mean of zero and $SD = 1$) community capital construct.

Community capital was employed as a control variable in the regression analyses employing disability status concentrations of the schools as predictors of academic achievement. We demonstrate later that the concentration of students with disabilities is clearly not distributed randomly across schools with varying levels of community capital and previous research suggests that variables that are conceptually linked to community capital (e.g., socioeconomic status of students) have been found to predict academic achievement (Sirin, 2005). Community capital is, therefore, a likely confounding variable because it is associated with disability concentrations and academic achievement.

Academic achievement. Students in Grades 3-8 take end-of-grade tests in reading comprehension and mathematics in the final 3 weeks of school. Alternate assessments are available for these tests for students with disabilities who have Individualized Education Programs (IEPs) and students with limited English proficiency who meet specific eligibility requirements. A comparison of the results from the pretest and the results from the Grade 3 end-of-grade test that is administered the past 3 weeks of the school year allows schools to measure growth in achievement in reading comprehension and mathematics at the third grade level. Since data from the end-of-year statewide testing program contribute to district comparison reports and filing requirements under *No Child Left Behind* and other federal, state, and local accountability rules and guidelines, we reasoned that they represented the best markers for school achievement in our study.

The time allotted for both the reading comprehension and mathematics tests is approximately three and one-half hours over multiple days. This includes time for test administration duties and, where appropriate, scheduled breaks. End-of grade tests in reading comprehension and mathematics are multiple-choice tests given in the final 3 weeks of school. Again, these data represented indicators of the quality of education being provided to children in the state and serve the same accountability purposes as similar data available in other states.

For reading comprehension, students read both literary and informational selections and then answer questions related to the selections. Knowledge of vocabulary is assessed indirectly through application and understanding of terms within the context of the selections and questions. The selections chosen for the reading tests reflect reading for various purposes such as: literary experience, gaining information, and performing a task. Four types of items (organized into categories) are on the reading test. The categories include cognition, interpretation, critical stance, and connections. Cognition requires the reader to apply strategies, such as using context clues to determine meaning, summarizing to include main points, and identifying the purpose of text features. Interpretation requires the reader to make inferences and generalizations. It may ask students to clarify, to explain the significance of, to extend, and/or to adapt ideas/concepts. Critical stance requires the reader to apply processes such as comparing/contrasting and understanding the impact of literary elements. Connections require the reader to connect knowledge from the selection with other information and experiences beyond/outside the selection.

For mathematics, students are assessed in the five strands of the mathematics curriculum: (a) number and operations, (b) measurement, (c) geometry, (d) data analysis and probability, and (e) algebra. In Grades 3–7, the mathematics EOG test is administered in two parts: calculator active and calculator inactive. Students are allowed to use calculators during the calculator active part of the test; students are not allowed to use calculators during the calculator inactive part of the test. For Grade 8, the mathematics EOG test is all calculator-active. Students are allowed to use calculators during the entire test.

The school-level academic achievement variable represented the average percent of third grade students who passed the statewide end-of-grade tests for mathematics and reading. We obtained the pass rate data for each school from publicly available web-based sources.

Design and Data Analysis

The nature of this causal-comparative (*ex post facto*) archival research allows us to document existing differences among the participating schools and to explore the cause, or reason, for them. Since professionals and policy makers are mostly interested in predicting school success in terms of academic achievement, we used *academic achievement* as the dependent variable for data analysis. We compiled descriptive comparisons for all variables and completed regression analyses to determine if and to what extent the relative concentration of students with special education status in each elementary school impacted academic achievement at the school level and to what extent the relative concentration of academically gifted students moderated the presumed negative impact of the school-level concentration of student with disabilities on school-level achievement. Thinking hierarchically, we added all other disability concentration interactions in a second, exploratory step to determine if different configurations of special education concentrations had meaningful impact on academic achievement above and beyond the impact of the target moderator model.

Results

We were interested in relationships between school and student characteristics and academic achievement. We analyzed extant data from elementary schools in a large urban school district. We completed descriptive comparisons and regression analyses to illustrate and evaluate the extent and influence of school and student characteristics on academic achievement.

Descriptive Comparisons

Descriptive statistics for all of the target variables are in Table 2 and the relationships among all of the target variables are in Table 3. Of the disability statuses, the concentrations of academically gifted students and students with speech impairments and behavior disabilities are significantly associated with reading, math, and overall achievement. The concentration of academically gifted students is strongly associated and speech impairment and behavior disabilities are moderately associated with all of the achievement variables. Interesting, the association between the concentration of students with speech impairments and the achievement variables is positive while the other disabilities are associated in the expected negative fashion. The concentration of students with mental retardation was only weakly associated with math and overall achievement, but the associations were statistically significant. The community capital variable was significantly associated with the academically gifted (positive), speech impairment (positive) and behavior disorder (negative) variables. The positive association between community capital and speech impairment may explain the positive association between speech impairment and achievement given that those elementary schools with the highest concentrations of students with speech impairments are also the schools from the wealthiest communities.

