Social Consequences of Group Differences in Cognitive Ability

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What is intelligence? Can it be measured accurately and fairly? Why do individuals and groups differ in intelligence? And what does it matter if they do differ? These questions have been debated both inside and outside the field of intelligence since its founding a century ago. The debate has often been heated, all sides arguing with the passion of warriors battling against evil, injustice, and ignorance.

The emotionality of this controversy illustrates the importance that people attribute to differences in intelligence. As this chapter will describe, intelligence varies widely within all societies, but democratic ones have special difficulty accommodating ability differences in ways that their members can agree are fair and appropriate. The challenge is even greater for multiracial democracies, such as Brazil and the United States, where races and ethnicities differ substantially in average intelligence.

<u>Popular Theories and Basic Facts About Intelligence</u>

To understand this challenge, it is essential to review some basic facts about intelligence, especially as they reveal themselves in daily life. Some of these facts have surprised even the experts, and others have shown that some of the most popular theories about intelligence are mistaken.

<u>Many Abilities, but How Many Intelligences?</u>

There are many human abilities, ranging from the very broad (for example, understanding the meaning of what others say or write) to the narrow (for example, lip reading). Researchers have developed tests to measure a great variety of specific abilities, from foreign language ability, resistance to illusions, and visual memory to length estimation, finger dexterity, and speech sound discrimination.

Two early discoveries. One of the first discoveries about mental ability tests, however, was that people who do well on one test tend to do well on all of them. That is, all mental tests seem to be drawing heavily on the same ability, no matter how different the tests seem to be in purpose or content. This common ability can be distilled from any broad battery of mental tests, and it is called *g* (short for the general mental ability factor). It constitutes the major component of all mental tests but is best measured by IQ tests. *g* corresponds to most people's definition of intelligence because it represents widely-applicable high-level thinking skills such as reasoning, problem solving, abstract thinking, and learning quickly and efficiently.

The second, related discovery was that there are clusters of tests within which the tests correlate more highly with each other (for example, verbal tests) than they do with tests in other clusters (tests of mathematics or memory). This means that each cluster, of which there are perhaps eight to ten, is measuring something special in addition to *g*. For example, one group of tests seems to measure a special aptness in verbal reasoning tasks; another in spatial tasks; another in memory. A different broad ability factor can be derived from each of these clusters, but the resulting factors all correlate highly with each other unless their large *g* components are removed. These high correlations explain why seemingly very different kinds of mental tests all provide fairly good measures of *g*. On the other hand, the partial independence of these broad abilities shows that, as important as the *g* factor is, *g* is not the whole story of mental abilities.

Hierarchical organization of abilities by generality-specificity. Psychometricians therefore distinguish abilities according to their level of generality-specificity. More general abilities are ones that enhance performance on a greater variety of mental tasks. Figure 1 shows the three-stratum model of mental abilities, which psychologist John B. Carroll developed in 1993 after ten years of reanalyzing almost 500 studies of thousands of tests. Strata I, II, and III in

his widely used model represent abilities that are, respectively, narrow, broad, and highly general in scope. In essence, Stratum III reflects the first major discovery about mental tests and Stratum II reflects the second discovery.

-- Insert Figure 1 --

Only one mental ability—*g*—has consistently been found at the Stratum III level. As just noted, *g* is the major component of all mental tests in all strata and thus forms the backbone of all the abilities they measure. It captures what most people mean with the term general intelligence—a general facility to learn and solve problems of all sorts.

Stratum II includes broad abilities measured by the clusters of tests just described. These broad abilities are all highly intercorrelated because they all consist mostly of g, but they diverge somewhat because each is tilted toward a different broad domain of human activity or competence. For example, people who are high in auditory ability may have a special talent in music but not in writing because they possess high *g* plus an extra boost in strictly auditory but not writing ability. Because their special component is relatively small, Stratum II abilities retain little power to predict outcomes after their *g* component has been removed. This is why they are sometimes described as different flavors of *g*.

Stratum I abilities are much narrower and seem to reflect compounds of skills, abilities, and experiences that are targeted to fairly specific sorts of tasks, such as decoding written words. This is probably what makes the Stratum I abilities the most trainable but also the least generalizable or transportable. That is, although it may often be possible to improve a Stratum I ability, improving it enhances performance in only a narrow range of tasks. Conversely, the single Stratum III ability, g, is highly transportable but not very malleable, if at all.

Multiple intelligences? Intelligence researchers find the hierarchical model useful, partly because it helps to resolve the long-standing debate over how many intelligences there are—one or many? Psychologists Howard Gardner and Robert Sternberg are both widely known for their theories of multiple intelligences. They argue that there are multiple independent intelligences, suggesting that everyone can be smart in some way. This is, understandably, a very attractive idea in democratic societies.

Gardner says that at least seven domains of cultural achievement qualify as independent intelligences, including linguistic, logical-mathematical, spatial, musical, interpersonal, intrapersonal, and bodily-kinesthetic. (He has recently added naturalist and existential to his list.) His claim is basically that there is no Stratum III in the structure of human mental abilities. He does not provide any tests for measuring his proposed intelligences so it is not possible to directly test his claim that they are all independent ways of being smart. However, his proposed interpersonal, intrapersonal, and bodily-kinesthetic intelligences are not primarily mental. This does not mean they are unimportant, but only that they are not aspects of human intellect. The four that clearly are mostly mental seem to correspond to particular Stratum II abilities, respectively, crystallized g (verbal ability), fluid g (reasoning), broad visual perception (spatial visualization), and broad auditory perception. Although Stratum II abilities are broad, they are highly correlated. This is why educators of gifted children commonly refer to these abilities as talents rather than intelligences.

Instead of denying the existence of Stratum III, Robert Sternberg proposes that there are three independent, co-equal intelligences at the Stratum III level: analytical (g), creative, and practical. Unlike Gardner, he has developed tests to measure his intelligences, and he argues that his research with them confirms his claim. Nathan Brody reanalyzed that research in a 2003

article in the journal *Intelligence* and showed that Sternberg's three tests actually measure mostly a single common factor, presumably *g*. In short, both Gardner's and Sternberg's multiple-intelligence theories appear to fit within the hierarchical mental model as either Stratum III or Stratum II abilities or to represent abilities that are not primarily mental.

It makes no difference scientifically, however, which abilities we label as intelligences. What matters is keeping in mind how general the different abilities are—narrow, broad, or highly general—because their breadth of application provides clues to their practical utility. The single Stratum III ability, g, is the most general of all, so it is the best starting point for investigating the role that differences in mental competence play in daily life.

Only One Highly General Intelligence, but Does It Predict Anything Important?

g may be the broadest and most fundamental of all mental abilities, but is it really the most important one outside test settings? In fact, does it have any practical value at all? After all, it is best measured by IQ tests, and the items on such tests often seem quite disconnected from real life: for example, defining words such as "frequent" (Vocabulary subtest), repeating lists of numbers in backward order (Digits Backward), arranging colored blocks in the pattern shown in a diagram (Block Design), stating one similarity between tables and chairs (Similarities), and giving the next two numbers in series such as 2, 4, 8, 16, __, __ (Number Series). Theorist Robert Sternberg maintains, for example, that *g* is useful only in academics. He voices a commonly held view, namely, that IQ represents only "book smarts?" Might that be true?

