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Our Impoverished View of Educational Reform [1]

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ABSTRACT

This analysis is about the role of poverty in school reform. Data from a number of sources are used to make five points. First, that poverty in the US is greater and of longer duration than in other rich nations. Second, that poverty, particularly among urban minorities, is associated with academic performance that is well below international means on a number of different international assessments. Scores of poor students are also considerably below the scores achieved by white middle class American students. Third, that poverty restricts the expression of genetic talent at the lower end of the socioeconomic scale. Among the lowest social classes environmental factors, particularly family and neighborhood influences, not genetics, is strongly associated with academic performance. Among middle class students it is genetic factors, not family and neighborhood factors, that most influences academic performance. Fourth, compared to middle-class children, severe medical problems affect impoverished youth. This limits their school achievement as well as their life chances. Data on the negative effect of impoverished neighborhoods on the youth who reside there is also presented. Fifth, and of greatest interest, is that small reductions in family poverty lead to increases in positive school behavior and better academic performance. It is argued that poverty places severe limits on what can be accomplished through school reform efforts, particularly those

associated with the federal No Child Left Behind law. The data presented in this study suggest that the most powerful policy for improving our nations' school achievement is a reduction in family and youth poverty.

Over the last three years I have co-authored three reports about the effects of high-stakes testing on curriculum, instruction, school personnel, and student achievement (Amrein & Berliner, 2002; Nichols & Berliner, 2005; Nichols, Glass & Berliner, 2005). They were all depressing. My co-authors and I found high-stakes testing programs in most states ineffective in achieving their intended purposes, and causing severe unintended negative effects, as well. We believe that the federal No Child Left Behind (NCLB) law is a near perfect case of political spectacle (Smith, 2004), much more theater than substance. Our collectively gloomy conclusions led me to wonder what would really improve the schools that are not now succeeding, for despite the claims of many school critics, only some of America's schools are not now succeeding (Berliner, 2004).

I do not believe that NCLB is needed to tell us precisely where those failing schools are located, and who inhabits them. We have had that information for over a half century. For me, NCLB is merely delaying the day when our country acknowledges that a common characteristic is associated with the great majority of schools that are most in need of improvement. It is this common characteristic of our failing schools that I write about, for by ignoring it, we severely limit our thinking about school reform.

This is an essay about poverty and its powerful effects on schooling. So these musings could have been written also by Jean Anyon, Bruce Biddle, Greg Duncan, Jeanne Brooks-Gunn, Gary Orfield, Richard Rothstein, and many others whose work I admire and from whom I borrow. Many scholars and teachers understand, though many politicians choose not to, that school reform is heavily constrained by factors that are outside of America's classrooms and schools. Although the power of schools and educators to influence individual students is never to be underestimated, the out-of-school factors associated with poverty play both a powerful and a limiting role in what can actually be achieved.

In writing about these issues I ask for the tolerance of sociologists, economists, child development researchers, and others who read this essay because I discuss variables that are the subject of intense debate within the disciplines. Although

scholars dispute the ways we measure the constructs of social class, poverty, and neighborhood, we all still manage to have common enough understandings of these concepts to communicate sensibly. That will suffice for my purposes. In this essay it is not important to argue about the fine points at which poverty is miserable or barely tolerable, or whether a person is stuck in the lowest of the social classes or merely belongs to the working poor, or whether families are poor at the federal poverty level or at 200% of the federal poverty level (which is still poor by almost everyone's standards). We know well enough what we mean when we talk of poverty, communities of poverty, the very poor, and the like. We also know that the lower social classes and the communities in which they live are not at all homogenous. It is a simplification, and therefore a mistake, to treat a group as if the individuals who comprise that group were the same. I also ask for my readers' tolerance for ignoring these distinctions in what follows.

The Basic Problem of Poverty and Educational Reform

It seems to me that in the rush to improve student achievement through accountability systems relying on high-stakes tests, our policy makers and citizens forgot, or cannot understand, or deliberately avoid the fact, that our children live nested lives. Our youth are in classrooms, so when those classrooms do not function as we want them to, we go to work on improving them. Those classrooms are in schools, so when we decide that those schools are not performing appropriately, we go to work on improving them, as well. But both students and schools are situated in neighborhoods filled with families. And in our country the individuals living in those school neighborhoods are not a random cross section of Americans. Our neighborhoods are highly segregated by social class, and thus, also segregated by race and ethnicity. So all educational efforts that focus on classrooms and schools, as does NCLB, could be reversed by family, could be negated by neighborhoods, and might well be subverted or minimized by what happens to children outside of school. Improving classrooms and schools, working on curricula and standards, improving teacher quality and fostering better use of technology are certainly helpful. But sadly, such activities may also be similar to those of the drunk found on his hands and knees under a street lamp. When asked by a passerby what he was doing, the drunk replied that he was looking for his keys. When asked where he lost them, the drunk replied "over there," and pointed back up the dark street. When the passerby then asked the drunk why he was looking for the keys where they were located, the drunk answered "the light is better here!"

I believe we need to worry whether the more important keys to school reform are up the block, in the shadows, where the light is not as bright. If we do choose to peer into the dark we might see what the recently deceased sociologist Elizabeth Cohen saw quite clearly: That poverty constitutes the unexamined 600 pound gorilla that most affects American education today (cited in Biddle, p. 3, 2001). I think we need to face that gorilla, iconically represented in figure 1.

Figure 1. Iconic representation of poverty as a 600-pound gorilla affecting American education. (Photograph used by permission of Getty images).

When I think about that gorilla it immediately seems ludicrous to me that most of what we try to do to help poor youth is classroom and school based. Education doesn't just take place in our schools, a point that Pulitzer prize winning historian Lawrence Cremin tried to make as the reform movement gained momentum in the late 1980's (Cremin, 1990). It is a fact of contemporary American life that many of the poorest of the children who come to our schools have spent no time at all in school-like settings during the first five years of their life. And then, when of school-age, children only spend about 30 of their waking hours a week in our schools, and then only for about 2/3rds of the weeks in a year. You can do the arithmetic yourselves. In the course of a full year students

might spend just over 1000 hours in school, and almost 5 times that amount of time in their neighborhood and with their families. That relationship is presented as Figure 2.

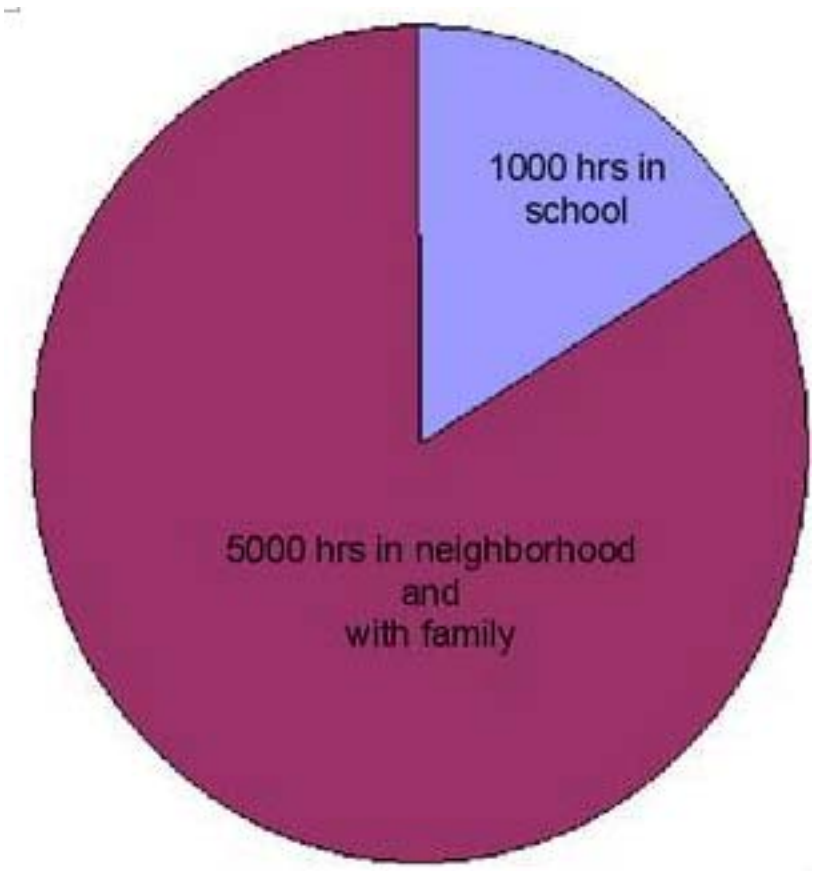

Figure 2. Approximate waking hours, per year, for students in school and in neighborhood and with family.

For all youth those 5000 hours require learning to be a member of one or more cultural groups in that community, learning to behave appropriately in diverse settings, learning ways to get along with others, to fix things, to think, and to explain things to others. These are natural and influential experiences in growing up. But for poor kids, ghetto kids, what is learned in those settings can often be unhelpful. It was Jean Anyon, among others, who some time ago alerted us to the fact that many of the families in those impoverished neighborhoods are so poorly equipped to raise healthy children, that the schools those children attend would have a hard time educating them, even if they weren't also so poorly organized and run. Anyon says:

"It is has become increasingly clear that several decades of educational reform

have failed to bring substantial improvements to schools in America's inner cities. Most recent analyses of unsuccessful school reform (and prescriptions for change) have isolated educational, regulatory, or financial aspects of reform from the social context of poverty and race in which inner city schools are located (p. 69)."

"…. the structural basis for failure in inner-city schools is political, economic, and cultural, and must be changed before meaningful school improvement projects can be successfully implemented. Educational reforms cannot compensate for the ravages of society (p. 88)."

More recently Anyon (2005, p. 69) bluntly evaluated the pervasive failure of school reform. She says:

"Currently, relatively few urban poor students go past ninth grade: The graduation rates in large comprehensive inner-city high schools are abysmally low. In fourteen such New York City schools, for example, only 10 percent to 20 percent of ninth graders in 1996 graduated four years later. Despite the fact that low-income individuals desperately need a college degree to find decent employment, only 7 percent obtain a bachelors degree by age twenty-six. So, in relation to the needs of low-income students, urban districts fail their students with more egregious consequences now than in the early twentieth century."

Oakland, California, where my grandson goes to school, announced recently that its high-school graduation rate is 48 percent (Asimov, 2005). Oakland has been reforming its schools at least since 1973 when I first started working there. Oakland's educators are not ignorant or uncaring, and neither are Oakland's parents. But no one has been able to fix Oakland's public schools. In Oakland and elsewhere, is that because we are looking for the keys in the wrong place?

As educators and scholars we continually talk about school reform as if it must take place inside the schools. We advocate, for the most part, for adequacy in funding, high quality teachers, professional development, greater subject matter preparation, cooperative learning, technologically enhanced instruction, community involvement, and lots of other ideas and methods I also promote. Some of the most lauded of our school reform programs in our most distressed schools do show some success, but success often means bringing the students who are at the 20th percentile in reading and mathematics skills up to the 30th percentile in those skills. Statistical significance and a respectable effect size for a school reform effort is certainly worthy of our admiration, but it just doesn't

get as much accomplished as needs to be done.

Perhaps we are not doing well enough because our vision of school reform is impoverished. It is impoverished because of our collective views about the proper and improper roles of government in ameliorating the problems that confront us in our schools; our beliefs about the ways in which a market economy is supposed to work; our concerns about what constitutes appropriate tax rates for the nation; our religious views about the elect and the damned; our peculiar American ethos of individualism; and our almost absurd belief that schooling is the cure for whatever ails society. These well-entrenched views that we have as a people makes helping the poor seem like some kind of communist or atheistic plot, and it makes one an apostate in reference to the myth about the power of the public schools to affect change.

James Traub (2000) writing in the New York Times said this all quite well a few years ago. He noted that it was hard to think of a more satisfying solution to poverty than education. School reform, as opposed to other things we might do to improve achievement, really involves relatively little money and, perhaps more importantly, asks practically nothing of the non-poor, who often control a society's resources. Traub also noted that school reform is accompanied by the good feelings that come from our collective expression of faith in the capacity of the poor to overcome disadvantage on their own. Our myth of individualism fuels the school reform locomotive.

On the other hand, the idea that schools *cannot* cure poverty by themselves sounds something like a vote of no confidence in our great American capacity for self-transformation, a major element in the stories we tell of our American nation. Traub notes that when we question the schools' ability to foster transformation we seem to flirt with the racial theories expressed by Charles Murray and Richard Herrnstein, who argued in The Bell Curve (1994) that educational inequality has its roots in biological inequality. But an alternative explanation to Herrnstein and Murray, "is that educational inequality is rooted in economic problems and social pathologies too deep to be overcome by school alone. And if that's true, then there really is every reason to think about the limits of school" (Truab, 2000, p. 54). Schooling alone may be too weak an intervention for improving the lives of most children now living in poverty.