Table 2. Descriptive Statistics for the Target Variables

	Mean	Standard Deviation	Range
Control variables			
Total enrollment	633.4	239.9	1146
African American percent	46.0	24.7	89.6
Independent variables			
Community capital[a]	0.0	1.0	3.6
Gifted percent	9.94	8.7	51.0
Learning disabilities percent	33.0	10.2	57.3
Speech impairment percent	34.6	12.6	59.1
Mental retardation percent	1.8	3.6	30.2
Behavior disabilities percent	5.6	7.1	26.3
Other disabilities percent	2.2	1.4	8.8
Dependent variables			
Reading achievement percent passing	82.9	10.8	46
Math achievement percent passing	91.1	6.4	29
Total academic achievement percent passing	87.0	8.5	36.5

a. Community capital was created from the scoring coefficients of the principal components analysis and is therefore a standardized variable (i.e., mean of zero and *SD* = 1).

We employed community capital in a dichotomous fashion to assess and depict if and to what extent distributions of students with the different special education statuses varied between poorer and wealthier schools. Poor schools ($n = 13$) were defined as those that exhibited less than or equal to one standard deviation from the mean on the community capital variable and wealthy schools ($n = 16$) were defined as those that exhibited greater than or equal to one standard deviation from the mean. We found a much higher concentration of academically gifted students ($t = –11.81$, $p < 0.05$) and students with speech impairments ($t = –3.85$, $p < 0.05$) in wealthy schools and much higher concentrations of students with behavior disabilities in poor schools (see Table 4); box plot comparisons of the special education concentration differences exhibited between poor and wealthy schools are presented in Figure 1. Of particular note, the wealthy school with the lowest number of academically gifted children (9.1%) has a greater concentration than the poor school with the highest number of academically gifted students (4.6%). These outcomes suggest that poor and wealthy elementary schools in this large urban district contain different distributions of academically gifted students.

The same conclusion can be made for students with behavior disabilities, but in this case, poor schools tend to have a much higher concentration of these students than wealthy schools ($t = 3.60$, $p < .05$). For example, about

Table 3. Correlations Among the Target Variables

	Variable	1	2	3	4	5	6	7	8	9	10	11
1	Reading achievement											
2	Math achievement	0.92**										
3	Total academic achievement	0.99**	0.97**									
4	Total enrollment	0.45**	0.46**	0.46**								
5	African American percent	–0.78**	–0.77**	–0.79**	–0.47**							
6	Community capital	0.85**	0.77**	0.84**	0.51**	–0.74**						
7	Gifted percent	0.70**	0.59**	0.67**	0.16	–0.52**	0.70**					
8	Learning disabilities percent	0.08	0.11	0.09	–0.05	0.04	–0.09	0.12				
9	Speech impairment percent	0.49**	0.48**	0.50**	0.36**	–0.45**	0.45**	0.29**	–0.26*			
10	Mental retardation percent	–0.18	–0.29*	–0.22*	–0.18	0.16	–0.07	–0.03	–0.17	–0.30**		
11	Behavior disabilities percent	–0.44**	–0.32**	–0.40**	–0.15	0.38**	–0.35**	–0.32**	–0.19	–0.19	–0.16	
12	Other disabilities percent	–0.10	–0.08	–0.10	–0.20	0.03	–0.01	–0.10	–0.34**	–0.39**	–0.07	–0.01

*$p < 0.05$ level. **$p < 0.01$ level.

Table 4. Comparisons of Special Education Concentration Differences for Wealthy Versus Poor Schools With Respect to Community Capital

School	Gifted Percent	Learning Disabilities Percent	Speech Impairment Percent	Mental Retardation Percent	Behavior Disabilities Percent	Other Disabilities Percent	Mental Retardation Percent (Minus Outlier)
Poor							
M	2.16	32.19	27.59	2.58	10.16	2.28	2.58
SD	1.01	10.78	8.26	2.37	9.05	1.24	2.37
Wealthy							
M	18.44	28.15	43.23	2.59	1.86	2.20	0.75
SD	5.43	6.89	14.10	7.49	2.77	1.40	1.42
Total							
M	10.05	30.23	35.17	2.58	6.14	2.24	1.72
SD	9.09	9.20	13.80	5.40	7.89	1.30	2.16
t-Value	−11.81*	1.28	-3.85*	0.00	3.60*	0.17	2.70*

Note: The adjusted *t*-test was employed if the assumption of equality of variances was violated.
*$p < 0.05$.