The first step in assessing the real-life importance of g/IQ is to determine whether scores on highly g-loaded tests (tests that measure *g* well) predict differences in valued life outcomes. Correlations do not prove causation, but they are a first step in doing so. The most studied outcomes are performance in school (such as school marks and achievement test scores),

performance on the job (mostly supervisor ratings), socioeconomic advancement (level of education, occupation, and income), and social pathology (adult criminality, poverty, unemployment, dependence on welfare, children outside of marriage). The relations of intelligence to health, health behavior, resilience in the face of extreme adversity, longevity (length of life), and functional literacy (the ability to do routine reading, writing, and arithmetic tasks in modern societies) have also begun to draw much attention. Thousands of studies have looked at the impact of mental abilities on school and job performance, and large national longitudinal studies in both Europe and the United States have shown that IQ is related to various forms of socioeconomic success and failure. Here are their most general findings about *g*'s association with life outcomes.

Correlations with IQ are pervasive. IQ predicts all the foregoing outcomes to some degree. Subjective well-being (happiness) is the rare exception: it is regularly found not to correlate meaningfully with IQ level. In general, *g* relates more to instrumental behavior than emotional reactions.

Correlations with IQ vary systematically by type of outcome. IQ's predictive value ranges widely, depending on the outcome in question. For example, when averaged over several years, performance on standardized tests of academic achievement correlates about as highly with IQ as two IQ tests do with each other (over .8 on a scale of -1.0 to 1.0). In contrast, correlations with IQ are closer to .6-.7 for school marks, years of education completed, and longevity. They are about .5 with prestige level of occupation, .3 to .4 with income (the correlations rising with age), and .2 with law-abidingness.

Correlations with IQ are higher when tasks are more complex. To illustrate, when jobs are ranked in overall complexity of work, the correlations between IQ and job performance rise

from .2 for simple, unskilled jobs, to .5 in middle-level jobs (skilled trades, most clerical work), to .8 in the most complex (doctors, engineers, top executives). Stated another way, it matters little how intelligent workers are in low-level jobs, but it matters a great deal in high-level jobs, regardless of whether the job seems academic or not.

     g is backbone of all mental predictors. Tests of abilities in one school subject or training area predict performance in all subjects about equally well. Whole batteries of mental tests do not predict much better than *g* alone, no matter what the life performance or outcome in question. The predictive dominance of *g* among mental abilities does not mean that other abilities are unimportant in life, but only that *g* is especially important when mental ability matters.

     IQ/*g* is best single predictor, mental or non-mental. IQ/*g* usually predicts major life outcomes better than does any other single predictor in broad samples of individuals. For example, whether IQ predicts strongly (educational performance) or weakly (law-abidingness), it predicts better than does social class background. This does not mean that intelligence is the only important influence on people's life chances or that social conditions are unimportant. Rather, it means that any explanation of social and economic inequalities will need to consider the central role that general intelligence level seems to play.

     Pattern of IQ-outcome correlations in North America is replicated in Europe. Where studies in the two continents have examined the same outcomes, they have found the same pattern of results. Not enough information is yet available to make that determination for other parts of the world. The North American-European results provide good provisional hypotheses for other world regions.

In summary, *g* has pervasive and often strong relations to many valued life outcomes in the populations studied so far. The strength of the relation varies greatly, but does not depend on the outcome being academic or bookish.

But Why Does General Intelligence Predict Life Outcomes?

Few scientists today would deny that IQ correlates with many important life outcomes. Their disagreement concerns why it does. The two major competing explanations are that (1) IQ is created by the privileged classes to maintain their privilege and (2) IQ represents a useful tool in performing life tasks. The two theories make opposite predictions about what would happen in a society that gave all its members equal opportunity to succeed: the first predicts that equal treatment would *destroy* the correlation between IQ and outcomes; the second argues that it would *create* such a correlation.

Social privilege theory. The social privilege explanation of why IQ predicts success comes in several versions. The *labeling* version is that intelligence is only an arbitrary, socially constructed category without any existence apart from that which people give it. In this version, the privileged classes simply label behaviors that they like or perform well as intelligent and then get society to reward these behaviors as forms of merit. They do this, says the theory, to maintain and justify their own undeserved advantages. There are no real differences in mental competence, but they appear to exist because people act as if they do. For example, some test critics argue that college admissions tests such as the vestibulares in Brazil or the SAT in the United States are really just artificial barriers that the privileged classes create to preserve their own privileges and block the advancement of people from lower-level classes. The way to eradicate differences in intelligence and their impact on individuals' lives is therefore, according

to the theory's proponents, to stop believing they exist, abolish ability tests, and treat everyone as equally intelligent.

The *family advantages* version of the privilege theory is that differences in intelligence are created by differences in social class privilege. Unlike the labeling version, this one admits that IQ differences reflect real differences in capability, but it argues that higher capability consists only of having learned more—of having accumulated more specific skills and bits of knowledge—and does *not* reflect any underlying ability or aptness in learning. Children from more advantaged families are said to have more opportunities to accumulate intelligence in childhood, which they can then use in adulthood to get better jobs. The family advantages theory therefore conceives intelligence as just one more conduit for transmitting social advantage and disadvantage across generations. Its many advocates propose that the links between parent and child outcomes (and IQs) could be broken by equalizing educational opportunity.

Functional tool theory. The second major explanation for IQ's broad predictive value is that mental competence is highly practical in many areas of daily life. The reason that a higher IQ is so useful, the theory's proponents argue, is that it reflects a highly stable, highly general capacity for acquiring, processing, and applying knowledge of virtually any type. It is not just the amount of knowledge that individuals have accumulated or been exposed to. Rather, it reflects the ability to profit from instruction, think abstractly, reason, and solve problems.

Adherents to the functional tool theory argue that higher g will be somewhat useful in virtually all areas of life because virtually all require some learning and problem solving, especially when there is much technological and social change. Because brighter individuals learn, reason, and plan better, they will tend to extract more benefit than less able individuals from identical opportunities, including school instruction. The functional tool theory also argues

that the key ingredient in IQ tests that brings forth these high-level thinking skills (that is, *g*) is the complexity of the information processing they require. Test items that require processing more complex information put a bigger premium on having a higher *g* level. Take, for example, two (hypothetical) items on the IQ subtest called Number Series, where test takers need to give the next two numbers in the series: 2, 4, 6, 8, __, __ and 3, 2, 1, 4, 3, 2, __, __. Both require discovering a rule—a simple one in the first case (add 2 to each successive number) but a more complex one in the second (count backward for three digits and then add 3).

Everyday tasks likewise differ in complexity. Tasks increase in information processing complexity when the information to be processed is multifaceted, abstract, voluminous, ambiguous, uncertain, novel, changing, or embedded in irrelevant information, and when the task requires drawing more inferences, learning (beyond mere memorization), applying old knowledge to new situations, planning, and discerning similarities and differences. These task conditions require the higher-order thinking skills that people associate with intelligence: reasoning, abstract thinking, problem solving, and learning quickly and efficiently. The theory therefore predicts that high *g* constitutes a bigger advantage, not just on complex IQ test items, but also on complex life tasks.