Those who blame poor children and their families, like Herrnstein and Murray, or those who blame the teachers and administrators who serve those kids and families in our public schools, like Rod Paige, Jeanne Allen, Checker Finn,

William Bennett, and dozens of other well known school critics, are all refusing to acknowledge the root problem contended with by too many American schools, namely, that there is a 600 pound gorilla in the school house. Figure 3 represents that all-too-common presence in many of America's classrooms.

Figure 3. Representation of poverty in the schoolhouse (photographs used with permission of Getty images and the US Government).

The economist Richard Rothstein understands this. In his recent book *Class and schools* (2004), he states:

"Policy makers almost universally conclude that existing and persistent achievement gaps must be the result of wrongly designed school policies—either expectations that are too low, teachers who are insufficiently qualified, curricula that are badly designed, classes that are too large, school climates that are too undisciplined, leadership that is too unfocussed, or a combination of these.

Americans have come to the conclusion that the achievement gap is the fault of 'failing schools' because it makes no common sense that it could be otherwise….This common sense perspective, however, is misleading and dangerous. It ignores how social class characteristics in a stratified society like

ours may actually influence learning in schools (pp. 9-10)."

Like Anyon, Rothstein goes on to note:

"For nearly half a century, the association of social and economic disadvantage with a student achievement gap has been well known to economists, sociologists and educators. Most, however, have avoided the obvious implication of this understanding—raising the achievement of lower-class children requires the amelioration of the social and economic conditions of their lives, not just school reform (Rothstein, p. 11)."

Anyon, Rothstein and others provide the framework for the issues I raise in this essay. But first, having raised the spectre of the gorilla, let me provide information on the magnitude of the American problem. I can do that by benchmarking American rates of childhood poverty against the rates in other industrialized nations.

America's Poverty Problem.

The UNICEF report from the Innocenti Foundation, (UNICEF, 2005), which regularly issues reports on childhood poverty, is among the most recent to reliably document this problem. The entire report is summarized quite simply in one graph, presented as figure 4.

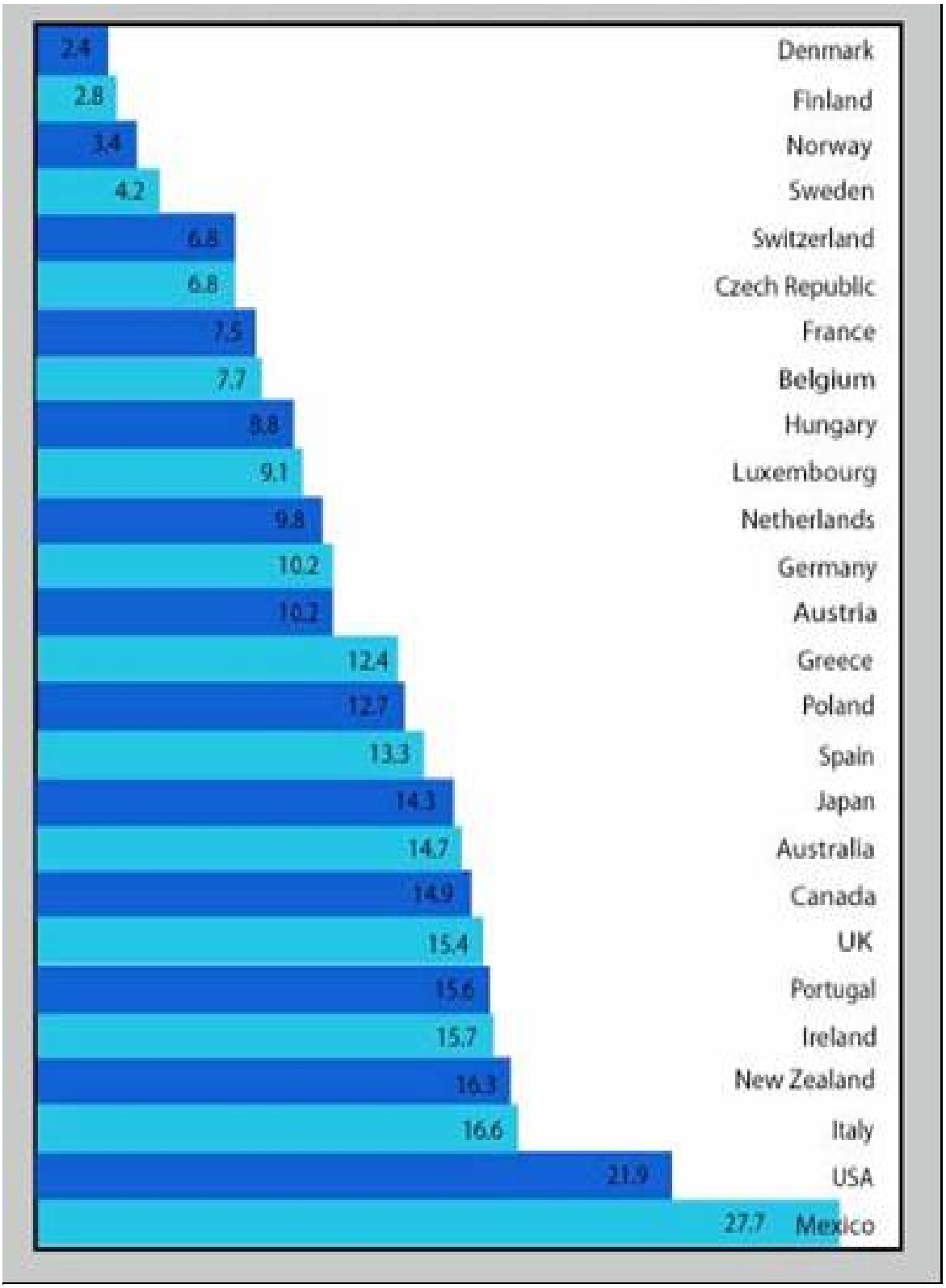

Figure 4. Childhood poverty rates in rich countries. (Reprinted from UNICEF, 2005, used by permission.)

In this set of rich nations, The US is among the leaders in childhood poverty over the decade of the 1990s. The only nation with a record worse than ours is Mexico, and, contrary to UNICEF, I would not consider Mexico a rich nation. Using 2003 data to compute Gross National Income per capita (using Purchasing Power Parity [PPP] as the method of comparison), the USA ranked fourth at $37,750 per capita, while Mexico ranked 80th with $8,900 per capita (World Bank, 2005). We should not be in the same league as Mexico, but, alas, we are closer to them in poverty rate than to others whom we might, more commonly, think of as our peers.

Figure 4 informs us that we have the highest rate of childhood poverty among the rich nations, which is what other studies have shown for over a decade (Berliner and Biddle, 1995). Our rank has been remarkably steady. The USA likes to be # 1 in everything, and when it comes to the percent of children in poverty among the richest nations in the world, we continue to hold our remarkable status.

One bit of good news about poverty in the US is that over the decade of the 1990s we lowered our embarrassing rate of poverty a great deal, almost 2.5 %. So in the graph presented as Figure 4 you are seeing a measure of childhood poverty in the USA after years of improvement! But there is also some bad news. First, the expansion of jobs and income growth in our nation stopped at the end of the 1990s, and the gains that had been made have been lost. With the sharp increase in housing prices that has occurred since then, no noticeable increases in the real wages for the poor, an economic expansion that has failed to create jobs, and a reduction in tax revenues (resulting in a reduction of aid to the poor), it is quite likely that our rate of childhood poverty is back to where it was. That would be about 2 or more percentage points higher than the figure given in this UNICEF report. Apparently this is about where we as a nation want the rate to be, since the graph makes it abundantly clear that if we cared to do something about it we could emulate the economic policies of other industrialized nations and not have the high rate of poverty that we do.

In Figure 5 we note the percentage of people in the US who are living at half the rate of those classified as merely poor (Mishel, Bernstein & Allegretto, 2005, p. 323, from data supplied by the US Bureau of the Census). These are the poorest of the poor in our nation, constituting over 40% of the tens of millions of people that are officially classified as the “poor” by our government. But I need to also note that the classification scheme used by our government is suspect. Almost

all economists believe that the level of income at which the government declares a person to be poor misleads us into thinking there are fewer poor than there really are. So it is likely that there are many more very poor people than this graph suggests.

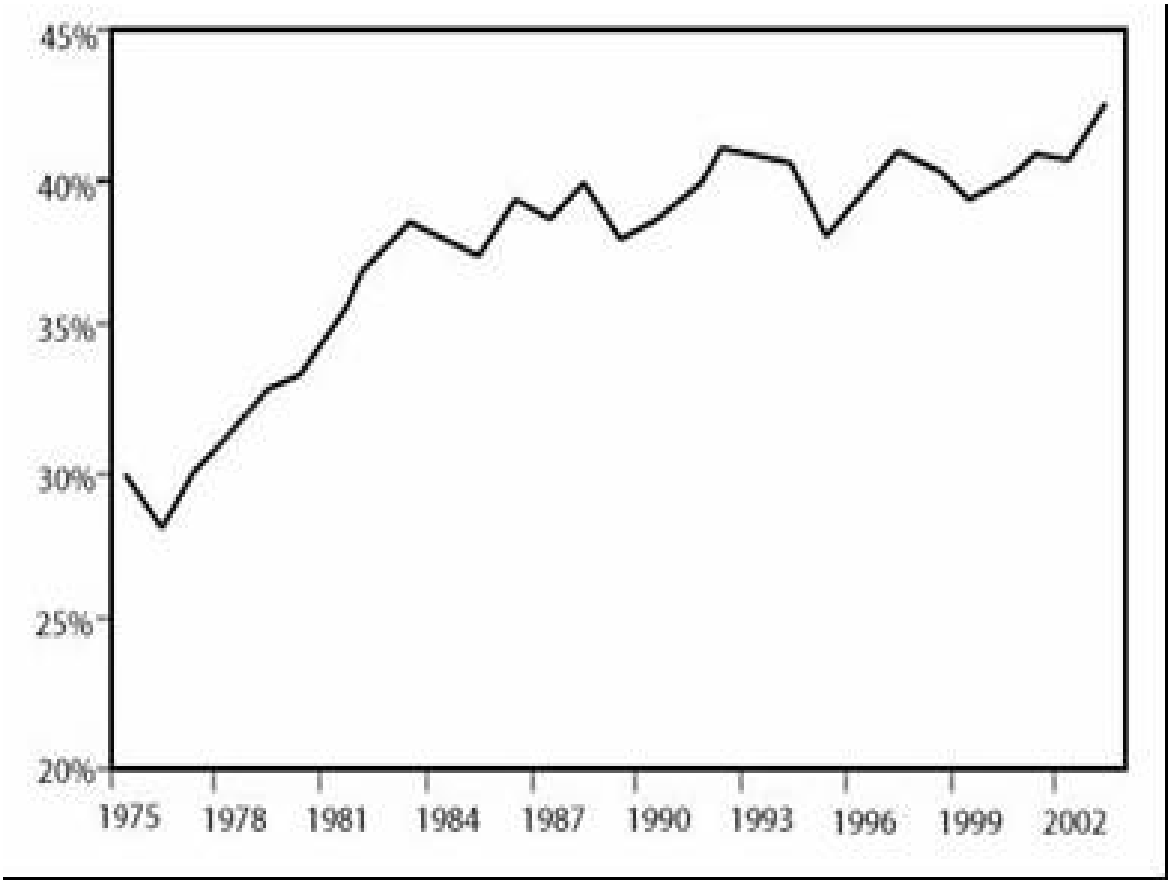

Figure 5. Percent of the poor living at half the official poverty rate. (Reprinted from Mishel, Bernstein and Allegretto, 2005. Used by permission of the publisher, Cornell University Press.)

I call attention in Figure 5 to the overall upward trend of the desperately poor in this graph, particularly the upturn after 2000. That is why the rates given in Figure 4 may be an underestimate of the conditions that pertain now, in 2005. Something else needs to be noted about the poverty we see among children. It is not random. Poverty is unequally distributed across the many racial and ethnic groups that make up the American nation.

Figure 6 makes clear that poverty is strongly correlated with race and ethnicity (Mishel, Bernstein & Allegretto, p. 316, from data supplied by the US Bureau of the Census). Note once again the upward trend for poverty among minorities

after the roaring 90's ended. New immigrants, African-Americans, and Hispanics, particularly those among these groups who live in urban areas, are heavily over represented in the groups that suffer severe poverty. Thus, while this is a paper about poverty, it is inextricably tied to issues of race in America. I have found no way to separate the two, though here I focus on poverty, perhaps the more tractable issue.