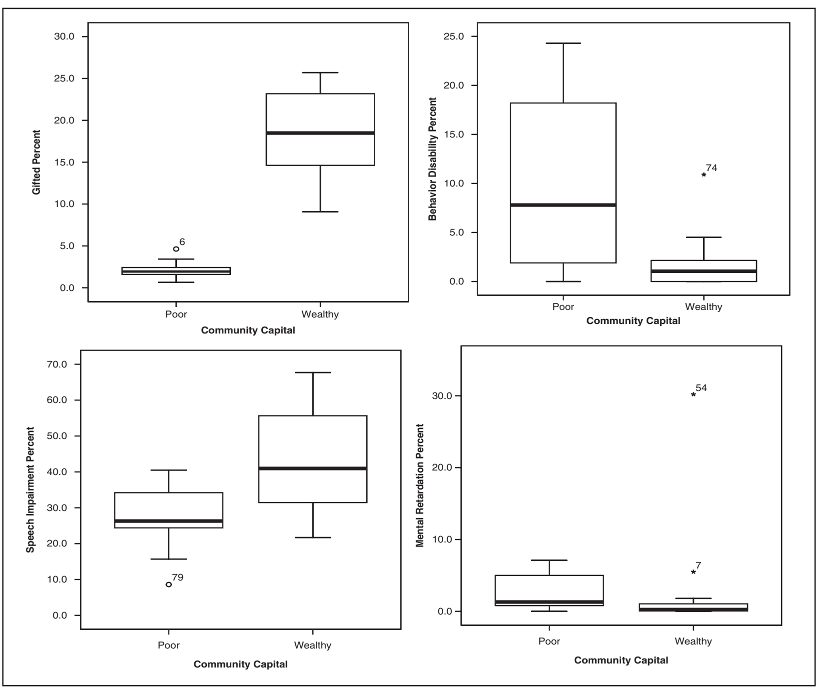

Figure 1. Box Plots of Special Education Concentration Differences for Wealthy Versus Poor Schools With Respect to Community Capital

75% of the wealthy schools have fewer children with behavior disabilities than the 25% of poor schools with the fewest fractions of students with behavior disabilities.

The box plot (see Figure 1) also reflects that poor schools tend to have greater concentrations of students with mental retardation than wealthy schools, but the difference was not significant ($t = 0.00$, $p > .05$). Analysis of the box plots suggested that one of the wealthy schools may have been inflating the mean concentration of students with mental retardation in the wealthy school group and may thereby unduly influence the comparison. After removing this wealthy school with a disproportionately high concentration of students with mental retardation from the analysis, poor schools exhibited significantly ($t = 2.70$, $p < .05$) higher concentrations of students with mental retardation than wealthy schools.

Wealthy and poor schools systematically exhibit greater fractions of students with particular types of special education statuses. Poor schools exhibit greater fractions of students with metal retardation and behavior disabilities, whereas wealthy schools exhibit greater fractions of students with speech impairments and with an academically gifted designation.

Regression Analyses

The regression models predicting school-level academic achievement with special education concentrations and all of the two-way disability by gifted concentration interactions, while controlling for race, total enrollment, and community capital are presented in Table 5. After computing the full model, all statistically insignificant interaction terms were removed and the model was re-estimated with only the gifted by mental retardation interaction term remaining. The "trimmed model" demonstrated that roughly 88% of the variance (R-square = 0.88) in school-level academic achievement was predicted by the control variables, predictor variables, and interaction terms. In terms of the main effects, the relative concentrations of academically gifted student and of children with mental retardation and behavioral disorders had a statistically significant impact on overall academic achievement. As reflected by the interaction term, the concentration of academically gifted students appears to moderate the impact of the concentration of academically gifted students on school level achievement.

We illustrate the nature of the impact of the interaction term on academic achievement[1] in Figure 2. We compared groups of schools on the basis of a standardized metric reflecting high and low (i.e., ±1 standard deviation from the mean) concentration of students classified as academically gifted and with mental retardation. The negative impact of increasing concentrations of students

Table 5. A Moderator Model of Academic Achievement Predicted by Configurations of Special Education Concentrations