The useful tool perspective on intelligence admits that family background can affect both IQ and outcomes. It argues, however, that high intelligence would still be an advantage and low intelligence a disadvantage even if mental tests were to disappear and everyone were labeled equally intelligent, because the business of living would continue to be complex. It also argues that IQ differences are moderately genetic in origin and therefore that equalizing family conditions would not equalize either intelligence or adult success.

Evidence on the causes of individual differences in IQ. Social privilege theory argues that differences in IQ are caused by differences in family background. It therefore predicts people to be similar in IQ to the extent that they share the same socioeconomic advantages and disadvantages. For example, individuals who grow up together should be much alike regardless of how genetically similar they are (genetic similarity ranging from 100% for identical twins to 0% for adoptive siblings). Much evidence shows, however, that siblings who grow up in the same home are far less alike in IQ than social privilege theory would predict: the average IQ difference between full biological siblings is two-thirds as large as that between total strangers (12 vs. 17 IQ points, on the average). In fact, behavior geneticists such as John Loehlin and Thomas Bouchard have shown that, by adolescence, adoptive siblings are no more alike than strangers, but identical twins raised separately are highly similar in IQ (correlation of almost .8) and, indeed, are much more similar than fraternal twins reared together. Contrary to social privilege theory, behavior genetics has established that degree of similarity in IQ follows similarity in genetic heritage, not socioeconomic condition.

Social privilege theory also predicts that the impact of environmental conditions will accumulate with age, but longitudinal studies show that IQ actually becomes *more* heritable over the life span (from 40% before entering elementary school to 80% by mid-adulthood). Perhaps most surprising of all, differences in family advantage have no lasting effect on IQ by adolescence, at least in the U.S. and Europe, so family members are no more alike in IQ by adulthood than their genetic relatedness would predict. (Environments still affect IQs, but they work only to make siblings *less* alike; these are called *non-shared* effects because—like many illnesses and accidents—they affect only one person at a time.) In short, to the extent that

children in the higher classes have higher IQs (in societies studied so far), it is because of genetic—not social—advantages.

This may explain why no social or educational intervention has ever succeeded in materially narrowing IQ differences within a population. To take one example, the post-World War II communist government of Warsaw, Poland, assigned families of all social classes to the same housing, schools, and health services, but this social leveling failed to narrow intelligence differences in the next generation.

Evidence on the causal power of IQ/*g*. IQ cannot be a good conduit for transmitting purely social (non-genetic) privileges across generations, because IQ cannot transfer family privileges that leave no lasting imprint on it. But does IQ/*g* level really cause differences in mastery of important tasks in daily life? The following set of facts answers "yes."

First, much civilian and military research has detailed how brighter individuals are more educable and trainable, often learning 2-5 times faster than their less able peers when exposed to the same instruction. They cost less to train per unit of skill or knowledge acquired. They can also learn difficult material that less able individuals cannot, even when the latter are given more time and assistance. This is a major reason why the military and some large civilian employers in the United States test all applicants for mental ability. Intelligence has little value unless conscientiously applied, to be sure, but motivation cannot substitute for mental competence. Coming from a higher status family is of no value because trainees must do their own learning.

Second, IQ predicts later job performance but family background does not. Supervisors are often swayed by factors other than actual performance when they rate workers, but the correlations between IQ and performance on a job *increase* when performance is assessed in a more objective manner. This is the opposite of what social privilege theory predicts. Studies by

industrial psychologists, particularly John Hunter and Frank Schmidt, show that higher *g* workers perform better partly because they have learned more about their jobs but also because workers must continue to learn and reason once on the job. No training program can ever prepare workers for all contingencies, especially in a changing world. Workers must continue to learn on their own, apply old knowledge to new situations, plan, spot problems, and use their judgment. Higher levels of *g* enhance job performance because they provide greater capacity for continued self-instruction and independent problem solving once on the job. Researchers have not found anything—not family wealth, long experience, or a favorable personality—that can substitute for this capacity in getting the work done.

Third, other evidence confirms that higher-level jobs really do require workers to perform more mentally demanding tasks. It comes from job analysis studies, which catalog the various tasks that specific jobs require workers to perform to get the job done in a competent manner. These studies, which are used to design training and compensation systems, consistently show that the major distinction among jobs lies in the overall complexity of the duties they require workers to carry out. Recall that complexity of information processing is the very same ingredient that draws forth *g* in IQ tests.

These studies also document that the most complex jobs are rated as requiring the most reasoning, planning, decision making, continual updating of knowledge, self-direction, and compiling, combining, analyzing, and communicating (written, oral, behavioral, or pictorial). They also tend to require dealing with unexpected situations, identifying problems, and reacting to them quickly, and to be unstructured, self-directed, critical to the organization, and involve much responsibility, time pressure, working under distractions, and emotional stress, all of which put a premium on quick and effective reasoning. Moderate-complexity jobs require simpler

information processing: coding, decoding, transcribing, recognizing, and remembering. The simplest jobs are highly supervised, repetitive, and require tolerance of unpleasant physical conditions rather than emotional stress. The relation between a job's specific mental requirements and its overall complexity explains why *g*'s ability to predict job performance rises steadily for increasingly complex jobs—intelligence makes a bigger difference when tasks require more complex information processing. Other research by John Hunter and Frank Schmidt shows that differences in the quality of job performance have a bigger economic impact on the organization when the jobs in question are more complex. It is therefore prudence, not prejudice, which leads most employers to seek more intelligent workers for their more critical jobs.

Fourth, research reveals the same pattern of results with the small daily tasks for self-maintenance in a modern literate society. This is not surprising, at least in hindsight, because most of the tasks that people carry out in daily life are also ones that workers are paid to do: filling out forms, calculating costs, determining benefits from a government pamphlet, writing letters to explain a defect in a product, driving, instructing or caring for others, and so on. Such tasks are the focus of studies on functional literacy and health literacy. Although literacy researchers once assumed that there are separate types of functional literacy, they discovered that success in performing the many little demands of modern life rests primarily on the same general ability to learn, reason, and solve problems—in short, *g*. Mirroring the analyses of paid work, their research has also shown that differences in task difficulty rest on the complexity of the information processing the tasks require, for example, the amount of information to be processed, its abstractness vs. concreteness, degree of inference required, and amount of distracting information to be ignored.

The United Stated government, like the Brazilian government, has surveyed its population to gauge functional literacy levels, for example, to determine what percentage of the population can calculate a tip in a restaurant, find an intersection on a street map, or understand the main point of a news article. One major report concluded that two out of five adults in the United States do not have sufficient functional literacy to enjoy their rights or meet their responsibilities as citizens. It also pointed to results showing that individuals who scored higher in functional literacy had more education, held higher level and better paying jobs, and relied less often on government welfare payments. There is enormous variation in literacy levels among individuals who have attained the same level of education, and it is level of literacy achieved, not years of school attended, that best predicts these adult achievements.

Researchers who focus specifically on literacy in health matters have documented that higher health literacy—for example, understanding medicine labels and doctors' instructions—predicts better health, less frequent hospitalization, and lower health costs, even after controlling for socioeconomic status. Scottish psychologist-physician Ian Deary and his colleagues have shown that IQ at age 11 predicts health behavior (not smoking), rates of certain cancers, functional independence in old age, and longevity 60 years later, even after controlling for socioeconomic status.