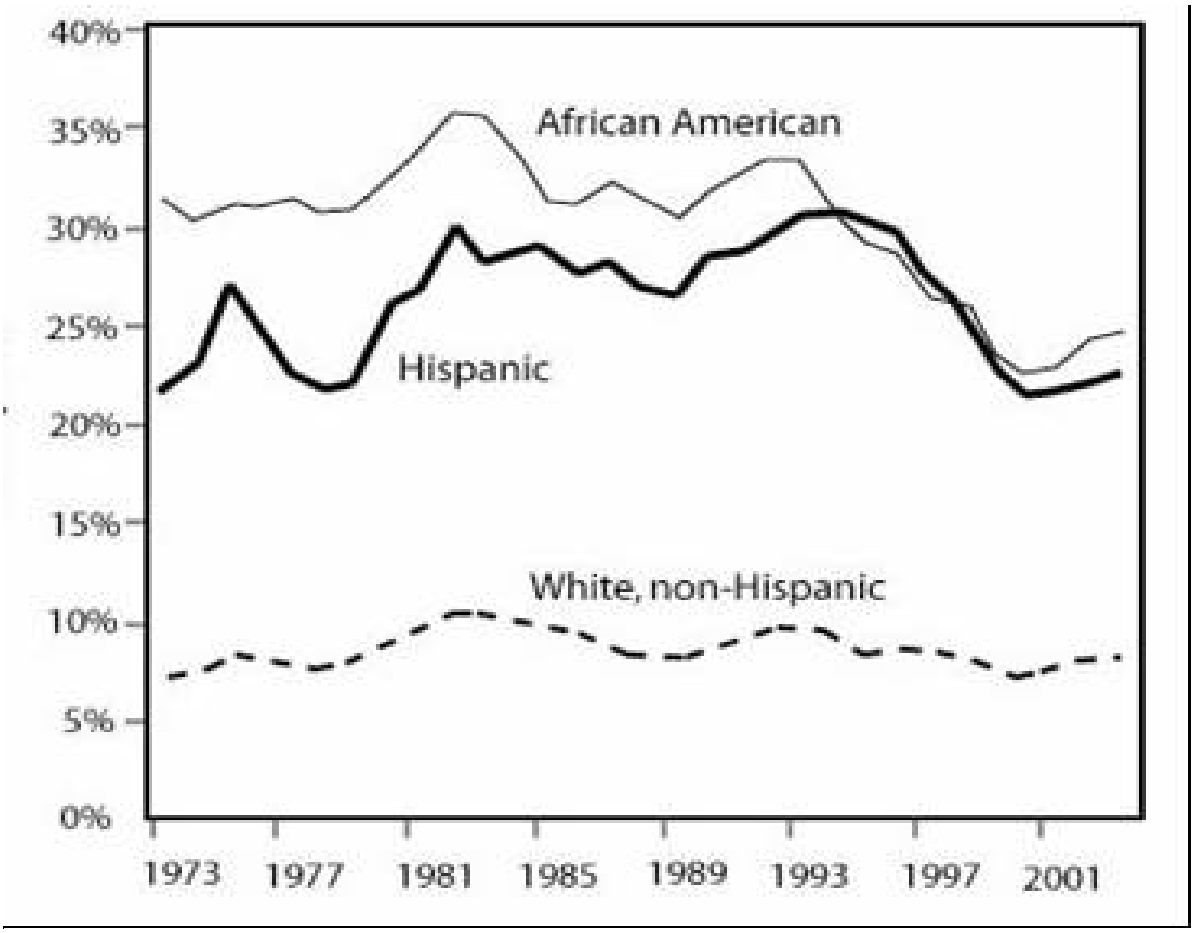

Figure 6. US poverty rates by ethnicity. (Reprinted from Mishel, Bernstein and Allegretto, 2005, by permission of the publisher, Cornell University Press.)

The UNICEF report (2005, p. 8) also reminds us that there is a charter about the rights of children to which 192 UN members have agreed. It is sad, I know, that many member nations sign such a charter and then do little to live up to it. But still, at the very least, signing is an acknowledgment of the underlying concept and only two nations have refused to sign this treaty. One of these nations is Somalia.

Can you guess which is the other nation? You guessed correctly if you chose the

United States of America. We will not sign a charter guaranteeing the rights of already born children, though we somehow managed to get a bill through our congress that guarantees the rights of unborn children. As Congressman Barney Frank was said to mutter one day, there are many people who "believe that life begins at conception, and ends at birth!" (Erbe & Shiner, 1997).

Apparently we, the American people, do not agree with such radical ideas as those expressed in article 27 of the UN charter. There it is stated that governments should: "recognize the right of every child to a standard of living adequate for the child's physical, mental, spiritual, moral and social development" (UNICEF, 2005, p. 8).

Article 27 also makes clear that parents or others responsible for the child "have the primary responsibility to secure … the conditions of living necessary for the child's development," but that governments should assist parents "to implement this right and shall in case of need provide material assistance and support programs, particularly with regard to nutrition, clothing and housing" (UNICEF, 2005, p. 8).

We actually have many programs to help parents and children, but because they are fragmented, do not cover everyone eligible, are subject to variability in funding, they end up not nearly as good nor as serious in intent as those in many other countries. While school critics delight in talking about our inadequate achievement vis-a-vis other nations, it seems just as important to talk about other nations' attention to the poor and the mechanisms each has for helping people out of poverty as soon as possible. This should also be an important indicator for judging one nation's performance against another. If we do that, our country does not look good.

Table 1 shows that we are a leader among the rich nations of the world in terms of failing to help people exit from poverty once they have fallen in to poverty (Mishel, Berstein & Allegretto, p. 409, from data supplied by the OECD). One column in this table shows the percent of individuals who became impoverished once in a three years time period, say through illness, divorce, child-birth, or job loss—the big four poverty producers among those who had been non-poor. There we see that the US rate is quite high, but not much different than that of many other nations. Poverty befalls many people, in many countries, once in a while.

Country	Percent poor once in three years	Percent poor for all three years	Percent in nation permanently poor
United States	23.5	9.5	14.5
Denmark	9.1	0.8	1.8
Ireland	15.3	1.3	5.3
Netherlands	12.9	1.6	4.5
France	16.6	3.0	6.6
Italy	21.5	5.6	10.4
United Kingdom	19.5	2.4	6.5
Canada	18.1	5.1	8.9
Belgium	16.0	2.8	5.2
Germany	19.2	4.3	8.1
Finland	25.1	6.5	12.2
Portugal	24.2	7.8	13.4
Spain	21.3	3.7	8.7

Table 1. Poverty in OECD countries over a three-year period, and permanent poverty, during the 1990s. (Reprinted from Mishel, Bernstein and Allegretto, 2005. Used by permission of the publisher, Cornell University Press.)

Our national problem shows in the next column, displaying the percent of people who stayed poor for the entire three years after they had fallen into poverty. At a

rate roughly twice that of other wealthy nations, we lead the industrialized world! Unlike other wealthy countries, we have few mechanisms to get people out of poverty once they fall in to poverty.

In the last column of Table 1 we can see how awful it can be to stumble into poverty in the US compared to other nations. In that column we see the percent of people who stayed below the poverty level on a relatively permanent basis. The US likes to lead the world, and here we are, champs once again! We can claim the highest rate of the permanently poor of all the other industrialized nations! If you compare the data from Denmark, Ireland or the Netherlands to that of the US it is easy to see the difference between societies that abhor poverty, and one such as ours, that accepts poverty as a given.

Poverty and Student Achievement

I have now pointed out that in the US the rates of childhood poverty are high, poverty is racialized, and that those who once get trapped in poverty have a hard time getting out of poverty. But what does this mean for us in terms of student achievement? There are, of course, thousands of studies showing correlations between poverty and academic achievement. Nothing there will surprise us, though I do wonder why, after hundreds of studies showing that cigarettes were related to a great number of serious illnesses we eventually came to believe that the relationship between smoking and cancer, or smoking and emphysema, was causal. And yet when we now have research establishing analogous connections between poverty and educational attainment we ignore them. Instead we look for other causal mechanisms, like low expectations of teachers, or the quality of teachers' subject matter knowledge, to explain the relationship. Of course the low expectations of teachers and their subject matter competency are important. But I keep thinking about that 600 pound gorilla out there asking for more attention than it is getting. That big ape may be causal in the relationships we consistently find between poverty and achievement.

Since the relationship is well known let us look briefly at how US poverty is related to student achievement in just the international studies, since it is our international competitiveness that worries so many in industry and government, and it is those worries that kindled the reform movement in education. We can start with the recent Trends in International Mathematics and Science Study, known as TIMSS 2003, released just a few months ago (Gonzales, Guzmán, Partelow, Pahlke, Jocelyn, Kastenberg, & Williams, 2004). Table 2 presents data

on mathematics and science scores for American 4th and 8th grade youth disaggregated by the degree of poverty in the schools they attend.

Poverty level of school (percent free or reduced lunch)	Fourth grade math scores	Fourth grade science scores	Eighth grade math scores	Eighth grade science scores
Less than 10% in poverty (schools with wealthy students)	567	579	547	571
10% - 24.9% in poverty	543	567	531	554
25% - 49.9% in poverty	533	551	505	529
50% - 74.9% in poverty	500	519	480	504
75% or more in poverty (schools with poor students)	471	480	444	461
US Average Score	518	536	504	527
International Average Score	495	489	466	473

Table 2. Fourth and eighth grade mathematics and science scores from TIMMS 2003 (Gonzales, et al., 2004).

In this table three aspects of our performance with regard to other nations are instructive. First, our scores in both subject areas and at both grade levels were correlated perfectly with the percent of poor students who attend a school. In the five categories presented, schools with the wealthier students had the highest

average score, the next wealthier set of schools had students who had the next highest average score, and so forth, until we see that the schools with the poorest students had the students who scored the lowest. This pattern is common.

The second thing to note is that the average scores for the schools with less than 50 percent of their students in poverty exceeded the US average score, while the average scores for the schools with greater than 50 percent of their students in poverty fell below the US average score. This tells us who is and who is not succeeding in the US.

The third thing to notice pertains to the schools that serve the most impoverished students, where 75% or more of the students are eligible for free or reduced lunch. That is, almost all the students in these schools live in extreme poverty and those are the students that fall well below the international average obtained in this study. In general, Table 2 informs us that our poor students are not competitive internationally while our middle classes and wealthy public school children are doing extremely well in comparison to the pool of countries that made up TIMSS 2003.

As we go through these data and learn that poor students are not doing well in international competitions, the question we seem unable to raise and debate intelligently, is this: Why do we put so much of our attention and resources into trying to fix what goes on inside low performing schools when the causes of low performance may reside outside the school? Is it possible that we might be better off devoting more of our attention and resources than we now do toward helping the families in the communities that are served by those schools? That would certainly be a competitive strategy for solving the problem of low academic performance if it is simply poverty (along with its associated multitude of difficulties) that prevents most poor children from doing well.

There are more international data to examine. The OECD has instituted a three-year cycle for looking at reading, mathematics, and science for 15 year olds, called the PISA studies—The Program for International Student Assessment (Lemke, Calsyn, Lippman, Jocelyn, Kastberg, Liu, Roey, Williams, Kruger, & Bairu, 2001). Unfortunately PISA doesn’t do a very good job of breaking down the data by social class. So I report on ethnicity and race to discuss the effects of poverty on achievement. Given the high inter-correlations between poverty, ethnicity, and school achievement in our country, it is (sadly) not inappropriate to use ethnicity as a proxy for poverty.

Tables 3, 4 and 5 display the performance in 2000 of US 15 year olds in mathematics, literacy, and science, in relation to other nations. What stands out first is a commonly found pattern in international studies of achievement, namely, that US average scores are very close to the international average. But in a country as heterogeneous and as socially and ethnically segregated as ours, mean scores of achievement are not useful for understanding how we are really doing in international comparisons. Such data must be disaggregated. I have done that in each of the three tables presenting PISA data. From those tables we see clearly that our white students (without regard for social class) were among the highest performing students in the world. But our African American and Hispanic students, also undifferentiated by social class, were among the poorest performing students in this international sample.

Country	Score
Japan	557
Korea, Republic of	547
New Zealand	537
Finland	536
Australia	533
Canada	533
United States Average Score for White Students	**530**
Switzerland	529
United Kingdom	529
Belgium	520
France	517
Austria	515
Denmark	514
Iceland	514
Sweden	510
Ireland	503
Norway	499
Czech Republic	498
United States Average Score	**493**
Germany	490
Hungary	488
Spain	476
Poland	470
Italy	457
Portugal	454
Greece	447
Luxembourg	446
United States Average Score for Hispanic Students	**437**
United States Average Score for African American Students	**423**
Mexico	387

Table 3. Mathematics scores (mean 500) from PISA 2000 (Lemke, et al., 2001).

Country	Score
Korea, Republic of	552
Japan	550
United States Average Score for White Students	**538**
Finland	538
United Kingdom	532
Canada	529
New Zealand	528
Australia	528
Austria	519
Ireland	513
Sweden	512
Czech Republic	511
France	500
Norway	500
United States Average Score	**499**
Hungary	496
Iceland	496
Belgium	496
Switzerland	496
Spain	491
Germany	487
Poland	483
Denmark	481
Italy	478
Greece	461
Portugal	459
United States Average Score for Hispanic Students	**449**
United States Average Score for African American Students	**445**
Luxembourg	443
Mexico	422

Table 4. Literacy scores (mean 500) from PISA 2000 (Lemke, et al., 2001).