	Standardized Betas			
	Academic Achievement (Full Model)	Academic Achievement (Trimmed Model)	Math Achievement (Trimmed Model)	Reading Achievement (Trimmed Model)
Control variables				
Total enrollment	0.01	–0.01	0.005	–0.02
African American percent	–0.20**	–0.22**	–0.26**	–0.18**
Community capital	0.35**	0.36**	0.28**	0.40**
Predictor variables				
Gifted percent	0.27**	0.26**	0.23**	0.27**
Learning disabilities percent	0.00	–0.02	–0.00	–0.04
Speech impairment percent	–0.01	–0.06	–0.05	–0.06
Mental retardation percent	–0.48**	–0.50**	–0.60**	–0.43**
Behavior disorders percent	–0.20**	–0.22**	–0.17*	–0.25**
Other disabilities percent	–0.06	–0.08	–0.06	–0.10
Interaction terms				
Gifted by learning	0.09			
Gifted by speech	0.02			
Gifted by mental retardation	0.44**	0.42**	0.50**	0.36**
Gifted by behavior disorders	0.02			
Gifted by other disabilities	0.08			
R-square	0.88	0.88	0.83	0.83
N	80	80	80	80

Note: The variance inflation factors (VIF) were computed for trimmed regression model to assess for the impact of collinearity among the predictors. The VIF values fell between 1.8 and 5.2. These values are acceptable and well below the 10.0 threshold suggesting potential collinearity problems.
*$p < 0.05$. **$p < 0.001$.

with mental retardation on school level academic achievement is significantly stronger in those schools that have a relatively lower concentration of academically gifted students (i.e., one standard deviation below the mean concentration of the district) and weaker in the group of schools that have a higher concentration of academically gifted students (i.e., one standard deviation above the mean concentration of the district). This finding is not a simple reiteration of the intuitive main effect findings suggesting that schools with the higher concentrations of academically gifted students and lower concentrations of students with mental retardation have higher academic achievement. The interaction term suggests that varying the numbers of students with mental retardation in schools with high concentrations of academically gifted students will have little effect, but varying that amount in schools with few academically gifted children has a profound effect on achievement.

Discussion

For many years, professionals across the nation have been setting high academic content standards for all children and developing assessment and accountability systems in attempts to ensure that all children demonstrate high levels of achievement in school (Lehr & Thurlow, 2003). Federal legislation, including the *No Child Left Behind Act of 2001* (NCLB) and the *Individuals with Disabilities Education Improvement Act of 2004* (IDEA), provides guidelines and expectations for implementation of inclusive instruction and assessment. States, districts, communities, schools, teachers, parents, and children are now very aware that state assessments are used to measure achievement on academic content standards as a means of representing school "quality" in local, state, and national comparisons.

Interest in relationships between outcomes and other factors has a long history in education (Barton, 2002; Braun, Wang et al., 2006; Coleman, 1967a, 1967b, 1968, 1969, 1988; Coleman et al., 1966; Dunn, 1968; Ferguson, 1999a, 1999b, 2002, 2004; Hirsh, 2005; Jencks & Peterson, 1991; Jencks & Phillips, 1998a, 1998b; Sirin, 2005). For example, concerns over socioeconomic status of families and the degree of academic success of students have been widely documented over the years (cf. Dunn, 1968; Edelman & Ladner, 1991; Education Trust, 2003a, 2003b; Ferguson, 1999a, 1999b, 2002, 2004; Haberman, 1995; Jencks, 1972; Jencks & Phillips, 1998a, 1998b; Kozol, 1991, 2005; Mills, 1956; Witty, 1978). This focus is not limited to achievement in elementary schools. The College Entrance Examination Board, *National Report: 2001 College Bound Seniors* provided an interesting picture of the relationship between wealth and family circumstances (see Table 6). Robinson and Brandon (1994) questioned whether global scores on tests like those used to assess national educational progress were useful when variables such as number of parents in the home, parent's education, community factors, and the state's poverty rate are account for a high percentage of variance in them.