Health depends on much more than *g*, but *g* level appears to have a pervasive and cumulative effect on physical health. Health self-care is like a complex job: it involves much independent learning, problem spotting, and responsibility in a fast changing environment—but with little training or supervision. This may explain why health inequalities usually increase when governments make health care and health information more available to all, as happened when Britain instituted free national health care in the 1950s. Although everyone tends to benefit

when more resources become available to all, brighter and more educated people benefit most because they exploit the new resources more effectively. For example, they seek more preventive care and they better implement the complex new treatment regimens for the major killers in developed nations today, namely, chronic illnesses such as heart disease.

Odds of Success for Individuals at Different Levels of Intelligence (*g*)

The foregoing evidence suggests that *g* may be the most useful tool in the toolbox of human mental abilities. In fact, high *g* may even be the single biggest advantage a person can have for success in modern life. It does not guarantee success in any realm of life, of course, nor does low intelligence guarantee failure. Many other things matter, including motivation, mental and physical health, family support, social conditions, and just plain luck. As described earlier, higher levels of general intelligence are a smaller asset in some areas of life (for example, income level) than others (educational performance). It is also important to note that socioeconomic success and physical well-being are hardly the only goals that humans pursue. That said, however, *g* has a big influence on material well-being, and material well-being is central to virtually all debates over equity and fairness. The question, then, is "how different are the life chances of people at, say, IQ 85 vs. IQ 100 vs. IQ 115?"

A useful way to think about this is to ask how the *probability* of various outcomes rises or falls at each step up the IQ continuum. Figure 2 will be used to illustrate how the risk of good and bad outcomes shifts steadily across the IQ continuum. It shows the typical bell curve of IQ scores: most people clump around the center of the distribution (the average), while smaller and smaller proportions are found further out toward the extremes of either high or low IQ. Figure 2 portrays the white population in the United States, whose average IQ is about 100. Roughly half of whites score between IQ 90-110 and 95% between 70-130. IQ 70-75 is generally viewed as

the threshold for mild mental retardation and IQ 130 for giftedness. All large populations have

IQs distributed as a bell curve but, as seen later, some are centered higher and some lower on the

IQ continuum. The top half of the figure shows the typical training that people at different IQ

levels can handle and the jobs they typically hold. The lower panel shows the rates of social

pathology found among young white adults in five different segments of the IQ distribution.

--   Insert Figure 2 Here   --

Nexus of Favorable Socioeconomic Outcomes

People's options in life increase steadily the higher they are on the intelligence

continuum. The upper panel of Figure 2 illustrates this for trainability and employability.

Individuals who are somewhat above average in IQ (IQ 111-125) are much easier to train than

individuals who are somewhat below average (IQ 76-90). Whereas the former can be trained

with college-level written materials, the latter generally require concrete, simplified, hands-on

instruction. This gap in trainability is consistent with estimates of the IQ thresholds necessary for

someone to have at least a 50-50 chance of succeeding at different educational levels in the

United States: IQ 75 for mastering the elementary school curriculum, IQ 105 for doing well

enough in a college preparatory curriculum in secondary school to be admitted to a four-year

college, and IQ 115 for doing well enough in college to be admitted to graduate or professional

school.

Not surprisingly, as Figure 2 shows, the jobs typically held by people at different IQ

ranges also differ greatly. Individuals with IQs in the top 10% of the population (IQ 120 and

above for whites) are competitive in intelligence for virtually all jobs, whereas persons in the

bottom 10% (for whites, an IQ below about 80) have very few options and are not competitive in

intelligence for any. The laws in some countries, such as the United States, do not allow

individuals with IQs below 80 to serve in the military because they lack adequate trainability.

Civilian employers likewise tend to avoid hiring them except for the simplest jobs. Low-IQ

individuals are at high risk for failure and generally require special circumstances in order to

prosper socioeconomically. High-IQ individuals, on the other hand, seem to require unusual

circumstances to fail.

Nexus of Unfavorable Socioeconomic Outcomes

The bottom panel of Figure 2 shows that no IQ level is immune from negative life

outcomes such as living in poverty or going to prison. It also shows, however, that the likelihood

of experiencing such outcomes rises sharply at successively lower IQ levels. For example, with

few exceptions, the probability that a young white adult in the United States will live in poverty,

go to prison (men), rely on government welfare for income (women), or bear an illegitimate

child (women) at least doubles at each of the five steps down the IQ continuum in Figure 2. The

risk of getting divorced or being unemployed changes little across the continuum, but the risk

gradient for leaving secondary school without a diploma rises much more sharply than for other

outcomes. There are large differences in risk even between persons with IQs only somewhat

below average (IQ 75-90) and those only somewhat above average (IQ 110-125), as is illustrated

by the rates of poverty, illegitimacy, welfare use, and incarceration being four to eight times

higher among the former than the latter.

The figure reinforces the earlier point that the advantages of higher *g* (and the

disadvantages of lower *g*) are larger in some areas of life than others, but also the point that they

are pervasive. Thus, what puts low-IQ individuals at high risk for one social pathology puts them

at elevated risk for many. This means that their problems are likely to multiply and escalate over a lifetime.

Social Mobility Across Generations

People with unfavorable life outcomes come more often from less advantaged family backgrounds. Social privilege theory assumes that all people are born with equal potential, so any correlation between parents and children in IQ, education, occupation, or income becomes evidence in the theory that lower attainments are caused *solely* by social disadvantage. Behavior genetic studies prove that this view is mistaken. Not only do shared family advantages have no lasting effect on IQ (in samples studied so far in the West), but level of education, occupation, and income are themselves moderately genetic in origin (respectively, 60-70%, 50%, and 40-50%). In addition, from half to two-thirds their heritability overlaps the heritability of IQ, meaning that variation in IQ and variation in adult outcomes have some genetic roots in common. The biggest competitive advantage that higher status parents pass to their children may therefore be genetic, not social or economic.

The fact that biological parents and children are 50% alike genetically means that their adult statuses will be similar even in perfectly meritocratic societies, that is, in ones where individuals advance solely on the basis of their own abilities and efforts. No society is perfectly meritocratic, but—and this surprises many people—the more closer a society comes to eliminating the intergenerational transmission of socioeconomic resources, the more exclusively genetic all remaining family similarities will be. The laws of genetics also guarantee, however, that there will be considerable intergenerational social mobility in such a society, because parents and children share *only* 50% of their segregating genes in common. This means that although

high-IQ parents are more likely to have high-IQ children than are low-IQ parents, both sets of

parents contribute children to all levels of the IQ distribution. This means, in turn, that high-IQ

parents tend to have children who are *less* intelligent than they are, on the average, while low-IQ

parents tend to have children who are *more* intelligent than they are. (This is referred to as

regression to the mean.) Studies find that children who are less intelligent than their parents or

siblings do, in fact, tend to get less education, enter lower level jobs, and earn less than their

brighter family members.