Country	Score
Korea, Republic of	552
Japan	550
Finland	538
United States Average Score for White Students	**535**
United Kingdom	532
Canada	529
New Zealand	528
Australia	528
Austria	519
Ireland	513
Sweden	512
Czech Republic	511
France	500
Norway	500
United States Average Score	**499**
Hungary	496
Iceland	496
Belgium	496
Switzerland	496
Spain	491
Germany	487
Poland	483
Denmark	481
Italy	478
Greece	461
Portugal	459
Luxembourg	443
United States Average Score for Hispanic Students	**438**
United States Average Score for African American Students	**435**
Mexico	422

Table 5. Science scores (mean 500) from PISA 2000 (Lemke, et al., 2001).

Looking at all three tables reveals something very important about inequality in the US. If the educational opportunities available to white students in our public schools were made available to all our students, the US would have been the 7th highest scoring nation in mathematics, 2nd highest scoring nation in reading, and the 4th highest scoring nation in science. Schooling for millions of US white children is clearly working quite well. On the other hand, were our minority students "nations," they would score almost last among the industrialized countries in the world.

Given these findings, and a scientific attitude, we should be asking what plausible hypotheses might differentiate the education of white, African American, and Hispanic students from one another? Segregated schooling seems to be one obvious answer. Orfield and Lee (2005) in their recent report on school segregation make clear how race and schooling are bound together, as is shown in table 6.

	Minority make-up of school		
	50 – 100%	90 – 100%	99 – 100%
White Students	12	1	0
Latino Students	77	38	11
Black Students	73	38	18

Table 6. Minority makeup of schools attended by different racial/ethnic groups (Orfield & Lee, 2005).

Orfield and Lee's data suggests that segregation is an overriding contributor to the obvious scoring disparities that exist between races. Only 12% of white children go to schools where the majority of the students are not white. And only

1 percent of white students go to schools that are over 90 percent minority. Eighty-eight percent of white children are attending schools that are majority white. In contrast, almost all African American and Latino students, usually poorer than their white age-mates, are in schools where there are students very much like them racially and socio-economically. Latinos and African Americans are as segregated by poverty, as they are by race and ethnicity, which may be the more important issue with which our schools have to deal.

In the 2003 PISA studies that just came out a few months ago the US position relative to other OECD nations slipped. No one is sure why this happened, and we will have to see if this holds up when the 2006 PISA results are analyzed. But relative positions of white, African American, and Hispanic students remained the same and quite discrepant. For example, Table 7 presents the PISA 2003 scores in mathematics literacy, the latest international scores we have. These data are disaggregated by both race and social class (Lemke, Sen, Pahlke, Partelow, Miller, Williams, Kastberg, & Jocelyn, 2004).

	WHITE	512
RACE	AFRICAN AMERICAN	417
	HISPANIC	443

	Q 1 (LOWEST SES)	448
SOCIAL CLASS	Q 2	477
BY QUARTILE	Q 3	497
	Q 4	530

Table 7. Mathematical literacy scores in PISA 2003, by both race and social class (Lemke, et al., 2001).

The pattern of results in Table 7 looks familiar, regardless of whether we examine race or social class. White students (disregarding social classes) and

upper income students (of all races) score well. Their test scores in mathematics literacy are significantly above the international average. But lower social class children of any race and black or Hispanic children of all social classes are not performing well. They score significantly below the international average. Clearly those who are poor do not have the mathematical skills to compete internationally, and those particular children are often African American and Hispanic. Poverty, race and ethnicity are inextricably entwined in the USA.

One more study is informative in this brief look at poverty and the performance of US students in international comparisons. This is the PIRLS study (Ogle, Sen, Pahlke, Jocelyn, Kastberg, Roey, & Williams, 2003). PIRLS stands for Progress in International Reading Literacy, a reading assessment administered to 9 and 10 year olds in 35 nations. The data from this comparison are presented in Table 8. The US did quite well. Our nation ranked ninth, though statistically, we tied with others at third place. This is quite heartening since these data prove our President and former Secretary of Education wrong in their belief that teachers in the US cannot teach reading.

Rank	Country	Score
1	Sweden	561
2	Netherlands	554
3	England	553
4	Bulgaria	550
5	Latvia	545
6	Canada	544
7	Lithuania	543
8	Hungry	543
9	U.S.A.	542
10	Italy	541

Table 8. Highest scoring nations in reading literacy for nine- and ten-year-olds in 35 countries (PIRLS 2001, Ogle et al., 2003).

But PIRLS revealed more than the fact that for the second time in about a decade US 9 year olds showed remarkably high literacy skills. For instance, the mean score of US white children, without any concern about their social class status, was quite a bit higher than that of the Swedish children who, it should be noted, are also a very white group, and in this study the leading nation in the world. Once again we see that millions of US white children are doing well against international benchmarks. Further, when we take social class into consideration by looking at the scores of students who attend schools where there are few or no children of poverty, we learn that this group of public school children performed quite well. In fact, these higher social class children from the US walloped the Swedes, scoring 585, an average of 24 points higher than the average score obtained by Swedish students. Public school students by the millions, from US schools that do not serve many poor children, are doing fine in international competition.

But the scores obtained by students attending schools where poverty is prevalent are shockingly low. The mean score in literacy in schools where more than 75% of the children are on free and reduced lunch was 485, 100 points below the scores of our wealthy students, and well below those of many nations that are our economic competitors. The PIRLS study also informed us that, compared to other nations, the USA had the largest urban/suburban score difference among the competing nations. In that finding, as in the segregation data, we see a contributor to many of our nations' educational problems. The urban/suburban social class differences in the US result in de facto segregation by race and ethnicity. Middle- and upper-class white families in the suburbs live quite separately from the poor and ethnically diverse families of the urban areas. School and community resources differ by social class, and therefore differ also by race and ethnicity.

From these recent international studies, and from literally thousands of other studies both domestic and international, we learn that the relationship between social class and test scores is positive, high, and well embedded in theories that can explain the relationship. This suggests a hypothesis that is frightening to hear uttered in a capitalist society, namely, that if the incomes of our poorest citizens were to go up a bit, so might achievement scores and other indicators that characterize a well-functioning school. Sometimes a correlation exists precisely because causation exists.

How poverty affects achievement

Can a reduction of poverty improve the achievement of the poor and the schools they are in? I will only mention a few of the many studies that have caught my attention while thinking about this issue. One that impressed me greatly demonstrated that poverty, pure and simple, prevents the genes involved in academic intelligence to express themselves (Turkheimer, Haley, Waldron, D'Onofrio, & Gottesman, 2003).

We all have heard of the occasional feral child, or about the child kept locked in a closet for some years. We learned from those cases that under extreme environmental conditions whatever genetic potential for language, height, or intellectual functioning a child had, that potential was unable to be expressed. The powerful and awful environment in which such children lived suppressed the expression of whatever genes that child had for complete mastery of

language, for full height, for complete intellectual functioning, for competency in social relationships, and so forth.

This is the same point made by evolutionary biologist Richard Lewontin (1982), who discussed how two genetically identical seeds of corn, planted in very different plots of earth would grow to very different heights. In the plot with good soil, sufficient water, and sunshine, genetics accounts for almost all of the noticeable variation in the plants, while environment is much less of a factor in the variation that we see. On the other hand, when the soil, water, and sun, are not appropriate, genetics do not account for much of the noticeable variation among the lower-growing and often sickly plants that are our harvest. Genes do not have a chance to express themselves under poor environmental conditions.

Lewontin's example now has a human face. There is strong evidence that the influence of genes on intelligence is quite dependent on social class. For example, Turkheimer and his colleagues determined the hereditability of IQ for those who were and were not economically advantaged. The total sample studied began with almost 50,000 women, followed from pregnancy on, in the National Collaborative Perinatal Project. These women gave birth to hundreds of twins, both mono- and di-zygotic. At the lowest end of the socioeconomic spectrum were families with a median income of $17,000 a year in 1997 dollars. One in five of these mothers was younger than 21, one-third of them were on public assistance, and more than one-third did not have a husband. These were the most impoverished of the family groupings studied, the kind of people that we ordinarily refer to as very poor. Unlike most other studies of hereditability in twins there were enough of these families in the sample to do a separate estimate of the hereditability of IQ in their children. Wechsler IQ was measured for the twins when they were 7 year-old, old enough to get a good fix on what their adult IQ was likely to be. The findings are clear and presented in figure 7.

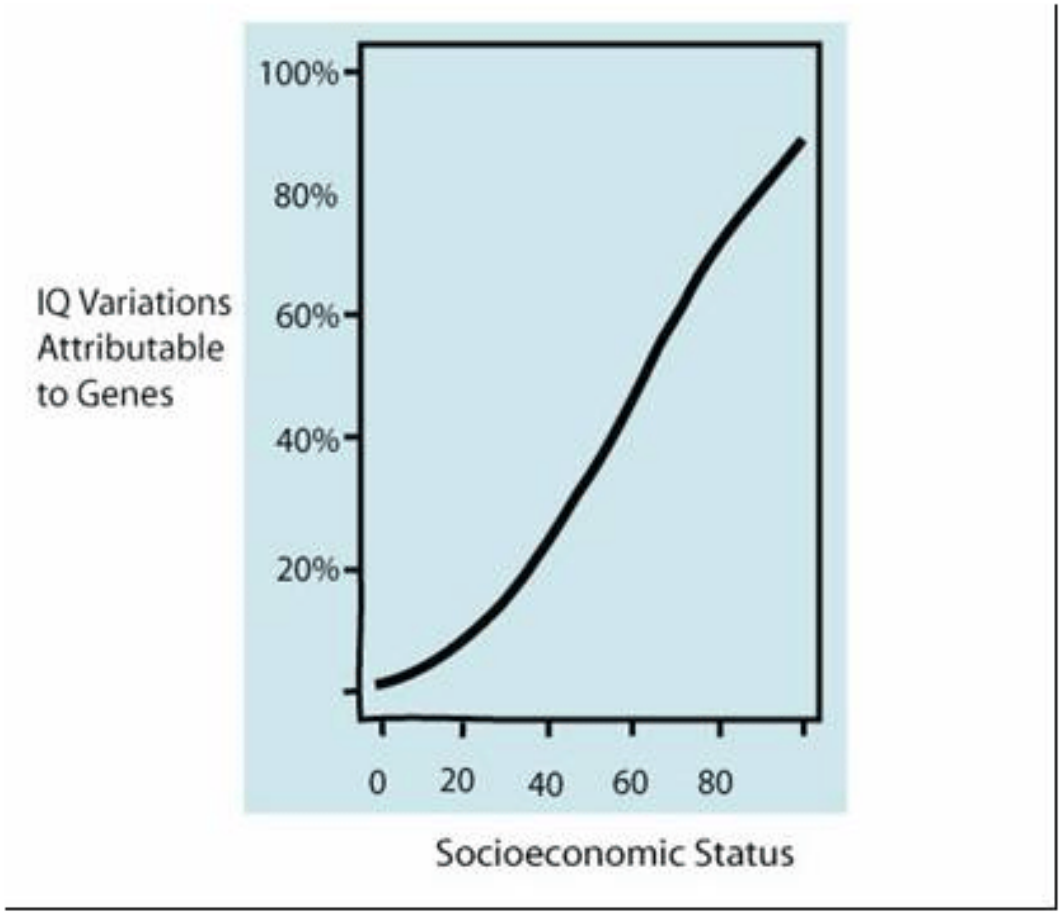

Figure 7. Percentage of variation in IQ attributable to genes, for various levels of socioeconomic status (Turkheimer, et al., 2003, used by permission of the authors).

Figure 7 presents the smoothed curve of the relationship between genotype and phenotype, between hereditability and its expression. It shows that at the low end of the 100 point scale that was used to measure socioeconomic status, the heritability of IQ was found to be about 0.10 on a scale of zero (no hereditability) to one (100 percent hereditable, as is eye-color); at the other end of the SES scale, we see that for families of the highest socioeconomic status, the heritability was estimated to be it 0.72.

That is, among the lowest social classes, where the mean IQ is quite a bit lower than that of those in the higher social classes, only 10 percent of the variation we see in measured IQ is due to genetic influences. Thus, the environment accounts for almost all the variation in intelligence that we see. Just as in Lewontin's corn growing example, genetic variation in intelligence in these impoverished environments is not being expressed in the measures we use to assess

intelligence. And also as in Lewontin's example, at the top end of the SES scale, almost three quarters of the variation we see in measures of intelligence is due to genetic influences. These findings suggest a number of things.

First, put bluntly, poverty sucks. Among the poor the normal variation we see in academic talent has been sucked away, like corn growing in bad soil.