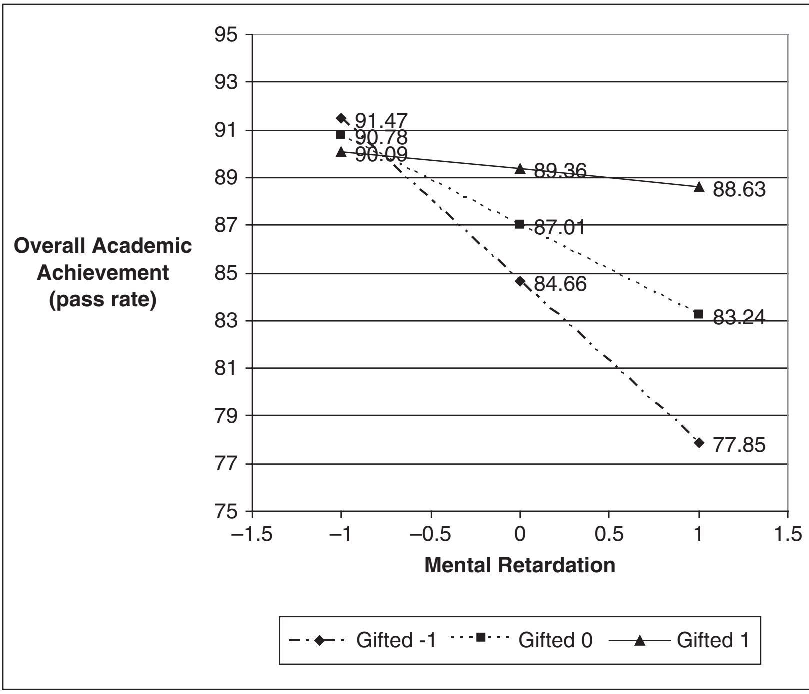

Figure 2. A Moderator Model Predicting Overall Academic Achievement With Varying Concentrations of Gifted Students and Students With Mental Retardation
Note: The mental retardation and gifted concentration variables are on a standardized metric; hence, ±1on this scale reflects ±1 standard deviation above the mean concentration of this school district (see Table 2 for the district mean concentrations)

Of all the disability concentrations tested, we found that the numbers of students with academic gifts, behavior problems, or mental retardation had an impact on academic achievement at the school level. Among all the interactions tested, the nature of the impact of mental retardation on school-level achievement was moderated by the relative concentration of students with academic gifts. Schools with relatively high concentrations of students with academic gifts yielded the smallest net declines in academic achievement relative to increasing concentrations of students with mental retardation. On the contrary, schools with the lowest concentrations of academically gifted students exhibited the greatest rate of academic decline in the face of increasing concentrations of students with mental retardation. This moderator model suggests that the impact of higher concentrations of students with mental retardation may change by

Table 6. Scholastic Assessment Test Score Averages by Selected Student Characteristics: 2000-2001

Characteristics	Verbal Scores	Math Scores
All students	506	514
Family income		
Less than $10,000	421	443
$10,000 to $20,000	442	456
$20,000 to $30,000	468	474
$30,000 to $40,000	487	489
$40,000 to $50,000	501	503
$50,000 to $60,000	509	512
$60,000 to $70,000	516	519
$70,000 to $80,000	522	527
$80,000 to $100,000	534	540
More than $110,000	557	569
Highest level of parental education		
Less than high school	411	438
High school diploma	472	476
Associate degree	489	491
Bachelor's degree	525	533
Graduate degree	559	567

assigning more academically gifted students to the same schools or by reassigning students with mental retardation from schools with low concentrations of academically gifted students and to schools with higher concentrations of academically gifted students. It also suggests that comparing schools within districts or across states and regions of the country without considering their demography is potentially uninformative.

We also found that neither community capital nor the concentration of students with disabilities is randomly distributed and is in fact concentrated in certain schools. More importantly, we found an association between the two such that schools with scarce capital had the largest fraction of students with behavioral disabilities and mental retardation and the smallest concentration of students with academic gifts. The combination of two classes of results suggests that the odds of academic success are clearly stacked against impoverished schools and that closing the achievement gap within them would be more likely by distributing community capital (via changes to student assignment geographic boundaries) and/or concentrations of student with academic gifts and students with mental retardation differently across them.

The issue defined here is that what goes on in urban (and other schools) may be less important in predicting high stakes achievement scores than who participates in taking them. Much like the findings of Powell and Steelman (1984) illustrating that "comparing state SAT averages is ill-advised unless these ratings are corrected for the *compositional and demographic factors* for which states may not be directly responsible," our findings mark the possibility that variance in achievement across schools in a large urban district may be accounted for by factors for which school personnel are not directly responsible (p. 389, emphasis added). Furthermore, the intractable gap in achievement across different groups of students in America's schools bears potential witness as well to the importance of documenting the compositional and demographic characteristics of groups included in local, state, and national comparisons of outcomes of high stakes assessments.

Implications for Improvement of Practice

> This, then, is the tragedy of American education. Fifty years after *Brown,* the nation still has not figured out how to educate all of its children. African Americans, on average, start kindergarten behind whites academically, and the gap grows during elementary school. The ripple effect carries into high school—and beyond. Although blacks and whites enter college at similar rates, 36% of whites graduate with a 4-year degree, compared with only 18% of blacks. Black jobless rates are higher than whites', and Black income is lower. The achievement gap between whites and blacks remains an affront to the national creed that . . . all are created equal. What caused this racial chasm, and why does it linger? More important, what can schools do to close the gap? (Barnes, 2004, p. 1)

In this study, we used different sources of district-wide data to show that community, school, and student characteristics covaried interestingly with academic outcomes and achievement. The implications of these findings are broad and profound: Where you go to school and who goes with you bears a strong relationship with your school's performance and how other will perceive it as evidence of the quality of the education you received.