Erasing all similarity between parents and children or siblings would require more than

equalizing social advantages. It would also require neutralizing genetic ones too, for example, by

providing extra resources and opportunities to lower-IQ children and adults while systematically

withholding or removing them from higher-IQ individuals. Philosopher John Rawls proposed

this sort of compensatory redistribution of social goods to compensate for genetic disadvantage,

which he considered unfair. Others strongly disagree with such proposals because they believe

they would be unfair and discourage people from developing and using their abilities. Because

individuals differ genetically in socially valuable traits, it is no surprise that people in democratic

societies often disagree about what constitutes fairness.

The Democratic Dilemma

Genetic differences in a population create a dilemma for democratic societies. Social

inequality is inevitable when a society's members vary genetically in a trait, such as g, that is

highly useful and rewarded by the society. Equal opportunity to use one's talents will guarantee

unequal results. How much socioeconomic inequality there will be depends, in part, on the extent

to which individuals are allowed to reap the benefits of their own competence and, conversely, to

bear the consequences of lesser competence. Societies differ in the extent to which they allow the extremes of either.

Moreover, it is impossible, even in theory, to equalize the social conditions for developing and using abilities because brighter individuals tend to exploit identical resources more fully and effectively, from classroom instruction to health services. As parents and teachers know first-hand, children often respond to the same opportunities and events in very different ways. Arthur Jensen, perhaps the world's preeminent scientist of intelligence, has identified what he calls three "laws of individual differences." Each describes a change in learning conditions that provides opportunities for differential exploitation according to ability level. They therefore allow us to predict when inequality in performance will increase. All three describe common situations in which policy makers usually expect the opposite, that is, decreasing inequality.

First, making a change that improves the performance levels of all individuals will increase their differences in performance. For example, if a school hires better teachers and buys better textbooks, all students may learn more but the better learners will improve the most because they will gain more from the new resources. Second, increasing all students' opportunity (time) or motivation to practice a skill or develop a body of knowledge will increase individual differences in performance. Giving all individuals the same additional time to develop and practice a skill allows the better learners to improve the most (as long as there is no ceiling on how good performance can be). This explains why, when two sets of students differ in average IQ, the gap in the amount they have learned grows ever wider at each higher grade level. Third, more complex tasks produce bigger differences in task performance. As discussed earlier, they put a bigger premium on the quality and efficiency of a person's learning and reasoning (g). This

law explains why the knowledge gaps between students are largest in the most difficult academic subjects, especially math and science.

The three laws all involve changes that educational reformers advocate: improving all students' performance, giving all students more time to learn, and providing students learning tasks that require more complex learning and less memorization. But all three produce exactly what reformers most want to avoid—bigger differences in student performance. These constraints in reducing social inequality do not mean we should stop worrying about unequal opportunity. Nor, conversely, do they mean that we should lower all children's performance, deny them learning time, or give them easier curricula just to make their performance more equal. They mean only that we should recognize the limits to equalizing social conditions. A society can give its members the same political and legal rights, but it can never give them the same abilities and ambitions. It therefore cannot eradicate socioeconomic inequality without limiting human freedom and aspiration.

As described by John Gardner in his 1984 book, *Excellence: Can We Be Equal and Excellent Too?*, the challenge for democratic societies is therefore how to "provide opportunities and rewards for individuals of every degree of ability so that individuals at every level will realize their full potentialities, perform at their best, and harbor no resentment toward those at any other level [of ability]" (p. 113). Journalist Mickey Kaus raises the same concern from a different end of the U.S. political spectrum. In his 1992 book, *The End of Inequality*, he ponders other options for narrowing social inequality when a society's members differ genetically in productive abilities that healthy societies must reward.

Group Differences in IQ

The democratic dilemma is difficult enough when nations are racially and ethnically homogeneous. It is magnified when racial-ethnic groups differ substantially in average *g*. No society can afford to ignore high degrees of inequality by race, but neither can any afford to demand proportionality in life outcomes when groups differ in the average levels of general intelligence. But do multiracial societies really face this dilemma?

How Real and How Pervasive Are Group IQ Differences?

In the United States, the average IQ for whites of European origin is roughly IQ 100. Groups originally from East Asia (Japan, China, Taiwan, Korea) generally score a few points higher; groups originally from nearby Hispanic regions average somewhat below IQ 90, although averages vary somewhat by place of origin (mostly Cuba, Mexico, and Puerto Rico); and blacks in the U.S. average near IQ 85. IQ averages for Native-Americans (Indians) differ by tribe but are generally similar to those for Hispanics. These five broad racial-ethnic groups are not, of course, biologically pure races. As just mentioned, all five include subgroups that differ among themselves in both IQ and geographic or racial origin.

There is now a consensus among intelligence experts that the average IQ differences between native-born English-speaking members of these groups are not due to cultural bias in testing. Comparable group differences also show up on tests of reaction and inspection time, which measure speed (in milliseconds) of perceiving simple visual and aural stimuli. These and other data indicate that, at least in the United States, group differences in average IQ on unbiased tests represent group differences in *g* itself. Non-verbal IQ tests are required, however, for validly testing the intelligence of non-native speakers. As work by Jan te Nijenhuis and his

colleagues have documented in The Netherlands, verbal IQ tests can underestimate the *g* levels of immigrants.

The foregoing group differences in average IQ/*g* among native-born groups mean that relatively fewer individuals in some racial-ethnic groups than others in the United States are adept at learning, reasoning, and problem solving. Research shows that IQ test scores predict later school and work performance equally well in all groups for which there are sufficient data (whites, blacks, and Hispanics). That is, the group differences in average IQ represent real group differences in mental ability, which produce comparable group differences in achievement.

It is not yet clear why racial-ethnic groups tend to differ in average IQ/*g*. A 1987 survey of intelligence experts by social scientists Mark Snyderman and Stanley Rothman revealed that a majority of those responding believe that evidence points to the black-white IQ gap in the U.S. being both genetic and environmental in origin. Scientists have found it difficult to study this issue without becoming entangled in angry debates about their motives. Racial differences have been stable over time, however, so their causes need not be settled before their consequences are examined.

The IQ gap between blacks and whites in the United States—15-17 points—has not changed since it was first measured nearly a century ago. This does not mean that the IQ gap is necessarily the same in all local settings (classrooms, occupations, neighborhoods), partly because they have often drawn members partly on the basis of ability or achievement. Both races' test scores rose during the century (for still-undetermined reasons), but the gap remained as large at the end of the century as at the beginning despite considerable social change. The black-white gap is no different at age of school entry than at age of school exit twelve years later.

It has been found at age 3, which is about as young as intelligence can be measured using standard IQ testing procedures. There are fewer studies for other racial-ethnic groups in the U.S., but their averages also seem to have remained stable relative to the European-white average.