Second, all charges of genetic inferiority in intelligence among poor people, minorities or not, have little basis. Genes are not accounting for much of their phenotypic IQ. Environment is the overwhelming influence on measured IQ among the poor. This suggests that unless environments for the most impoverished improve we will not see the expression of the normal human genetic variation in intelligence that is expected. The problem we have, however, is that we don't yet know with much certainty how to improve those environments, because we don't yet know what it is about those environments that is so debilitating. However, Occam's razor suggests that the simplest explanation should be given precedence when attempting to explain any phenomenon. The simplest explanation available is that poverty, and all it entails, causes a restriction of genetic variation in intelligence. We do not need to wait until we understand the micro-environments of the poor to know that the macro- environment of the poor needs to be changed if we desire to let all the genetic talent that exists among the poor flower.

A third thought arises from this study, and others like it. That is, if genes are not accounting for a great deal of variation in IQ among the poor, and environment is, then environmental interventions for poor people are very likely to change things. In fact, environmental changes for poor children might be predicted to have much bigger effects than similar changes made in the environments for wealthier children. This often appears to be the case, a conclusion reached by Duncan and Brooks-Gunn (2001) using different data. When I look at the studies of the effects of small class size for the poor, or the effects of early childhood education for the poor, or the effects of summer school programs for the poor, the largest effects are found among the poorest children. Thus it seems to me that Turkheim et al., bring us remarkably good news from their study of genetic influences on IQ. The racism and pessimism expressed in the *Bell Curve* by Herrnstein and Murray (1994) can now be seen as completely unjustified because among the very poor genes are not very powerful influences on intelligence, while environments are.

Point four arising from this study is derived from figure 8, also taken from the

Turkheimer et al. study. This graph informs us that most of the variation in IQ at the bottom of the SES ladder is due to the environments shared by family members, and that the family's role in the expression of intelligence is less and less important as you go up in social class standing.

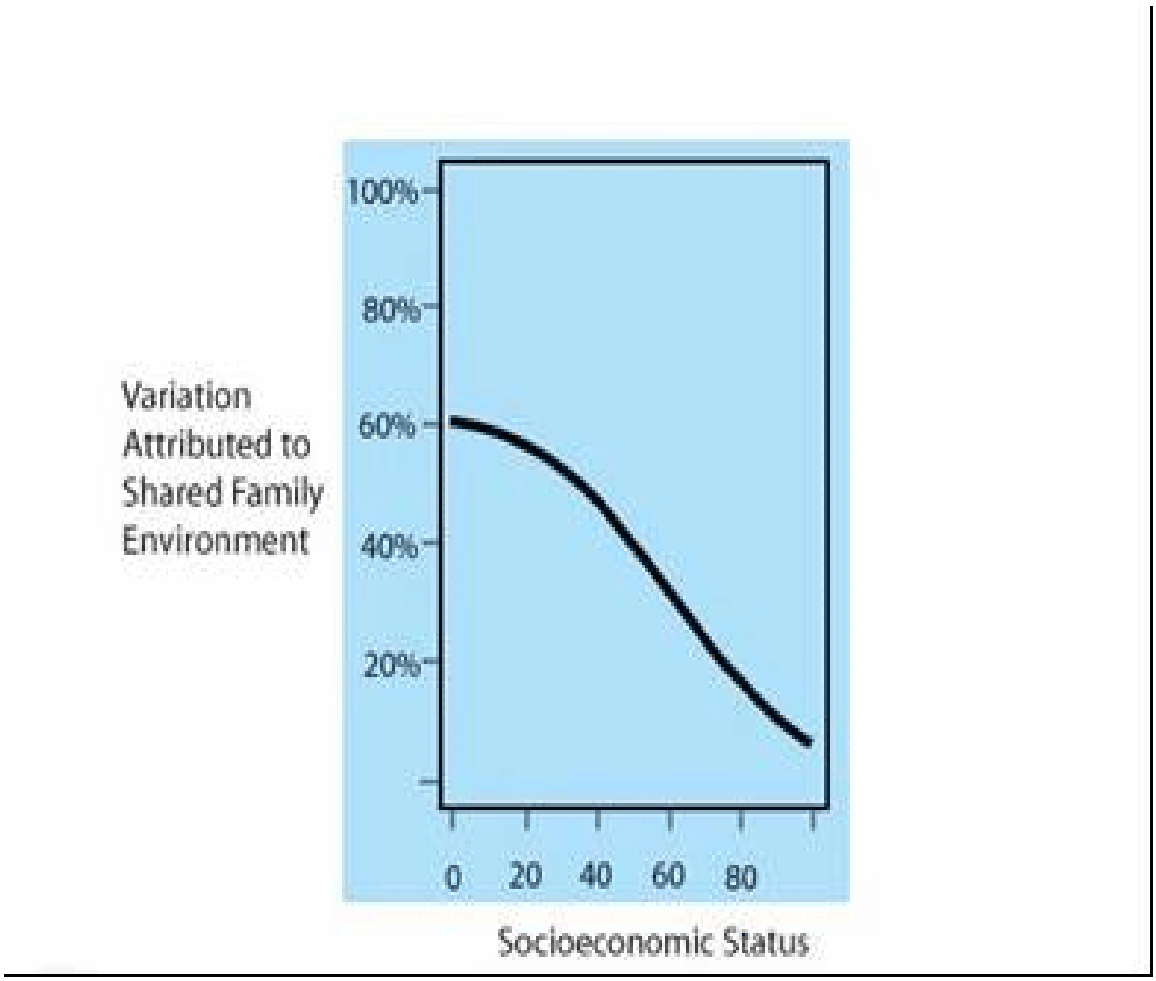

Figure 8. Percentage of variation in IQ attributable to shared family environment, across various levels of socioeconomic status (Turkheimer, et al., 2003, used by permission of the authors).

Figure 8 is the inverse of what was presented in figure 7. Here we see that the variance in intelligence that is due to shared family factors is four times larger among the poor then it is among the rich. This is another way of saying that environments matter a lot more in the determination of IQ for poor children than

they do for wealthier children. After a certain point of environmental adequacy is achieved by means of economic sufficiency, it apparently doesn't much matter what gets added to the environment. A healthy childhood environment supported by adequate family economics is an amalgam of many factors, but probably includes a regular supply of nutritious food, stability in feelings of security, quick medical attention when needed, high quality child-care, access to books and exposure to rich language usage in the home, and so forth,

Children with these kinds of environments were planted in good soil, and under those conditions the variation we see is mostly genetic and not environmental, however counter intuitive that seems. But the flip side of this is that positive changes in environments for the poor, say high quality child care, are expected to have much bigger effects on outcomes we value than they would have when provided to middle-class and wealthier students. That is why high quality child-care, good nutrition, and medical attention don't just matter for the poor: They matter a lot!

School reformers are doing their best. But they are often planting in poor soil. While you can eek out a living doing that, and occasionally you even see award-winning crops come from unlikely places, we all know that the crops are consistently better where the soil is richer. Healthy trees do not often grow in forests that are ailing, though there are always some resilient ones that thrive, making us forget that most do not. Resilient children and the occasionally exemplary school that exists amidst poverty should be lauded and supported. But the focus of our attention must be on the fact that most children in poverty and most schools that serve those children are not doing well.

The simplest way to get a healthier environment in which to raise children is to provide more resources for parents to make those changes for themselves. Despite the shortcomings of many parents at every level of social class, I still believe the proper place to begin solving the problem of low achievement among poor families is by making those families less poor. I am not talking about a government giveaway. I seek only employment that can supply families with the income that gives them the dignity and hope needed to function admirably, allowing them to raise their children well.

How money affects school achievement

How would a bit more income per family influence educational attainment? The two answers that immediately spring to mind are about health and neighborhood, which I address next.

Health issues affecting the poor. The many medical problems that are related to social class provide obvious and powerful examples of problems affecting school achievement that are remediable with a little extra money. For example, at the simplest level are medical problems such as otitis media and those associated with vision.

Otitis media is a simple and common childhood ear infection, frequently contracted by rich and poor children alike between birth and 3 years of age. In a number of studies, recurring otitis media in the first 3 years of life has been related to hearing impairments, and thus to language development, and thus to reading problems in school, and therefore to deficits on tests such as the Stanford-Binet intelligence test. Otitis media is also implicated in the development of ADHD (see, for example, Agency for Healthcare Research and Quality, 2005; Hagerman & Falkenstein, 1987; Knishkowy, Palti, Adler & Tepper, 1991; Luotonen, Uhari, Aitola, Lukkaroinen, Luotonin, Uhari, & Korkeamaki, 1996). This literature makes clear that poor children have more untreated cases of otitis media than do those that are financially better off, especially those with medical insurance. The cause of otitis media may not be directly linked to poverty, but its prevalence and lack of treatment in children is quite clearly affected by poverty.

For example, recurrent otitis media as well as other childhood diseases before age 3 are found to be strongly and negatively related to breast-feeding—the less breast feeding, the greater the rate of a number of childhood diseases. But breast-feeding of infants in America is done significantly less frequently by women who are poor (Center for Disease Control, 2005). Breast-feeding is also done significantly less often by those who only have high school degrees or have not finished high school and by those mothers who are under 19 and who are not married (Center for Disease Control, 2005).

In other words, poverty affects otitis media and other childhood diseases indirectly through home practices that are more common among the poor and less common in the middle class. Another example makes this point as well. The relationship to recurring otitis media is also strongly positive for pacifier use (Niemela, Pihakari, Pokka, Uhari, & Uhari, 2000). Pacifiers are used more

commonly, and for longer periods of time, among the lower social classes.

In the final analysis, while otitis media isn't a disease of the poor, the characteristics of child rearing and of home environment among the poor of all races and ethnicities leads to more medical problems for the children of the poor. And then, since the poor often lack proper medical insurance, they have a much greater chance of having hearing handicaps at the stage of their lives where language is being developed. In just a few years those handicaps will emerge as reading problems in the classroom.

Otitis media is precisely the kind of problem that is likely not to be much of a factor if the poor were a little richer and in possession of adequate health insurance. Note also that the norms regarding breast-feeding and pacifier use influence all who live in middle-class neighborhoods in a positive way, while the neighborhood norms for these same factors result in negative effects on children in the communities of the poor. A little more money in the lives of the poor would buy them neighborhoods with healthier norms for behavior, as well as medical insurance.

Vision is another simple case of poverty's effects on student behavior outside the teachers' control. For example, two different vision screening tests, one among the urban poor in Boston and one among the urban poor in New York each found that over 50% of the children tested had some easily correctable vision deficiency, but most such cases were not followed up and corrected (Gillespie, 2001).

An optometrist working with poor children notes that the mass screening vision tests that schools typically use rarely assess the ability of children to do close up work—the work needed to do reading, writing, arithmetic, and engage in computer mediated learning (Gould & Gould, 2003). What optometrists point out is that a better set of mathematics standards seems less likely to help these students improve in school than does direct intervention in their health and welfare, perhaps most easily accomplished by ensuring that the families of these children earn adequate incomes and are provided medical insurance.

The complexity of the medical problems increases when we discuss asthma. Asthma has now has reached epidemic proportions among poor children. One survey in the South Bronx found a fourth grade teacher where 12 of his 30 students have asthma and 8 of those have to bring their breathing pumps to school every day (Books, 2000). Seven years ago, according to the National

Institutes of Health, asthma alone resulted in 10 million missed school days a year, with many individual children missing 20 to 40 school days a year (National Institutes for Health, 1998, cited in Books, 2000). This year, however, a survey puts missed school days due to asthma at 21 million (Children & Asthma in America, 2005). Asthma is simply preventing millions of children of all social classes from attending school and studying diligently. But asthma's effects on children from middle-income families are not nearly as severe as they are on the children of low-income families. Time-on-task, as we all know, is one of the strongest predictors of learning in schools. So it is no great leap of logic to point out that poor children, compared to their middle class counterparts, will be missing a lot more school because of asthma, and thus will be learning a lot less.

Another level up in the seriousness of the medical problems that afflict the poor has to do with the effects of lead on mental functioning. Michael Martin (2004) of the Arizona School Boards Association has convinced me that this is much more of a problem than I had thought. No one I could find in the medical profession disputes the fact that very small amounts of lead can reduce intellectual functioning and diminish the capacity of a child to learn. The damage that lead does is almost always permanent. The good news is that lead poisoning is in decline. The bad news is that the Centers for Disease Control still estimates that some 450,000 children in the United States between 1 and 5 years of age show levels of lead in their blood that are high enough to cause cognitive damage (Center for Disease Control, 2004). A simple extrapolation gives us a K-6 schooling population of another half million students with levels of lead in the blood high enough to cause neurological damage. The epidemiological data suggests that another half million brain damaged students are enrolled in our middle and high schools. The effects of lead poisoning may be small or large, but whatever damage is done by the lead in the system, it is usually permanent.

Do the millions of children affected in small and big ways by lead poisoning have anything in common? They sure do. They are mostly poor and mostly children of color. The poor live in older inner city buildings where lead contamination from paint, and lead dust from many other sources, is prevalent. But the poor cannot move and cannot afford the paint removal costs since they do not have the income to do so.