Conventional wisdom holds that the achievement gap is a school problem and the belief has fueled historical, continuing, and current efforts to bring about reform in the American educational system (Evans, 2005). Placing the blame by blaming the place has at its core the logic of equity and equality of opportunity (Evans, 2005, p. 583):

> All children are created equal, but all children are not performing equally in school; the gap typically worsens as children advance through the grades; the fault must therefore be the schools,' so the solution must lie in the school; the necessary knowledge and tools are available, and schools must be pressed to apply them.

If the achievement gap springs from the structure of and practice *within* schools, then changing schools from within (e.g., curriculum, student motivation, and class size) will presumably mitigate the apparently intractable gaps in educational achievement. In this context, laws and legislative mandates are ruled methods to bring about change that is viewed as necessary and possible but, for projected and/or undefined reasons, remains unrealized. Our findings strike a different chord in the old songs placing the blame for differences in achievement across schools and groups of students. We found strong support for relationships between achievement and school, student, and community demographics—an outcome that speaks against changes in curriculum, motivation, and class size making big differences in achievement in some schools. This finding adds a basis for caution in interpreting differences among schools as evidence of progress in enhancing educational outcomes as well as in closing the achievement gap. The caution bears weight for district, state, and national comparisons of elementary, middle, and high schools as well.

Public reporting of educational results in an important way for judging accountability and federal mandates emphasize the importance of including all students in these indicators. The time when few states shared educational results of students with disabilities has passed. Our findings speak to the importance of including scores for all students in assessments of educational progress. They also support the recommendations of Lehr and Thurlow (2003) regarding principles of best practice for reporting assessment data for students with disabilities:

- Provide data on participation (e.g., who, under what conditions) and performance together.
- Calculate participation consistently to enable comparisons over times, settings, and groups.
- Report aggregated and disaggregated data for students with disabilities.
- Inform parents about the reporting practices used in any reports.

They also support continued consideration of where academically gifted and other students have gone to school when judging their schools and their programs.

Note

1. In order to generate Figure 2, arbitrary cutoffs (± 1 standard deviation and the mean (zero)) had to be chosen, but these cutoffs were in no way used to compute the models depicted in Table 5.

References

Barnes, J. E. (2004, March 22). Unequal education. *U.S. News and World Report*. Retrieved March 31, 2006, from http://www.usnews.com/usnews/edu/articles/040322/22unequal.htm

Barton, P. E. (2002). *Raising achievement and reducing gaps: Reporting progress toward goals for academic achievement in mathematics.* Washington, DC: National Education Goals Panel.

Barton, P. E. (2003, October). *Parsing the achievement gap* (Policy Information Report). Princeton, NJ: Educational Testing Service.

Bielinski, J., & Ysseldyke, J. E. (2000). *Interpreting trends in the performance of special education students* (NCEO Technical Report 27). Minneapolis, MN: National Center of Educational Outcomes. Retrieved March 26, 2006, from http://education.umn.edu/NCEO/OnlinePubs/TechReport27.htm

Braun, H., Jenkins, F., & Grigg, W. (2006). *Comparing private schools and public schools using Hierarchical Linear Modeling* (NCES 2006-461). U.S. Department of Education, National Center for Education Statistics, Institute of Education Sciences. Washington, DC: U.S. Government Printing Office.

Braun, H. I., Wang, A., Jenkins, F., & Weinbaum, E. (2006). The Black-White achievement gap: Do state policies matter? *Education Policy Analysis Archives, 14*. Retrieved March 26, 2006, from http://epaa.asu.edu/epaa/v14n8/

Center for Education Policy. (2007). *Choices, changes, and challenges: Curriculum and instruction in the NCLB era*. Washington, DC: Author.

Coladarci, T. (2006, April). School size, student achievement, and the "Power Rating" of poverty: Substantive finding or statistical artifact? Paper presented at the annual meeting of the American Educational Research Association, San Francisco, CA. (ERIC Document Reproduction Service No. ED491668)

Coleman, J. S. (1967a). *Equality of educational opportunity, reconsidered*. Baltimore, MD: Johns Hopkins University Center for Student of Social Organization of Schools.

Coleman, J. S. (1967b, October). *The concept of equality of educational opportunity*. Paper prepared for conference on the U.S. Office of Education report on Equality of Educational Opportunity, Harvard University.

Coleman, J. S. (1968). *The evaluation of equality of educational opportunity, reconsidered*. Baltimore, MD: Johns Hopkins University Center for Student of Social Organization of Schools.

Coleman, J. S. (1969). *Equality of educational opportunity.* Washington, DC: U.S. Government Printing Office.

Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, *94*(Suppl. 95), S95-S120.

