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Intelligence in the Classroom

Half of all children are below average, and teachers can do only so much for them.

BY CHARLES MURRAY
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Education is becoming the preferred method for diagnosing and attacking a wide range problems in American life. The No Child Left Behind Act is one prominent example. Another is the recent volley of articles that blame rising income inequality on the increasing economic premium for advanced education. Crime, drugs, extramarital births, unemployment--you name the problem, and I will show you a stack of claims that education is to blame, or at least implicated.

One word is missing from these discussions: intelligence. Hardly anyone will admit it, but education's role in causing or solving any problem cannot be evaluated without considering the underlying intellectual ability of the people being educated. Today and over the next two days, I will put the case for three simple truths about the mediating role of intelligence that should bear on the way we think about education and the nation's future.

Today's simple truth: Half of all children are below average in intelligence. We do not live in Lake Wobegon.

Our ability to improve the academic accomplishment of students in the lower half of the distribution of intelligence is severely limited. It is a matter of ceilings. Suppose a girl in the 99th percentile of intelligence, corresponding to an IQ of 135, is getting a C in English. She is underachieving, and someone who sets out to raise her performance might be able to get a spectacular result. Now suppose the boy sitting behind her is getting a D, but his IQ is a bit below 100, at the 49th percentile.

Barbar Kelley

We can hope to raise his grade. But teaching him more vocabulary words or drilling him on the parts of speech will not open up new vistas for him. It is not within his power to learn to follow an exposition written beyond a limited level of complexity, any more than it is within my power to follow a proof in the American Journal of Mathematics. In both cases, the problem is not that we have not been taught enough, but that we are not smart enough.

Now take the girl sitting across the aisle who is getting an F. She is at the 20th percentile of intelligence, which means she has an IQ of 88. If the grading is honest, it may not be possible to do more than give her an E for effort. Even if she is taught to read every bit as well as her intelligence permits, she still will be able to comprehend only simple written material. It is a good thing that she becomes functionally literate, and it will have an effect on the range of jobs she can hold. But still she will be confined to jobs that require minimal reading skills. She is just not smart enough to do more than that.

How about raising intelligence? It would be nice if we knew how, but we do not. It has been shown that some intensive interventions temporarily raise IQ scores by amounts ranging up to seven or eight points. Investigated psychometrically, these increases are a mix of test effects and increases in the underlying general factor of intellectual ability--*"g."* In any case, the increases fade to insignificance within a few years after the intervention. Richard Herrnstein and I reviewed the technical literature on this topic in "The Bell Curve" (1994), and studies since then have told the same story.

There is no reason to believe that raising intelligence significantly and permanently is a current policy option, no matter how much money we are willing to spend. Nor can we look for much help from the Flynn Effect, the rise in IQ scores that has been observed internationally for several decades. Only a portion of that rise represents an increase in *g*, and recent studies indicate that the rise has stopped in advanced nations.

Some say that the public schools are so awful that there is huge room for improvement in academic performance just by improving education. There are two problems with that position. The first is that the numbers used to indict the public schools are missing a crucial component. For example, in the 2005 round of the National Assessment of Educational Progress (NAEP), 36% of all fourth-graders were below the NAEP's "basic achievement" score in reading. It sounds like a terrible record. But we know from the mathematics of the normal distribution that 36% of fourth-graders also have IQs lower than 95.

What IQ is necessary to give a child a reasonable chance to meet the NAEP's basic achievement score? Remarkably, it appears that no one has tried to answer that question. We only know for sure that if the bar for basic achievement is meaningfully defined, some substantial proportion of students will be unable to meet it no matter how well they are taught. As it happens, the NAEP's definition of basic achievement is said to be on the tough side. That substantial proportion of fourth-graders who cannot reasonably be expected to meet it could well be close to 36%.

The second problem with the argument that education can be vastly improved is the false assumption that educators already know how to educate everyone and that they just need to try harder--the assumption that prompted No Child Left Behind. We have never known how to educate everyone. The widely held image of a golden age of American education when teachers brooked no nonsense and all the children learned their three Rs is a myth. If we confine the discussion to children in the lower half of the intelligence distribution (education of the gifted is another story), the overall trend of the 20th century was one of slow, hard-won improvement. A detailed review of this evidence, never challenged with data, was also part of "The Bell Curve."

This is not to say that American public schools cannot be improved. Many of them, especially in large cities, are dreadful. But even the best schools under the best conditions cannot repeal the limits on achievement set by limits on intelligence.