Figure 9 presents data from California showing the age of the school and the lead that children are exposed to. It is likely to be the case that the relationship shown in figure 9 holds for all states. Essentially what is demonstrated there is that children attending schools built since 1980 are not being exposed to lead in

the schools or in the soil around the schools, while the children in older schools are exposed to toxic levels of this dangerous metal. The children who attend new and old schools are not a random selection of children from the population. The poor are exposed to lead's toxicity many times more than the rich.

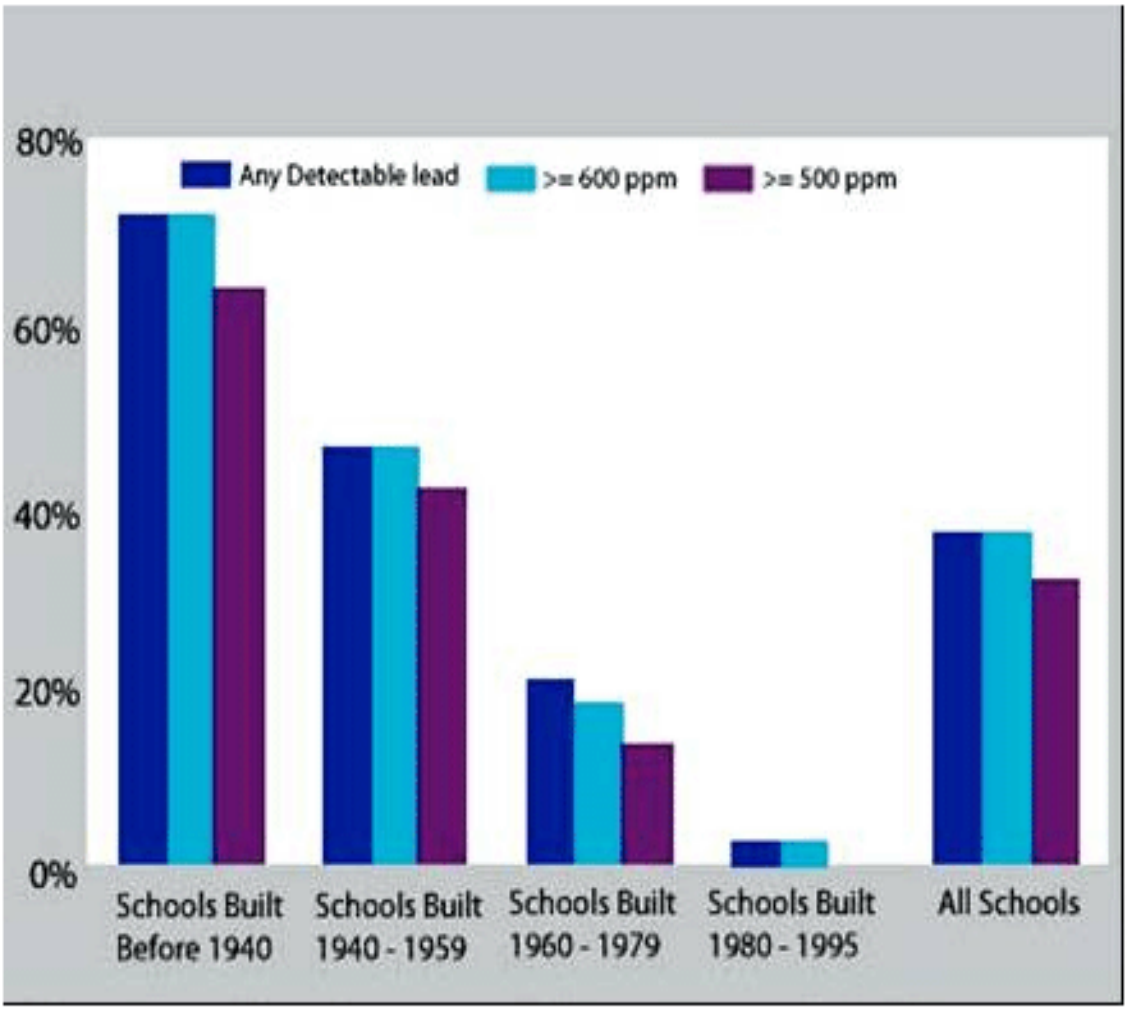

Figure 9. Percent of California public elementary schools with various levels of lead paint and lead deterioration, by age of school. (U.S. Environmental Protection Agency, 2003, based on data from the late 1990s.)

The literature on the symptoms of lead poisoning remind me of the problems new teachers tell me about when they teach in schools that serve the poor. A lead-damaged nervous system is associated with a variety of problems including learning disabilities, ADHD, increased aggression, and lower intelligence, and those symptoms among older children are also linked with drug use and a greater likelihood of criminal behavior (see reviews by Books, 2000; and Rothstein, 2004).

Though a reduction of, say, 4 or 5 IQ points is not disastrous in a single poisoned child, that IQ reduction in a population will increase by 50 percent the number of children who qualify for special education, just about what we see in the schools serving the poor. Bailus Walker, a member of both the National Academy of Sciences and the Institute of Medicine says:

"The education community has not really understood the dimensions of this because we don't see kids falling over and dying of lead poisoning in the classroom. But there's a very large number of kids who find it difficult to do analytical work or [even] line up in the cafeteria because their brains are laden with lead (cited in Martin, 2004)."

Space limitations do not allow me to discuss mercury poisoning—a terribly powerful neurotoxin that gets into the air around medical waste disposal plants and coal fired power plants. But just ask yourselves who lives in the vicinity of the big urban medical waste facilities or are downwind of a coal-fired power plant? The answer, of course, is that poor families, mostly Hispanics and African Americans, are those who live closest to these toxic facilities. That is the basis for charges about environmental racism.

Perhaps it is even more accurate to call it environmental classism, because the poor feel the brunt of these problems regardless of ethnicity. What is clear is that poor children and their parents are getting more lead and more mercury in their systems then their wealthier kin.

What is also important to note is that the symptoms presented by lead and mercury exposure, like ADHD, irritability, problems of concentration, and the like, are problems that display degrees of impairment. It is not like being pregnant, where a woman either is or is not. So if the lower classes suffer from exposure to lead and mercury more than those in the higher social classes, then there will be more impairments that are slight, as well as those that are more obviously noticeable. In fact at least one recent study of lead effects claims that there is absolutely no safe level for lead. It *always* causes negative cognitive and behavioral effects (Lanphear, Dietrich, Auinger, & Cox, 2000). These invisible medical problems often translate into misbehavior in school, probably resulting in more poor children receiving punishment and having negative school experiences than might their healthier middle-class peers.

The set of environmentally caused problems, both small and large, become

teacher and school problems that cannot be fixed by administrators and teachers. Yet we have many politicians who worry little about environmental pollution but are quick to blame educators for the poor achievement of some schools, although that poor achievement may be, in part, a result of problems they could help to solve. I believe that more politicians need to turn their attention to the outside-of-school problems that affect inside-of-school academic performance.

There is another medical problem that is directly related to poverty. Premature births and low birth weight children are much more common problems among the poor. Neural imaging studies show that premature and low birth weight children are several times more likely to have anatomic brain abnormalities than do full-term, full birth weight controls (Peterson, Anderson, Ehrenkranz, Staib, Tageldin, Colson, Gore, Duncan, Makuch & Mendt 2003). Quantitative comparisons of brain volumes in 8-year-old children born prematurely, and age-matched full-term control children also found that brain volume was less in the prematurely born. The degree of these morphologic abnormalities was strongly and inversely associated with measures of intelligence (Peterson, Vohr, Staib, Cannistraci, Dolberg, Schneider, Katz, Westerveld, Sparrow, Andersobn, Duncan, Makuch, Gore, & Mendt, 2000). Unfortunately social class and birth defects have been found to be significantly correlated in hundreds of studies. Some of the relationships seem associated with life style problems (drug and alcohol use, vitamin deficiencies), while some seem neighborhood related (waste sites, lead, pesticides). But in either case, the children will still go to public schools five years later.

How neighborhoods affect the poor. Neighborhoods communicate norms for behavior, such as in the case of drugs and alcohol, breast-feeding or pacifier use, and achievement. For example, Garner and Raudenbush (1991) looked at student achievement in literacy in 16 secondary schools and in 437 neighborhoods in a set of school districts. The neighborhoods were scaled to reflect socio-demographic characteristics, precisely the kinds of things that make one choose to live in (or not live in) a neighborhood. These included overall unemployment rate, youth unemployment rate, number of single parent families, percent of low earning wage earners, overcrowding, and permanently sick individuals. When Hierarchical Linear Modeling was used to analyze these data, significant school-to-school variance was found even when controlling for family background and neighborhood. Happily, this tells us that we should continue working on making schools better. This study and many others demonstrate that school effects are real and powerful: Schools do exert positive influences on the lives of the poor.

But the analysis did not stop there. The neighborhood deprivation variable showed a negative effect on educational attainment even after variation in the individual students and the schools they attend were stringently controlled. This was not a trivial statistical finding. For two students with identical prior background in achievement, with identical family backgrounds, and even with identical school membership, the differences in their educational attainment as a function of their neighborhood deprivation was estimated to be a difference of between the 10th and the 90th percentile on an achievement tests.

More recently sociologists Catsambis and Beveridge, verified these finding using NELS 88 data with mathematics achievement as the outcome (2001). They found that neighborhood had significant direct and indirect effects on achievement, often by depressing parental practices that were usually associated with better student achievement.

The combination of home circumstances, neighborhood, and school are powerful influences on a secondary students' life circumstances. But independent of the other factors, neighborhood deprivation showed powerful effects on its own. Tragically, good parents too frequently loose their children to the streets: neighborhood effects are strong. Families who have enough money to move out of a dysfunctional neighborhood do so. On the other hand, poverty traps people in bad neighborhoods that affect their children separately from the effects of home and school.

Jeanne Brooks-Gunn and her colleagues (Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993) also found that neighborhood effects rival family effects in influencing child development. In addition they found that the absence of more affluent neighbors is more important then the presence of low income neighbors (Brooks-Gunn, Duncan, Klebanov, & Sealand, 1993). This means that well-functioning adult role models are needed in low-income neighborhoods, and that such positive role models count for a lot in the lives of poor children.

In sum, zip codes matter. Zip codes can determine school achievement as much or more than does the influence of a persons' family, and they often have more power then the quality of the school a child attends. While family involvement and school improvement programs are each to be supported, and some have garnered success (Comer, 2004), they cannot be expected to do all that needs to be done. Most low performing schools serve poor children who live in neglected neighborhoods and we pay a price for our communal neglect.

We all know that urban segregation of the poor, along with segregation of language minorities and ethnic groups, is the reason that zip codes matter. Since the end of World War II there has been a gradual decline of white middle and upper class families in large metropolitan centers. As those families moved to suburbs or small cities the white middle class students in the schools of the central cities were replaced by large concentrations of black and Latino students. As Orfield and Lee point out (2005), these minority and poor communities had to cope with inadequate and decaying housing, weak and failing urban infrastructures, shortages of jobs, and perhaps among the most important of these problems, a critical lack of mentors for urban youth. As Rumberger (1987) noted some time ago, without strong positive peer influences, children attending high poverty schools are not likely to achieve well. Zip codes do matter. They determine who is around to exert an influence during a child's formative years.

The zip codes of the middle class have influence too. Several empirical studies have found that attending a middle class school exposes minority students to higher expectations and more educational and career options. One team of researchers studied voluntary transfer policies in metropolitan St. Louis (Wells & Crain, 1997). They observed that minority students who attend middle- and upper-class schools had higher educational achievement and college attendance rates than their peers in schools where poverty was concentrated. Studies of Boston students who attended suburban public schools revealed that they had access to knowledge and networks of knowledge that their peers in inner city Boston lacked (Eaton, 2001). These experiences increased their educational and professional opportunities. The famous Gautreaux study of Chicago made this plain years ago (Rubinowitz & Rosenbaum, 2000). In that natural experiment a random set of families received vouchers to move from the 'hood to the 'burbs. Their children succeeded much better than did an equivalent control group. The Gautreaux study provides convincing evidence of the power of neighborhood, and the schools available to those neighborhoods, to influence our nation's youth.

Although we have no idea what the micro-elements of a middle class culture are, when such a culture is well entrenched in a neighborhood, it is the best insurance that the schools in that neighborhood will have the quality and the student norms of behavior that lead to better academic achievement. Perhaps it is because middle class and residentially stable neighborhoods often manifest a collective sense of efficacy and that, in turn, determines the ways that youth in those neighborhoods are monitored as they grow up (Sampson, Raudenbush & Earls, 1997).

On the other hand, neighborhoods that perpetuate the culture of poverty cannot help but have that culture spill over into the schools their children attend. Obviously, one way to help the American schools achieve more is to weave low-income housing throughout more middle class zip codes. This would provide more low-income people with access to communities where stability exists, efficacy is promoted and children have access to a variety of role models. But we are an economically segregated country, a condition perpetuated in various ways by the more affluent and powerful in the nation. So this is not likely to happen.