Comparisons among groups worldwide rely on non-verbal tests, such as Raven Progressive Matrices, which do not require reading, writing, or speaking. Scholars debate whether this prevents test bias when tests are used in very different cultures, but all agree that non-verbal tests greatly reduce the potential for bias. In their 2002 book, *IQ and the Wealth of Nations*, Richard Lynn and Tatu Vanhanen report Raven IQ scores for 81 countries. The median for these countries is IQ 91. Scores are highest in East Asia (IQ 104 $\pm$ 3) and next highest in the European-white populations of the Americas, Europe, and Australia (IQ 97 $\pm$ 5). They are lowest in sub-Saharan Africa (IQ 69 $\pm$ 8). Most other countries listed in their book (representing the Middle East, South and Central Asia, Southeast Asia, the Pacific Islands, North Africa, and Central America) have averages somewhere between IQ 80-90. Black-white mixes, called Coloreds in South Africa, generally average around IQ 80-85, whether they reside in Africa, the United States (American blacks are 25% white, on the average), or elsewhere in the West. As Lynn and Vanhanen report, the average IQs for these 81 countries correlate highly with their economic development (specifically, their gross domestic product per capita). The IQ averages also correlate highly with math and science achievement in the subset of 32 countries that participated in international surveys of achievement in 1982-1995. Thus, racial-ethnic differences in IQ and correlated achievements are the rule worldwide, not the exception. All the world's democracies are thus likely to face the democratic dilemma at the racial level.

What Are the Social Consequences of Group IQ Differences Within a Nation? The U.S. Example

The racial IQ gaps in the United States, portrayed in Figure 3, will be used to illustrate the social processes and controversies that such differences create within a multiracial nation. The two bell curves in the upper part of the figure, which represent blacks and whites, make several important points. First, both groups produce a bell curve that covers the full range of what is called normal intelligence (IQ 70-130). Second, the major difference between the two bell curves is that the black distribution is centered about 15 points lower on the IQ continuum than the white distribution when measured by the most widely-used test of adult intelligence, the Weschler Adult Intelligence Scale (WAIS). Third, the two bell curves overlap a lot, so it is not possible to know anyone's IQ by knowing their race.

-- Insert Figure 3 --

Representation of races across the IQ continuum. The first four rows in the bottom panel of Figure 3 show the percentages of East Asians, whites, Hispanics, and blacks below successive IQ levels. There are too few data to include Native-Americans. The last three rows in the figure show the percentage of each group, compared to the percentage of whites, which scores above five particular IQ thresholds. To illustrate, 54% of whites score above IQ 100 (100%-46%) but only 16% of blacks do (100%-84%), which yields a black-white ratio above IQ 100 of about 1:3 (16:54). The percentages are not as different for Hispanics relative to whites and thus yield a more equal Hispanic-white ratio, 1:2. The ratio for Asians is reversed because their percentage above IQ 100 (66%) is higher than that for whites (54%). The absolute values of the percentages should not be taken overly seriously, because they differ slightly depending on which particular IQ test is used. It is the pattern that is important, and it is replicated in all national studies.

The pattern is that, when two groups differ in average IQ, the proportions of their populations found at each point on the IQ distribution differ most at the extremes, or tails, of the IQ distribution. This is seen most clearly by looking at the ratios in the bottom three rows of Figure 3. Take, for example, blacks and whites above IQ 100. Blacks become progressively rarer, relative to whites, at higher IQ levels: 1:3 above IQ 100, 1:7 above IQ 110, and only 1:30 above IQ 125. The ratios are somewhat closer to 1:1 for Hispanics (1:2, 1:3, and 1:5) and Asians (6:5, 4:3, and 2:1) but the pattern of falling ratios is the same, except that the ratios for Asian-white comparisons always disfavor whites because whites have the lower average IQ.

The only IQ level at which the proportions are equal for two groups is the point where their bell curves intersect, which for blacks and whites in the U.S. is around IQ 92. Blacks increasingly predominate going down the IQ continuum from that point and whites increasingly predominate going up the continuum from that point. If the black and white populations were the same size, the color of people along the IQ continuum would gradually shift from mostly black at the low end to mostly white at the high end. This has very disturbing implications for any multiracial society that aims to reward people for developing and using their talents.

Groups differ, of course, in other factors besides *g* that can affect success and well-being. There is racial discrimination that favors some races and disfavors others. Racial-ethnic groups may also differ in typical interests, ambitions, special talents, material resources, social connections, and other characteristics that influence socioeconomic achievement. The estimates in Figure 3 suggest, however, that the IQ gaps pose a huge sociopolitical challenge for multiracial nations. Recall that these are gaps not just in test scores, but in the highly useful learning and reasoning skills that modern life requires.

Racial disparities in success and failure at four IQ thresholds. Figure 3 can be used to estimate the percentage of each racial-ethnic group that falls below successive thresholds for success in the United States. These are not absolute barriers, of course, but they mark the boundary between likely success and likely failure. Recall that IQ level guarantees nothing but does greatly change the probability of particular outcomes.

IQ 75 signals the ability level below which individuals are not likely to master the elementary school curriculum or function independently in adulthood in modern societies. They are likely to be eligible for special educational services in school and for Supplemental Security Income (SSI) from the U.S. government, which is financial support provided to mentally and physically disabled adults. Of course, many do marry, hold a job, raise children, and otherwise function adequately as adults. However, their independence is precarious because they have difficulty getting and keeping jobs that pay a living wage. They are difficult to train except for the simplest tasks, so they are fortunate in industrialized nations to get any paying job at all. While only 1 out of 50 Asian-Americans faces such risk, Figure 3 shows that 1 out of 6 black-Americans does.

IQ 85 is a second important minimum threshold because the U.S. military sets its minimum enlistment standards at about this level. Although the military is often viewed as the employer of last resort, this minimum standard rules out almost half of blacks (44%) and a third of Hispanics (34%), but far fewer whites (13%) and Asians (8%). The U.S. military has twice experimented with recruiting men of IQ 80-85 (the first time on purpose and the second time by accident), but both times it found that such men could not master soldiering well enough to justify their costs. Individuals in this IQ range are not considered mentally retarded and they therefore receive no special educational or social services, but their poor learning and reasoning

abilities mean that they are not competitive for many jobs, if any, in the civilian economy. They live at the edge of unemployability in modern nations, and the jobs they do get are typically the least prestigious and lowest paying: for example, janitor, food service worker, hospital orderly, or parts assembler in a factory.

IQ 85 is also close to the upper boundary for Level 1 functional literacy, the lowest of five levels in the U.S. government's 1992 National Adult Literacy Survey (NALS). Adults at this literacy level are typically able to carry out only very simple tasks, such as locating the expiration date on a driver's license or totaling a bank deposit slip, but they typically cannot perform more difficult tasks, such as locating two particular pieces of information in a sports article (Level 2), writing a brief letter explaining an error in a credit card bill (Level 3), determining correct change using information in a menu (Level 4), or determining shipping and total costs on an order form for items in a catalog (Level 5). Most routine communications with businesses and social service agencies, including job applications, are thus beyond the capabilities of persons with only Level 1 literacy. Their problem is not that they cannot read the words, but that they are not able to understand or use the ideas that the words convey.

In the NALS survey, the average literacy score for U.S.-born black adults (230) was near the bottom of the score range for Level 2 (225-275 on a scale of 0-500). The average for U.S.-born Hispanics was nearer the middle of Level 2 (245), and for U.S.-born whites it was in the lower reaches of Level 3 (285). Clearly, proportionately many more members of some groups than others have difficulty coping with the many little complexities of modern life that most people take for granted. These are all tasks that citizens, as independent adults, are expected to learn and master largely on their own. Low functional literacy, when coupled with limited employability, makes life an uphill battle for individuals below IQ 85—one in which they are

constantly at risk of slipping backward. As was shown in Figure 2, they are at much elevated risk

of living in poverty and having children outside marriage. To add to these parenting challenges,

they are also more likely for, genetic reasons, to bear children who are mentally retarded (below

IQ 70-75). Life is difficult for them, whatever their race, but there are relatively more such

individuals in some races than others. For instance, there are proportionately over three times as

many U.S. blacks as U.S. whites in this situation.