Coleman, J. S., Campbell, E., Hobson, C., McPartland, J., Mood, A., Weinfeld, F., et al. (1966). *Equality of educational opportunity*. Washington, DC: U.S. Department Health, Education and Welfare.

Dunn, L. M. (1968). Special education for the mentally retarded: Is much of it justifiable? *Exceptional Children*, *35*, 5-22.

Edelman, P. B., & Ladner, J. (Eds.). (1991). *Adolescence and poverty: Challenge for the 1990's*. Washington, DC: Center for National Policy.

Education Trust. (2003a) *African-American achievement in America*. Washington, DC: Author.

Education Trust. (2003b) *Latino achievement in America*. Washington, DC: Author.

Evans, R. (2005). Reframing the achievement gap. *Phi Delta Kappan*, *86*, 582-589.

Ferguson, R. F. (1999a). Can schools narrow the Black-White test score gap? In C. Jencks & M. Phillips (Eds.), *The Black-White test score gap* (pp. 318-374). Washington, DC: Brookings Institution.

Ferguson, R. F. (1999b). Teachers' perceptions and expectation and the Black-White test score gap. In C. Jencks & M. Phillips (Eds.), *The Black-White test score gap* (pp. 273-317). Washington, DC: Brookings Institution.

Ferguson, R. F. (2002). *What doesn't meet the eye: Understanding and addressing racial disparities in high-achieving suburban schools*. Cambridge, MA: Harvard University, John F. Kennedy School of Government. (Eric Document Reproduction Service No. ED474390]

Ferguson, R. F. (2003). Teachers' perceptions and expectations and the Black–White test score gap. *Urban Education, 38*, 460-507.

Ferguson, R. F., & Metha, J. (2004). An unfinished journey: The legacy of Brown and the narrowing of the achievement gap. *Phi Delta Kappan, 85*, 656-669.

Furstenberg, F. F., Jr. & Hughes, M. E. (1995). Social capital and successful development among at-risk youth. *Journal of Marriage and the Family*, *57*, 580-592.

Greeson, A. D., & Carter, D. G. (1976). Equal educational opportunity for the gifted: In search of a legal standard. *NOLPE School Law Journal, 6*, 145-154.

Haberman, M. (1995). *Star teachers of children in poverty*. Madison, WI: Phi Delta Kappa.

Hirsh, S. C. (2005). Professional development and closing the achievement gap. *Theory Into Practice, 44*, 38-44.

Jencks, C. (1972). *Inequality: A reassessment of the effect of family and schooling in America*. New York: Basic Books.

Jencks, C., & Peterson, P. E. (Eds.). (1991). *The urban underclass*. Washington, DC: Brookings Institution.

Jencks, C., & Phillips, M. (1998a). The Black-White test score gap: An introduction. In C. Jencks & M. Phillips (Eds.), *The Black-White test score gap* (pp. 1-52). Washington, DC: Brookings Institution.

Jencks, C., & Phillips, M. (Eds). (1998b). *The Black-White test score gap*. Washington, DC: Brookings Institution.

Kozol, J. (1991). *Savage inequalities*. New York: Harper Perennial.

Kozol, J. (2005). *The shame of the nation: The restoration of apartheid schooling in America*. New York: Random House, Crown Publishing Group.

Lehr, C., & Thurlow, M. (2003). *Putting it all together: Including students with disabilities in assessment and accountability systems* (Policy Directions No. 16). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes. Retrieved March 26, 2006, from http://education.umn.edu/NCEO/OnlinePubs/Policy16.htm

Lubienski, C., & Lubienski, S. T. (2006). *Charter, private, public schools and academic achievement: New evidence from NAEP Mathematics data*. New York: Columbia University.

Metropolitan Studies Group. (2004, September 7). *Charlotte neighborhood quality of life study*. Retrieved March 26, 2006, from http://www.charmeck.org/Departments/Neighborhood+Dev/Quality+of+Life/home.htm

Mills, C. W. (1956). *The power elite*. New York: Oxford University Press.

National Center for Education Statistics. (2003). *Characteristics of the 100 largest public elementary and secondary school districts in the United States: 2001-02* (NCES 2003-353). Washington, DC: U.S. Department of Education, Institute of Education Sciences.

National Center for Education Statistics. (2005). *Digest of education statistics, 2004* (NCES 2006005). Washington, DC: U.S. Department of Education, Institute of Education Sciences.

National Center on Educational Outcomes. (2003). *Accountability for assessment results in the No Child Left Behind act: What it means for children with disabilities.* Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes. Retrieved March 26, 2006, from http://education.umn.edu/nceo/OnlinePubs/NCLBdisabilities.html

No Child Left Behind Act of 2001. (2002). Public Law No. 107-110, 115 Stat. 1425.