Yet another way to harness neighborhood effects on achievement is ensuring that low-income people have access to better paying jobs so they can make more money and spend more on decent housing. Poverty is what drives families into zip codes that are not healthy for children and other living things. And all those unhealthy things they experience end up, eventually, to be dealt with inside the school house. Figure 10 represents this all-to-common state of affairs.

Figure 10. Representation of some of the ways that poverty affects schooling. (Photograph

used by permission of Getty images.)

I could go on. The rates of hunger among the poor continue to be high for an industrialized nation (Nord, Andrews & Carlson, 2004). In 2003 about 12.5 million households, around 36 million people, suffered food insecurity. About 4 million of those households, or around 9.5 million people, actually went hungry some time in that year. And sadly, one-third of this group experienced *chronic* hunger. Seventeen percent of the households with food insecurity have children, and these children do not ordinarily learn well. Perhaps equally unfortunate is the fact that the neighborhood norms for people who are poor promote non-nutritional foods and diets that lead to medical problems. Anemia, vitamin deficiencies, obesity, diabetes and many other conditions that affect school learning help to keep the academic achievement of poor children lower than it might otherwise be.

The lack of high quality affordable day care and quality early childhood learning environments is a problem of poverty that has enormous effects on later schooling. The early childhood educational gap between middle class and poor children is well documented by Valerie Lee and David Burkham in their book *Inequality at the starting gate* (2002). More recent studies of the economic returns to society of providing better early childhood education for the poor have looked at the most famous of the early childhood programs with longitudinal data. From projects such as the Perry Preschool, the Abecedarian Project, the Chicago Child-Parent Centers, and the Elmira Prenatal/Early Infancy Project, scholars find that the returns to society range from $3 to almost $9 for every dollar invested. Grunewald and Rolnick (2004, p. 6) of the Minneapolis Federal Reserve noted that when expressed as a rate of return “the real (adjusted for inflation) internal rates of return on these programs range from about seven percent to above 16 percent annually” (see also Lynch, 2004, for a similar argument). Thus, since the return on investment to society for making high-quality early childhood programs available to all of our nation’s children is remarkably large, why are we *not* making those investments? A plausible answer is that we wont invest in poor children’s futures, nor our own, due to simple mean spiritedness. It is clearly not due to economics!

Income also plays a role in determining the learning opportunities that are available to children during the summer months. Children of the poor consistently show greater learning losses over summer than do children of the middle-class (Cooper, Nye, Charlton, Lindsay & Greathouse, 1996). Middle class children apparently get a more nutritious cultural and academic diet during

the summer than the poor. This results in middle class children gaining in reading achievement over the summer, while lower class children lose ground. Every summer the gap between the affluent and the poor that shows up on the fist day of kindergarten gets larger and larger.

The effects of smoking, alcohol and other drugs, lack of adequate dental and medical care, increased residential mobility, fewer positive after school groups in which to participate, and many other factors all take their toll on the families and children of the poor. While these factors all interact with the quality of the teachers and the schools that poor children attend, these social, educational, medical, and neighborhood problems are also independent of the schools, and thus beyond their control. Poverty severely limits what our schools can be expected to accomplish.

Let me take stock here so my argument is clear. I have provided reliable information that a) we have the largest percentage of poor children in the industrialized world, b) people stay poor longer in the US than elsewhere in the industrialized world, c) poverty is negatively related to school achievement and poverty's effects on our international competitiveness appear to be serious, d) poverty has powerful effects on individuals that limit the expression of genetic diversity as well as strongly influencing the health and place of residence in which children are raised, and e) improvement in the school achievement of students from low income families will have to come as much from improvements in their outside-of-school lives as from their inside-of school lives.

Because the out-of-school environment is so important an influence on the academic attainment of poor people, there is every reason to suspect that changes in the income of poor families will lead to changes in the school related behavior and achievement of their children. So let us now examine my thesis, namely, that the simplest way to deal with poverty's effects on achievement is to increase the income of poor people so that they are less poor.

How increased family income affects student behavior and school achievement.

Two studies from a growing number about the effects of income growth on families and children have impressed me. First is the study by Dearing, McCartney, and Taylor (2001), who used as a measure of poverty the ratio of

income available to the needs faced by a family. A ratio of 1.00 means that the family is just making it, that their family income and their needs such as housing, food, transportation, and so forth, are matched. A ratio of 3.00 would be more like that of a middle class family, and a ratio of .8 would indicate poverty of some magnitude. A large and reasonably representative sample of poor and non-poor families were followed for 3 years and their income-to-needs ratios computed regularly, as were their children's scores on various social and academic measures. What was found was that as poor families went from poor to a lot less poor, for whatever reasons, their children's performance began to resemble that of the never poor children with whom they were matched.

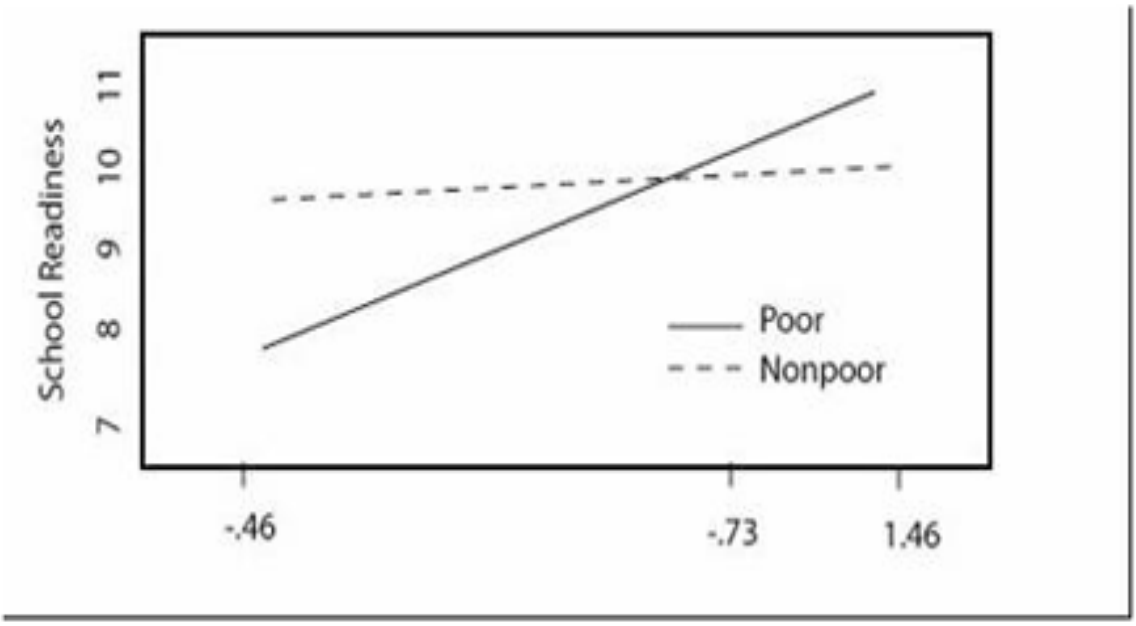

Figure 11. The relationship between school readiness and income change among poor and non-poor families (reprinted from Dearing, McCartney, & Taylor, 2001, used by permission of the authors).

Figure 11 presents data illustrating the performance of poor children on a measure of school readiness, as the income of poor and non-poor children changed over these three years. The mean change in income-to-needs ratios over the time period of the study is where the lines cross. That is, the mean change in income-to-needs was a positive .73, though some families went up more and some families lost ground over this time period. Plotted against a measure of

school readiness, the slope of the non-poor children is seen to hardly have changed at all. Whether family income-to-need ratios went up or went down seemed unrelated to the school readiness scores of the non-poor. But the slope of the poor children showed quite a large change. Poor children in families experiencing loss of income over the three years lost ground to the non-poor on this measure of academic readiness. But children in families whose income improved showed growth in school readiness over the three years. Most interesting of all, the poor children in families whose income went up, ended up scoring as well as the students who had never been poor. This was true even though the set of families who were not poor earned considerably more money than those who had been poor. Although there are many possible explanations for this, a reasonable one is that rising incomes provide families with dignity and hope, and these in turn promote greater family stability and better childcare.

An almost identical relationship was found when plotting change in income-to-needs ratios against other academic-like outcome measures such as measures of a child's expressive language, or of their receptive language. And in Figure 12 we see the same relationship shown for a measure of social behavior, a non-academic measure that identifies children whose presence in classes will promote or impede the work of their teachers.

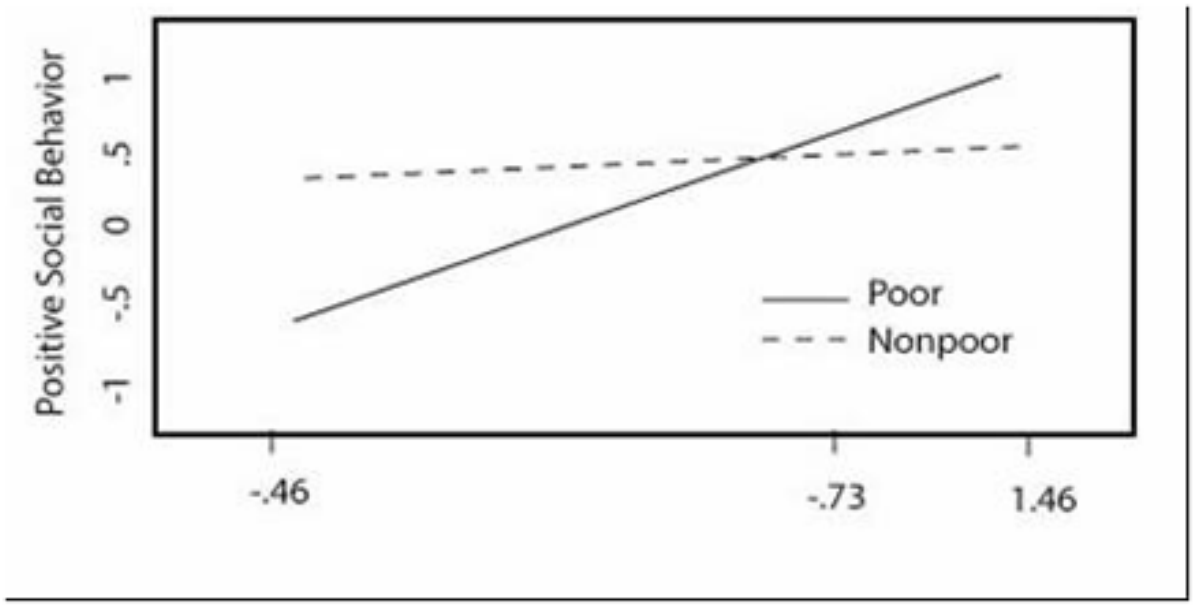

Figure 12. The relationship between positive social behavior and income change among poor and non-poor families (reprinted from Dearing, McCartney, & Taylor, 2001, used by permission of the authors).

Figure 12 illustrates that as income-to-need ratios changed for the poor and the non-poor, the poor again showed significant slope changes and the non-poor once again did not. Furthermore, poor children in families experiencing growth in income over the three years once again ended up scoring as well in social behavior as the children who had never been poor.

As noted earlier, bigger changes are expected to occur for the poor than the non-poor as positive changes in their environments occur. We see that here. Also worth noting is that Duncan and Brooks-Gunn (2001) found that the greatest impact of family income on children's academic outcomes is when they are the youngest, and this was a study of children from birth to three years of age.

In an interesting follow-up to the original study, these researchers went on to estimate the effect size of making the income changes that had occurred permanent in the sample of poor families, and comparing that effect size to those that the Department of Health and Human Services estimates for the early head start program (Taylor, Dearing & McCartney, 2004). Both in the Head Start study and this one the same Mental Development Index was used to look at intellectual functioning and both studies measured students' negative behavior, as well. Those interesting findings are presented as Table 9.

	Mental Development Index (percent of a standard deviation)	Negative Behavior Index (percent of a standard deviation)
Head Start Program	Up 12 – 15 percent	Down 10 – 11 percent
Income Growth Study	Up 15 percent	Down 20 percent

Table 9. Comparison of the effects of traditional head start and simple growth in family income on children's cognitive and affective behavior (reprinted from Taylor, Dearing, & McCartney, 2004, by permission of the authors).

In the first row of table 9 we see that Head Start researchers estimate that children enrolled in that program increased between 12 and 15 percent of a standard deviation on the Mental Development Index. These children also showed a decline of 10-11 percent of a standard deviation in their negative behavior. Those outcomes are socially significant and large enough to claim effectiveness for the gigantic head start apparatus. The second row of this table are Taylor, Dearing & McCartney's (2004) estimates of what would happen were the income of the poor families in their study increased one standard deviation, or about $13,000 per year. This estimate shows that the children for low income families would have had gains in IQ of about 15 percent of a standard deviation, and that the children would decline in negative behavior about 20 percent of a standard deviation.