To say that even a perfect education system is not going to make much difference in the performance of children in the lower half of the distribution understandably grates. But the easy retorts do not work. It's no use coming up with the example of a child who was getting Ds in school, met an inspiring teacher, and went on to become an astrophysicist. That is an underachievement story, not the story of someone at the 49th percentile of intelligence. It's no use to cite the differences in test scores between public schools and private ones--for students in the bottom half of the distribution, the differences are real but modest. It's no use to say that IQ scores can be wrong. I am not talking about scores on specific tests, but about a student's underlying intellectual ability, *g*, whether or not it has been measured with a test. And it's no use to say that there's no such thing as *g*.

While concepts such as "emotional intelligence" and "multiple intelligences" have their uses, a century of psychometric evidence has been augmented over the last decade by a growing body of neuroscientific evidence. Like it or not, *g* exists, is grounded in the architecture and neural functioning of the brain, and is the raw material for academic

performance. If you do not have a lot of *g* when you enter kindergarten, you are never going to have a lot of it. No change in the educational system will change that hard fact.

That says nothing about the quality of the lives that should be open to everyone across the range of ability. I am among the most emphatic of those who think that the importance of IQ in living a good life is vastly overrated. My point is just this: It is true that many social and economic problems are disproportionately found among people with little education, but the culprit for their educational deficit is often low intelligence. Refusing to come to grips with that reality has produced policies that have been ineffectual at best and damaging at worst.

What's Wrong With Vocational School?

Too many Americans are going to college.

BY CHARLES MURRAY
Wednesday, January 17, 2007 12:01 a.m. EST

The topic yesterday was education and children in the lower half of the intelligence distribution. Today I turn to the upper half, people with IQs of 100 or higher. Today's simple truth is that far too many of them are going to four-year colleges.

Begin with those barely into the top half, those with average intelligence. To have an IQ of 100 means that a tough high-school course pushes you about as far as your academic talents will take you. If you are average in math ability, you may struggle with algebra and probably fail a calculus course. If you are average in verbal skills, you often misinterpret complex text and make errors in logic.

These are not devastating shortcomings. You are smart enough to engage in any of hundreds of occupations. You can acquire more knowledge if it is presented in a format commensurate with your intellectual skills. But a genuine college education in the arts and sciences begins where your skills leave off.

In engineering and most of the natural sciences, the demarcation between high-school material and college-level material is brutally obvious. If you cannot handle the math, you cannot pass the courses. In the humanities and social sciences, the demarcation is fuzzier. It is possible for someone with an IQ of 100 to sit in the lectures of Economics 1, read the textbook, and write answers in an examination book. But students who cannot follow complex arguments accurately are not really learning economics. They are taking away a mishmash of half-understood information and outright misunderstandings that probably leave them under the illusion that they know something they do not. (A depressing research literature documents one's inability to recognize one's own incompetence.) Traditionally and properly understood, a four-year college education teaches advanced analytic skills and information at a level that exceeds the intellectual capacity of most people.

There is no magic point at which a genuine college-level education becomes an option, but anything below an IQ of 110 is problematic. If you want to do well, you should have an IQ of 115 or higher. Put another way, it makes sense for only about 15% of the population, 25% if one stretches it, to get a college education. And yet more than 45% of recent high school graduates enroll in four-year colleges. Adjust that percentage to account for high-school dropouts, and more than 40% of all persons in their late teens are trying to go to a four-year college--enough people to absorb everyone down through an IQ of 104.

No data that I have been able to find tell us what proportion of those students really want four years of college-level courses, but it is safe to say that few people who are intellectually unqualified yearn for the experience, any more than someone who is athletically unqualified for a college varsity wants to have his shortcomings exposed at practice every day. They are in college to improve their chances of making a good living.

What they really need is vocational training. But nobody will say so, because "vocational training" is second class. "College" is first class.

Large numbers of those who are intellectually qualified for college also do not yearn for four years of college-level courses. They go to college because their parents are paying for it and college is what children of their social class are supposed to do after they finish high school. They may have the ability to understand the material in Economics 1 but they do not want to. They, too, need to learn to make a living--and would do better in vocational training.

Combine those who are unqualified with those who are qualified but not interested, and some large proportion of students on today's college campuses--probably a majority of them--are looking for something that the four-year college was not designed to provide. Once there, they create a demand for practical courses, taught at an intellectual level that can be handled by someone with a mildly above-average IQ and/or mild motivation. The nation's colleges try to accommodate these new demands. But most of the practical specialties do not really require four years of training, and the best way to teach those specialties is not through a residential institution with the staff and infrastructure of a college. It amounts to a system that tries to turn out televisions on an assembly line that also makes pottery. It can be done, but it's ridiculously inefficient.

Government policy contributes to the problem by making college scholarships and loans too easy to get, but its role is ancillary. The demand for college is market-driven, because a college degree does, in fact, open up access to jobs that are closed to people without one. The fault lies in the false premium that our culture has put on a college degree.