IQ 105 can be viewed as the minimum threshold for achieving moderately high levels of

success. It has been estimated to be the point at which individuals have a 50-50 chance of doing

well enough in secondary school to be admitted to a four-year university in the United States.

People above this level are highly competitive for middle-level jobs (clerical, crafts and repair,

sales, police and firefighting), and they are good contenders for the lower tiers of managerial and

professional work (supervisory, technical, accounting, nursing, teaching). Figure 3 shows that

Asian-Americans are 6-7 times more likely than blacks to exceed the IQ 105 threshold. The

percentages are 53%, 40%, 27%, and 8%, respectively, for Asians, whites, Hispanics, and blacks.

IQ 115 marks the ability threshold for being competitive as a candidate for graduate or

professional school in the U.S. and thus for high levels of socioeconomic success. Partly because

of their higher educational promise, individuals above this IQ level have the best prospects for

gaining the most coveted occupational positions in a society. This is the IQ range in which

individuals can be self-instructing and are, in fact, expected to instruct, advise, and supervise

others in their community and work environments. This is therefore the IQ range from which

cultural leaders tend to emerge and be recruited. The percentages exceeding this threshold are,

respectively, 40% (Asians), 28% (whites), 10% (Hispanics), and 4% (blacks).

If one looks at IQ alone, then, life chances tend to be very different, on average, in some racial groups than others. Other factors matter, as noted earlier, and the disparities in outcome are actually somewhat smaller in the U.S. than IQ alone would predict. But the pattern is as predicted: unfavorable outcomes are much more common in lower-scoring groups and favorable outcomes are much less common.

Group-level effects. Where races tend to form separate communities, these disparities in individual-level outcomes create additional challenges at the community-level. Consider, for example, the percentages of each racial-ethnic group that score above IQ 110 vs. below IQ 90. For Asians it is 40% vs. 14%, for a ratio of almost 3:1. That is, there are 3 Asians who are at least somewhat above average in intelligence for every 1 who is at least somewhat below average. The pattern is starkly different for blacks: there is only 1 black who is at least somewhat above average in IQ for every 12 who are at least somewhat below average (59%). The percentages are 28% vs. 22% for whites, and 10% vs. 41% for Hispanics.

Cultural change is also likely to increase the socioeconomic vulnerability of some groups more than others because it often creates the need for more frequent or more complex learning and reasoning. Advances in technology provide a good illustration. Many of them have made life physically easier and safer overall, but they have also made it mentally more complex. For example, technology has replaced most unskilled factory and farm jobs. Let us assume for purposes of illustration that as jobs began to require more brains and less brawn, the threshold for employability moved up the IQ continuum from IQ 70 to IQ 80. As Figure 3 illustrates, this shift would make an additional 2%, 5%, 9%, and 14%, respectively, of Asians, whites, Hispanics, and blacks effectively unemployable, for totals of 4%, 7%, 23%, and 30% across the four groups. Other advances that we celebrate—from home computers to new ways to prevent or

treat heart disease—have probably raised the IQ thresholds for effective self-care. Any cultural change that requires additional learning and reasoning or that grants people more personal freedom (thus requiring them to exercise their own judgment) can produce what seems like an epidemic of problems in some groups but not others.

<p align="center">Evolution of Major Efforts in U.S. to Eliminate Racial Inequality in Life Chances</p>

Most citizens are deeply troubled by the large racial differences in well-being. Many are angered by the seeming unfairness and others fear that it threatens to undermine social stability. Virtually all policy makers subscribe to the social privilege theory of social inequality, at least publicly, so they attribute the systematic pattern of racial inequalities to a systematic pattern of racial discrimination and deprivation. Conversely, they expect racial equality to emerge as discrimination and deprivation are eliminated. When the expected equality does not emerge following such efforts, many begin to attack anything that seems to stand in its way, including the race-neutral and objective measures for which they once fought.

A Reliance on Education Reform and Social Privilege Theory

The public schools have long been charged with eliminating racial gaps in academic achievement in order to reduce racial inequality in broader life outcomes. While this goal has not changed, the way schools have been asked to pursue it has. Efforts to provide equal educational opportunity for all races began by targeting highly specific and clearly unfair policies. In 1954 the U.S. Supreme Court made it illegal to prevent blacks from attending school with whites. All subsequent reforms were guided by some version of social privilege theory because they have all assumed that equalizing school resources for learning would equalize academic achievement. The implicit equation was:

equal resources = equal learning

As each reform failed to erase the achievement gaps between groups, succeeding efforts to do so became ever more expansive and aggressive.

Educational Reformers Advocate Same Resources for All Races

Equality of resources for black and white students was first sought by equalizing school funding and, in some districts, by assigning students to schools evenly by race so that blacks and whites would be attending the same schools together. (Other racial groups were still comparatively small at that time.) Both practices would assure that blacks had the same teachers, books, and other school resources as whites. When black and white students attended the same schools, however, blacks were more often placed in the lower-ability classes, thereby exposing them to different curricula, on the average. Critics labeled this discriminatory, so many elementary schools stopped grouping students by ability for purposes of instruction, except perhaps for reading or math. This meant putting black students of lower average ability together in the same classrooms with whites of higher average ability. This, in turn, produces the appearance that black students are being discriminated against when they perform less well, on average, than their white classmates.

Classes for students at the extremes of ability are especially vulnerable to charges of discriminatory placement because racial representation is most lopsided at the tails of the IQ distribution. And, in fact, many school districts have been sued for having disproportionate numbers of blacks—usually about 3:1—in special education (classes for students who are mildly mentally retarded). As Figure 3 indicates, this ratio is actually smaller than the 4:1 ratio that IQ differences alone would predict. The most famous such case, in 1971, led the court to ban IQ

testing in the State of California. Such attacks on the practice of putting special education students in separate classes prompted many schools throughout the U.S. to integrate ("mainstream") special education students into regular classes. Neither change, however, had the desired effect.

Programs for gifted students have likewise been widely criticized for racial imbalance, but this time for excluding too many non-Asian minority students. Their low enrollment in gifted education is said to deny non-Asian minority group members equal access to advanced curricula. The traditional criteria for enrollment, high grades and test scores, exclude all but a few blacks and Hispanics so they were the critics' first target, as had been the case in lawsuits over special education. In order to enroll more black and Hispanic students, gifted programs are now being encouraged to broaden their definition of giftedness to include non-academic achievements, such as performing extensive community service. Many programs now deemphasize test scores, if they continue to use them at all, and instead solicit nominations from parents and students themselves. Many programs also used to accelerate gifted students by giving them an advanced curriculum, but students selected into gifted programs on the basis of non-academic achievements do not fare well in academically advanced classes. Gifted programs that use the broader selection criteria therefore cannot accelerate the curriculum without creating disproportionate rates of failure among black and Hispanic students. Instead of accelerating students, they now prefer to pull them out of the regular curriculum for occasional enrichment activities. In short, as programs have evolved to equalize enrollments in more advanced curricula, the curricula themselves have become less advanced.