The success brought about by an increase in the incomes of poor families apparently matches or exceeds the success our nation obtains from running a giant program like Head Start, that enrolls only about 60% of those that are eligible. Equally intriguing in this study was that raising the income of families to improve the lives of poor children was actually a bit less expensive than the annual cost per-child of attending Head Start. It is impossible not to speculate about what the results might be for our society if we combined both approaches to school improvement, providing both high quality early childhood programs and better incomes for the poor!

The second study of income change and school success is from North Carolina and is almost a natural experiment in income redistribution (Costello, Compton, Keeler, & Angold, 2003). A Duke university team noticed that their study of psychiatric disorders and drug abuse within a rural community included a group of people who had risen out of poverty because of the income derived from a recently opened gaming casino. During these changes the researchers had been giving annual psychiatric assessments to about 1,400 children, 350 of them American Indians, and they did so over an eight-year period. The children ranged in age from 9 to 13 and were in three distinct groups: those who had never been poor, those who had been persistently poor, and a group that had been poor until the casino came to the reservation.

The researchers discovered that moving out of poverty was associated with a decrease in frequency of psychiatric symptoms over the ensuing four years. In fact, by the fourth year, the psychiatric symptom level was the same among children whose families moved out of poverty, as it was among children whose

families were never in poverty. A small replication of the findings was available for a group of non-Indians that also moved out of poverty over this same time period. Once again, as in the Dearing, McCartney and Taylor (2001) study, and in the main part of this study, negative psychiatric symptoms disappeared as income rose. The researchers offered an explanation for these findings, namely, that relieving poverty appeared to increase the level of parental supervision of children. One last finding of interest from this study is that additional income for the families of the never-poor had no effect on frequency of behavioral or emotional symptoms. As is common in this area of research, and noted earlier, improving the income of the very poor has large effects, while improving the income of the less poor has negligible effects.

Although the literature is not voluminous, these are not the only studies to show that a lessening of poverty helps young children succeed better at school and in life. The negative income tax was studied 20 years ago and it revealed that increases in family income resulted in increased school attendance and better school achievement for the families that gained in income (Salkind & Haskins, 1982). The work assistance programs of the 90s have also been examined and again there is some evidence that as family income went up the achievement and behavior of children in those families improved (Huston, Duncan, Granger, Bos, McLoyd, Mistry, Crosby, Gibson, Magnuson, Romich, & Ventura, 2001). The evidence of the positive influence on student achievement when families are able to leave poverty is consistent and replicable, suggesting that inside-of-school reform needs to begin with outside-of-school reform. Otherwise, like the drunk in the allegory I began with, we will be looking for our keys in the wrong place.

What we need to do

Poverty, through its many connections to other parts of people's lives, is an obstacle that is not easy for most educators to overcome. Poverty in a community almost ensures that many of the children who enter their neighborhood schools cannot maximally profit from the instruction provided there. Helping to eliminate some of that poverty is not just morally appropriate, though it is that, first of all. But to a convincing degree finding ways to reduce poverty to improve schooling is evidence based: It takes no great wisdom to realize that families with increasing fortunes have more dignity and hope, and are thus able to take better care of their children, than do families in more dire straights, where anxiety and despair are the more common emotional reactions.

So when we push for higher qualifications for the teachers of the poor, as we should, we also may need to push ourselves and others to stop shopping at companies like Wal-Mart. The logic of this is simple: if we want to primarily hold our teachers responsible for increasing their students' educational attainment, then we need at a minimum to provide those teachers with children who enter their classrooms healthy and ready to learn. Twenty years ago this was one of our national goals, to be reached by the year 2000. But one of the impediments to reaching that goal was Wal-Mart, now the largest employer in the USA. Wal-Mart and companies like them do not provide the great majority of their employees the income, medical insurance or retirement plans needed to promote healthy families or raise healthy children. Wal-Mart and companies like it have a terrible record in its treatment of woman with children, a group who make up a big share of the poor households in this country (Shulman, 2003). Thus Wal-Mart is an impediment to school reform and although it is not usually noted, Wal-Mart is one reason we did not reach our national goal.

There are so many other problems we need to address, as well. When we push for more rigorous standards in our schools we should also push for a raise in the minimum wage, or better yet, for livable wages. If we do not do this then we will ensure that the vast majority of those meeting the increasingly rigorous requirements for high school graduation will be those students fortunate enough to be born into the right families. If we really want a more egalitarian set of educational outcomes requires, our nation needs a more equalitarian wage structure.

For these same reasons when we push for more professional development for teachers and mentoring programs for new teachers, we need also to demand that woman's wages be set equal to those of men doing comparable work, since it is working woman and their children who make up a large percentage of America's poor.

When we push for advanced placement courses, or college preparatory curricula for all our nation's students, we must simultaneously demand universal medical coverage for all our children. Only then will all our children have the health that allows them to attend school regularly and learn effectively, instead of missing opportunities to learn due to a lack of medical treatment.

When we push for all day kindergarten, or quality early childhood care, or de-tracked schools we need also to argue for affordable housing throughout our

communities, so neighborhoods have the possibility of exerting more positive influences on children and people can move from lead and mercury polluted areas to those that are less toxic, and thus less likely to cause birth defects. This goal requires educators, parents and other concerned citizens to be in the forefront of the environmental fight. To fight for clean air and water, and for less untested chemicals in all our food products, is a fight to have more healthy children for our schools to educate. The psychological and financial costs on families and the broader society because of students needing special education can be markedly reduced by our demands for a healthier environment.

In my estimation we will get better public schools by requiring of each other participation in building a more economically equitable society. This is of equal or greater value to our nation's future well-being then a fight over whether phonics is scientifically based, whether standards are rigorous enough, or whether teachers have enough content knowledge.

Conclusion

All I am saying in this essay is that I am tired of acting like the schools, all alone, can do what is needed to help more people achieve higher levels of academic performance in our society. As Jean Anyon (1997, p. 168) put it "Attempting to fix inner city schools without fixing the city in which they are embedded is like trying to clean the air on one side of a screen door."

To clean the air on both sides of the screen door we need to begin thinking about building a two-way system of accountability for contemporary America. The obligation that we educators have accepted to be accountable to our communities must become reciprocal. Our communities must also be accountable to those of us who work in the schools, and they can do this by creating social conditions for our nation that allow us to do our jobs well. Accountability is a two way process, it requires a principal and an agent. For too long schools have thought of themselves only as agents who must meet the demands of the principal, often the local community, state, or federal government. It is time for principals (and other school leaders) to become principals. That is, school people need to see communities as agents as well as principals and hold communities to standards that insure all our children are accorded the opportunities necessary for growing well.

It does take a whole village to raise a child, and we actually know a little bit

about how to do that. What we seem not to know how to do in modern America is to raise the village, to promote communal values that insure that all our children will prosper. We need to face the fact that our whole society needs to be held as accountable for providing healthy children ready to learn, as our schools are for delivering quality instruction. One-way accountability, where we are always blaming the schools for the faults that we find, is neither just, nor likely to solve the problems we want to address.

I am tired, also, of those among us who say the poor are not really bad off, as claimed recently in a lengthy research report from the Heritage Foundation (Rector & Johnson, 2004). Our poor today, they say, are really much better off than the poor in other countries, or compared to the immigrant poor at the turn of the 20th century. Because of refrigerators, televisions, and automobiles, the poor in America today actually might live as well or better than royalty did in the 13th century. But that completely fails to capture what poverty is like for poor children. As a reminder about the reality of poverty, and to shame the Heritage Foundation and all who vote to keep income inequality as it is, I want to close this essay with the introduction to *Amazing Grace*, by Jonathan Kozol (1995). In doing this I move away from the analytic and quantitative ways to think about poverty and its effects, and move to the only way we might actually comprehend the reality of poverty for our young, though the use of narrative.[2]

"The number 6 train from Manhattan to the South Bronx makes nine stops in the 18-minute ride between East 59th Street and Brook Avenue. When you enter the train, you are in the seventh richest congressional district in the nation. When you leave, you are in the poorest.

The 600,000 people who live here and the 450,000 people who live in Washington Heights and Harlem, which are separated from the South Bronx by a narrow river, make up one of the largest racially segregated concentrations of poor people in our nation.

Brook Avenue, which is the tenth stop on the local, lies in the center of Mott Haven, whose 48,000 people are the poorest in the South Bronx. Two thirds are Hispanic, one third black. Thirty-five percent are children. In 1991, the median household income of the area, according to the New York Times, was $7,600.

St. Ann's Church, on St. Ann's Avenue, is three blocks from the subway station. The children who come to this small Episcopal Church for food and comfort, and to play, and the mothers and fathers who come here for prayer, are said to be

the poorest people in new York. “More than 95 percent are poor,” the pastor says—“the poorest of the poor, poor by any standard I can think of.”

At the elementary school that serves the neighborhood across the avenue, only seven of 800 children do not qualify for free school lunches. “Five of those seven,” says the principal, “get reduced-price lunches, because they are classified as only ‘poor,’ not ‘destitute.’”

In some cities, the public reputation of a ghetto neighborhood bears little connection to the world that you discover when you walk the streets with children and listen to their words. In Mott Haven, this is not the case. By and large, the words of the children in the streets and schools and houses that surround St. Ann’s more than justify the grimness in the words of journalists who have described the area.

Crack-cocaine addiction and the intravenous use of heroin, which children I have met here call “the needle drug,” are woven into the texture of existence in Mott Haven. Nearly 4,000 heroin injectors, many of whom are HIV-infected, live here. Virtually every child at St. Ann’s knows someone, a relative or neighbor, who has died of AIDS, and most children here know many others who are dying now of the disease. One quarter of the women of Mott Haven who are tested in obstetric wards are positive for HIV. Rates of pediatric AIDS, therefore, are high.

Depression is common among children in Mott Haven. Many cry a great deal but cannot explain exactly why.

Fear and anxiety are common. Many cannot sleep.

Asthma is the most common of illness among children here. Many have to struggle to take in a good deep breath. Some mothers keep oxygen tanks, which children describe as “breathing machines,” next to their children’s beds.

The houses in which these children live, two thirds of which are owned by the City of New York, are often as squalid as the houses of the poorest children I have visited in rural Mississippi, but there is none of the greenness and the healing sweetness of the Mississippi countryside outside their windows, which are often barred and bolted as protection against thieves.

Some of these houses are freezing in the winter. In dangerously cold weather,

the city sometimes distributes electric blankets and space heaters to its tenants. In emergency conditions, if space heaters can't be used, because substandard wiring is overloaded, the city's practice is to pass out sleeping bags.

"You just cover up…and hope you wake up the next morning," says a father of four children, one of them an infant one month old, as they prepare to climb into their sleeping bags in hats and coats on a December night.

In humid summer weather, roaches crawl on virtually every surface of the houses in which many of the children live. Rats emerge from holes in bedroom walls, terrorizing infants in their cribs. In the streets outside, the restlessness and anger that are present in all seasons frequently intensify under the stress of heat.

In speaking of rates of homicide in new York City neighborhoods, the Times refers to the streets around St. Ann's as "the deadliest blocks" in "the deadliest precinct" of the city. If there is a deadlier place in the United States, I don't know where it is.

In 1991, 84 people, more than half of whom were 21 or younger, were murdered in the precinct. A year later, ten people were shot dead on a street called Beekman Avenue, where many of the children I have come to know re-side. On Valentine's Day of 1993, three more children and three adults were shot dead on the living room floor of an apartment six blocks from the run-down park that serves the area.

In early July of 1993, shortly before the first time that I visited the neighborhood, three more people were shot in 30 minutes in three unrelated murders in the South Bronx, one of them only a block from St. Ann's Avenue. A week later, a mother was murdered and her baby wounded by a bullet in the stomach while they were standing on a South Bronx corner. Three weeks after that, a minister and elderly parishioner were shot out side the front door of their church, while another South Bronx resident was discovered in his bathtub with his head cut off. In subsequent days, a man was shot in both his eyes and a ten-year-old was critically wounded in the brain.

What is it like for children to grow up here? What do they think the world has done to them? Do they believe that they are being shunned or hidden by society? If so, do they think that they deserve this? What is it that enables some of them to pray? And when they pray, what do they say to God?"

End Notes:

1. I want to thank AERA president Marilyn Cochran-Smith and Program Chair Anna Maria Villegas for the honor of having been invited to give the 2005 Presidential Invited Speech to the American Educational Research Association, meeting in Montreal, Canada, May, 2005. That speech has now been transformed into this paper. I want to also thank my wife, Ursula Casanova, for the many thoughtful ideas that helped shape this paper, and for her skill and kindness as an editor.

2. My thanks to Jonathan Kozol for permission to use this lengthy quote. His insightful and poignant writing has educated and moved so many of us, but as is clear, not yet enough of us.

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