For a few occupations, a college degree still certifies a qualification. For example, employers appropriately treat a bachelor's degree in engineering as a requirement for hiring engineers. But a bachelor's degree in a field such as sociology, psychology, economics, history or literature certifies nothing. It is a screening device for employers. The college you got into says a lot about your ability, and that you stuck it out for four years says something about your perseverance. But the degree itself does not qualify the graduate for anything. There are better, faster and more efficient ways for young people to acquire credentials to provide to employers.

The good news is that market-driven systems eventually adapt to reality, and signs of change are visible. One glimpse of the future is offered by the nation's two-year colleges. They are more honest than the four-year institutions about what their students want and provide courses that meet their needs more explicitly. Their time frame gives them a big advantage--two years is about right for learning many technical specialties, while four years is unnecessarily long.

Advances in technology are making the brick-and-mortar facility increasingly irrelevant. Research resources on the Internet will soon make the college library unnecessary. Lecture courses taught by first-rate professors are already available on CDs and DVDs for many subjects, and online methods to make courses interactive between professors and students are evolving. Advances in computer simulation are expanding the technical skills that can be taught without having to gather students together in a laboratory or shop. These and other developments are all still near the bottom of steep growth curves. The cost of effective training will fall for everyone who is willing to give up the trappings of a campus. As the cost of college continues to rise, the choice to give up those trappings will become easier.

A reality about the job market must eventually begin to affect the valuation of a college education: The spread of wealth at the top of American society has created an explosive increase in the demand for craftsmen. Finding a good lawyer or physician is easy. Finding a good carpenter, painter, electrician, plumber, glazier, mason--the list goes on and on--is difficult, and it is a seller's market. Journeymen craftsmen routinely make incomes in the top half of the income distribution while master craftsmen can make six figures. They have work even in a soft economy. Their jobs cannot be outsourced to India. And the craftsman's job provides wonderful intrinsic rewards that come from mastery of a challenging skill that produces tangible results. How many white-collar jobs provide nearly as much satisfaction?

Even if forgoing college becomes economically attractive, the social cachet of a college degree remains. That will erode only when large numbers of high-status, high-income people do not have a college degree and don't care. The information technology industry is in the process of creating that class, with Bill Gates and Steve Jobs as exemplars. It will expand for the most natural of reasons: A college education need be no more important for many high-tech occupations than it is for NBA basketball players or cabinetmakers. Walk into Microsoft or Google with evidence that you are a brilliant hacker, and the job interviewer is not going to fret if you lack a college transcript. The ability to present an employer with evidence that you are good at something, without benefit of a college degree, will continue to increase, and so will the number of skills to which that evidence can be attached. Every time that happens, the false premium attached to the college degree will diminish.

Most students find college life to be lots of fun (apart from the boring classroom stuff), and that alone will keep the four-year institution overstocked for a long time. But, rightly understood, college is appropriate for a small minority of young adults--perhaps even a minority of the people who have IQs high enough that they could do college-level work if they wished. People who go to college are not better or worse people than anyone else; they are merely different in certain interests and abilities. That is the way college should be seen. There is reason to hope that eventually it will be.

Aztecs vs. Greeks

Those with superior intelligence need to learn to be wise.

BY CHARLES MURRAY
Thursday, January 18, 2007 12:01 a.m. EST

If "intellectually gifted" is defined to mean people who can become theoretical physicists, then we're talking about no more than a few people per thousand and perhaps many fewer. They are cognitive curiosities, too rare to have that much impact on the functioning of society from day to day. But if "intellectually gifted" is defined to mean people who can stand out in almost any profession short of theoretical physics, then research about IQ and job performance indicates that an IQ of at least 120 is usually needed. That number demarcates the top 10% of the IQ distribution, or about 15 million people in today's labor force--a lot of people.

In professions screened for IQ by educational requirements--medicine, engineering, law, the sciences and academia--the great majority of people must, by the nature of the selection process, have IQs over 120. Evidence about who enters occupations where the screening is not directly linked to IQ indicates that people with IQs of 120 or higher also occupy large proportions of positions in the upper reaches of corporate America and the senior ranks of government. People in the top 10% of intelligence produce most of the books and newspaper articles we read and the television programs and movies we watch. They are the people in the laboratories and at workstations who invent our new pharmaceuticals, computer chips, software and every other form of advanced technology.

Combine these groups, and the top 10% of the intelligence distribution has a huge influence on whether our economy is vital or stagnant, our culture healthy or sick, our institutions secure or endangered. Of the simple truths about intelligence and its relationship to education, this is the most important and least acknowledged: *Our future depends crucially on how we educate the next generation of people gifted with unusually high intelligence.*

How assiduously does our federal government work to see that this precious raw material is properly developed? In 2006, the Department of Education spent about $84 billion. The only program to improve the education of the gifted got $9.6 million, one-hundredth of 1% of expenditures. In the 2007 budget, President Bush zeroed it out.