Odden, A., & Picus, L. (2000). *School finance: A policy perspective* (2nd ed.). New York: McGraw Hill.

Porfeli, E. J., McColl, A., Wang, C., Algozzine, B., & Audette, R. (2006). *Redefining the achievement gap within the context of community capital*. Charlotte, NC: Behavior and Reading Improvement Center.

Powell, B., & Steelman, L. C. (1984). Variations in state SAT performance: Meaningful or misleading? *Harvard Education Review*, *54*, 389-412.

Robinson, G. E., & Brandon, D. P. (1994). *NAEP test scores: Should they be used to compare and rank state educational quality?* Arlington, VA: Educational Research Service.

Rothstein, R. (2004). *Class and schools: Using social, economic, and educational reform to close the Black-White achievement gap.* Washington, DC: Economic Policy Institute.

Sirin, S. R. (2005). Socioeconomic status and academic achievement: A meta-analytic review of research. *Review of Educational Research*, *75*, 417-453.

Teachman, J. D., Paasch, K., & Carver, K. (1996). Social capital and dropping out of school early. *Journal of Marriage and the Family*, *58*, 773-783.

Teale, W. H., Paciga, K. A., & Hoffman, J. L. (2007). Beginning reading instruction in urban schools: The curriculum gap ensures a continuing achievement gap. *Reading Teacher, 61*, 344-348.

Thurlow, M. L., Nelson, J. R., Teelucksingh, E., & Ysseldyke, J. E. (2000). *Where's Waldo? A third search for students with disabilities in state accountability reports* (Technical Report No. 25). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes. Retrieved March 26, 2006, from http://education.umn.edu/NCEO/OnlinePubs/TechReport25.html

Thurlow, M. L., & Wiley, H. I. (2004). *Almost there in public reporting of assessment results for students with disabilities* (Technical Report 39). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes. Retrieved March 26, 2006, from http://education.umn.edu/NCEO/OnlinePubs/Technical39.htm

Trimble, S. (1998). *Performance trends and use of accommodations on a statewide assessment: Students with disabilities in the KIRIS on-demand assessment from 1992-93 through 1995-96* (Maryland-Kentucky Report 3). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes. Retrieved March 26, 2006, from http://education.umn.edu/NCEO/OnlinePubs/MDKY_3.html

Uyeno, R., Zhang, S., & Chin-Chance, S. (2006, April). The role of demographic factors in predicting student performance on a state reading test. Paper presented at the Annual Meeting of the American Educational Research Association, San Francisco, CA. (ERIC Document Reproduction Service No. ED493067)

U.S. Department of Education. (2001). *Educational achievement and Black-White inequality* (NCES No. 2001–061). Washington, DC: National Center for Education Statistics.

U.S. Department of Education, National Center for Education Statistics. (2006). *The condition of education 2006* (NCES 2006-071). Washington, DC: U.S. Government Printing Office.

Witty, E. P. (1978). Equal educational opportunity for gifted minority group children: Promise or possibility? *Gifted Child Quarterly*, *22*, 344-352.

Ysseldyke, J., Thurlow, M., Langenfeld, K., Nelson, J. R., Teelucksingh, E., & Seyfarth, A. (1998). *Educational results for students with disabilities: What do the data tell us?* (Technical Report 23). Minneapolis, MN: University of Minnesota, National Center on Educational Outcomes. Retrieved March 26, 2006, from http://education.umn.edu/nceo/OnlinePubs/TechnicalReport23/TechReport23text.html

Bios

Erik Porfeli (PhD, Penn State University) is an assistant professor of Behavioral and Community Health Sciences at the Northeastern Ohio Universities College of Medicine. His current research interests include a general model of person and group in context with specific applications pertaining to academic and vocational development.

Chuang Wang (PhD, Ohio State University) is an assistant professor in the Department of Educational Leadership at the University of North Carolina at Charlotte. His current research interests include self-efficacy and self-regulation of English learners, qualitative methods, and the achievement gap.

Robert Audette (PhD, Peabody College) is an associate professor in the Department of Reading and Elementary Education at the University of North Carolina at Charlotte. His current research interests include response to intervention, total quality education, generational poverty, and effective assessment, data collection, and use.

Ann McColl (PhD, University of North Carolina) is an attorney and associate professor in the Department of Educational Leadership. Her current research interests include school law and historical analyses of constitutional rights to education.

Bob Algozzine (PhD, Penn State University) is a professor in the Department of Educational Leadership and Director of the Behavior and Reading Improvement Center at the University of North Carolina at Charlotte. His current research interests include school-wide discipline, effective teaching, data-based decision making, and positive behavior support.