But never mind. A large proportion of gifted children are born to parents who value their children's talent and do their best to see that it is realized. Most gifted children without such parents are recognized by someone somewhere along the educational line and pointed toward college. No evidence indicates that the nation has many children with IQs above 120 who are not given an opportunity for higher education. The university system has also become efficient in shipping large numbers of the most talented high-school graduates to the most prestigious schools. The allocation of this human capital can be criticized--it would probably be better for the nation if more of the gifted went into the sciences and fewer into the law. But if the issue is amount of education, then the nation is doing fine with its next generation of gifted children. The problem with the education of the gifted involves not their professional training, but their training as citizens.

We live in an age when it is unfashionable to talk about the special responsibility of being gifted, because to do so acknowledges inequality of ability, which is elitist, and inequality of responsibilities, which is also elitist. And so children who know they are smarter than the other kids tend, in a most human reaction, to think of themselves as superior to them. Because giftedness is not to be talked about, no one tells high-IQ children explicitly, forcefully and repeatedly that their intellectual talent is a gift. That they are not superior human beings, but lucky ones. That the gift brings with it obligations to be worthy of it. That among those obligations, the most important and most difficult is to aim not just at academic accomplishment, but at wisdom.

The encouragement of wisdom requires a special kind of education. It requires first of all recognition of one's own intellectual limits and fallibilities--in a word, humility. This is perhaps the most conspicuously missing part of today's education of the gifted. Many high-IQ students, especially those who avoid serious science and math, go from kindergarten through an advanced degree without ever having a teacher who is dissatisfied with their best work and without ever taking a course that forces them to say to themselves, "I can't do this." Humility requires that the gifted learn what it feels like to hit an intellectual wall, just as all of their less talented peers do, and that can come only from a curriculum and pedagogy designed especially for them. That level of demand cannot fairly be imposed on a classroom that includes children who do not have the ability to respond. The gifted need to have some classes with each other not to be coddled, but because that is the only setting in which their feet can be held to the fire.

The encouragement of wisdom requires mastery of analytical building blocks. The gifted must assimilate the details of grammar and syntax and the details of logical fallacies not because they will need them to communicate in daily life, but because these are indispensable for precise thinking at an advanced level.

The encouragement of wisdom requires being steeped in the study of ethics, starting with Aristotle and Confucius. It is not enough that gifted children learn to be nice. They must know what it means to be good.

The encouragement of wisdom requires an advanced knowledge of history. Never has the aphorism about the fate of those who ignore history been more true.

All of the above are antithetical to the mindset that prevails in today's schools at every level. The gifted should not be taught to be nonjudgmental; they need to learn how to make accurate judgments. They should not be taught to be equally respectful of Aztecs and Greeks; they should focus on the best that has come before them, which will mean a light dose of Aztecs and a heavy one of Greeks. The primary purpose of their education should not be to let the little darlings express themselves, but to give them the tools and the intellectual discipline for expressing themselves as adults.

In short, I am calling for a revival of the classical definition of a liberal education, serving its classic purpose: to prepare an elite to do its duty. If that sounds too much like Plato's Guardians, consider this distinction. As William F. Buckley rightly instructs us, it is better to be governed by the first 2,000 names in the Boston phone book than by the faculty of Harvard University. But we have that option only in the choice of our elected officials. In all other respects, the government, economy and culture are run by a cognitive elite that we do not choose. That is the reality, and we are powerless to change it. All we can do is try to educate the elite to be conscious of, and prepared to meet, its obligations. For years, we have not even thought about the nature of that task. It is time we did.

The goals that should shape the evolution of American education are cross-cutting and occasionally seem contradictory. Yesterday, I argued the merits of having a large group of high-IQ people who do not bother to go to college; today, I argue the merits of special education for the gifted. The two positions are not in the end incompatible, but there is much more to be said, as on all the issues I have raised.

The aim here is not to complete an argument but to begin a discussion; not to present policy prescriptions, but to plead for greater realism in our outlook on education. Accept that some children will be left behind other children because of intellectual limitations, and think about what kind of education will give them the greatest chance for a fulfilling life nonetheless. Stop telling children that they need to go to college to be successful, and take advantage of the other, often better ways in which people can develop their talents. Acknowledge the existence and importance of high intellectual ability, and think about how best to nurture the children who possess it.

Mr. Murray is the W.H. Brady Scholar at the American Enterprise Institute. This concludes a three-part series which began on Tuesday.