Next, Educational Reformers Advocate Compensatory Resources for Lower-Scoring Groups

As it became clear that equalizing school resources was not equalizing the academic performance of all races, the definition of equal educational resources was expanded. It was said that students from poor neighborhoods would never receive an equal education or perform as well as whites unless schools made up for resources they lacked at home. Compensatory education, as it is called, began with schools providing meals and special reading instruction to elementary students from poor families. It has evolved to include more extensive services and all grade levels. In fact, racial equalization policies create a need for new compensatory services whenever they move less able minority students into classes and curricula where they have difficulty competing academically. Such policies end up creating a clear racial contrast in performance levels. They color-code failure, which hurts both the individuals and the institutions involved, so institutions must then provide special services to students they put in that position.

Efforts to provide equal resources and compensatory resources have done little to reduce racial differences in academic achievement. Between 1970 and 2000, racial gaps on national tests of academic achievement narrowed somewhat in reading but hardly at all in math and science. Moreover, the achievement gaps did not become smaller than the minimum that the IQ gaps would predict. Nor has it seemed to matter how wealthy or well-meaning a school district is. Even in districts where black students have all the resources that were once thought to guarantee high academic performance, they still perform relatively poorly on average.

Next, Educational Reformers Advocate Extra Motivational Support for Lower-Scoring Groups

The social privilege approach to school reform therefore began to stress non-material resources in its learning equation:

$$\text{resources} + \text{motivation} = \text{amount learned}$$

Equal resources were not enough, its proponents said, because American society and American schools had severely depressed the hopes and motivation of lower-scoring groups. Nigerian anthropologist John Ogbu became famous for this argument. It was now argued that blacks and other non-Asian minorities could not be expected to perform as well as whites unless they got at least as much psychic and emotional support from schools and society as whites and Asians were presumably getting. School reformers therefore began to promote multicultural education. Curricula that celebrated the cultures of racial-ethnic minorities would make minority students feel more welcome, more respected, and more engaged in their studies. At the college level, the effort to promote full and effective academic engagement has included providing ethnic housing and cultural centers, conducting separate orientation and awards ceremonies, adding college majors that focus on ethnicity, and instituting speech codes that forbid students and faculty from expressing views that individuals from racial-ethnic minorities might find offensive. Such efforts to compensate for presumably missing emotional as well as material resources has changed education in many ways, but it has done little to narrow the racial gaps learning.

Parallel Evolution in Employment Policy

Social privilege theory has reigned in employment too, and with similar results. For almost four decades now, employment law in the United States has treated racial imbalance in hiring, by itself, as evidence of illegal discrimination. When employers are sued for racial imbalance in hiring or promotions, they must then prove their innocence by showing with exacting scientific procedures that their selection procedures are technically superior to and less racially exclusionary than any alternatives the complainants suggest. The difficulty and expense

of mounting such defenses has led many employers to avoid discrimination lawsuits by using racial preferences of some sort when hiring workers. This strategy only postpones their legal problems, however, because workers who are hired under lower standards tend to perform less well once on the job. If employers then use race-neutral standards to evaluate the workers they hired under different standards, they open themselves to charges of racial discrimination when the workers they hired under lower standards perform less well, on average, and are promoted less often.

Adherence to social privilege theory as the sole explanation for racial inequality in employment has produced the same reversal in what is considered fair and equal treatment as has occurred in education. An insistence on removing race as a consideration in judging applicants has been replaced by an insistence on including it. Efforts to develop more objective selection criteria have been replaced by a search for more subjective ones. The valid assessment of mental skills is deemphasized (and sometimes eliminated altogether) in favor of non-mental traits, even when the former are known to be critical on the job.

Radicalization of Blame

Perhaps the biggest consequence of adhering to social privilege theory is that it has progressively radicalized the definition of discrimination. According to social privilege theory, there would be no racial inequality in a fair, non-discriminatory society. The continuing existence of racial inequality is therefore proof of continuing discrimination. The fact that racial inequality permeates nearly all aspects of American life means, then, that racial discrimination permeates nearly all aspects of American life. The fact that overtly discriminatory acts are rarely observed today means only that discrimination has become hidden from view. That seemingly

sincere, well-meaning whites deny being bigoted means only that their bigotry is unconscious and they refuse to admit it. That black students perform less well on average than their white classmates means that their teachers must be racist, and the latter seem to prove their guilt if they suggest that their black students sometimes have more difficulty learning the curriculum. The fact that some racial-ethnic groups disproportionately fail to meet objective race-neutral standards is proof of further insidious racism, namely, that these standards were established with the intent to favor the dominant class while appearing to do otherwise. According to social privilege theory, high-achieving groups (at least European whites) are therefore automatically guilty of profiting from an oppressive social system, and low-achieving groups are being robbed of what is rightfully theirs. Every inequality becomes more evidence of entrenched evil. The talk of brotherhood 50 years ago is replaced by talk of reparations and retribution; the hope of mutual respect among the races by mutual resentment.

The Neglected Reality

The United States is not struggling with an insidious evil, but with a stubborn reality that it tries to deny. All citizens would wish it away if they could, but it exerts itself, relentlessly, independent of their wishes. That reality is the element in the learning equation which social privilege theory will not acknowledge, namely, individual and group differences in the ability to learn and reason (g).

$$(\text{opportunity} + \text{effort}) \text{ x learning rate} = \text{amount learned}$$

Differences in the ability to learn (g) is not a racial phenomenon, per se, because it affects individuals regardless of their race or social class. It clearly has racial ramifications, however, when there are relatively more poor learners in some groups than others. This is not to say that

race and class differences in opportunity and support do not exist or influence adult achievement, because they do. It only means that troubling group differences in achievement would still emerge in their absence.

As indicated in the equation, being a better learner is not just an additional resource, but one that *magnifies* the value of all other learning resources. This is the lesson from Jensen's three laws of individual differences. Because a higher learning rate multiplies the value of extra resources for better learners, it is impossible in most circumstances to obtain equal learning from individuals and groups who differ substantially in IQ/*g*, no matter what measures are taken to level their differences, ethical or not. Educators, employers, and U.S. society itself have been asked to do the impossible. It is no wonder that they have failed and frustrated all involved. Or that they are driven to try ever more extreme measures to achieve the impossible or pretend to have succeeded when they have not.

The Democratic Dilemma in Multiracial Societies

U.S. society confronts not an evil, but a dilemma. We need not extra resolve in fighting discrimination, but the wisdom for making difficult choices. The functional tool theory of intelligence cannot supply that wisdom, but it can help lay out the choices involved. They are difficult choices because, as the theory shows, there is no technical solution—such as eliminating tests, modifying selection criteria, or proposing new definitions of intelligence or giftedness— that will make the dilemma go away. There are no simple or fully satisfying solutions to many of life's problems, and there will be none for the democratic dilemma either. By clarifying the dilemma, however, functional tool theory may help democratic societies identify more constructive ways of dealing with it.

III. Geral

g
Inteligência geral   **≈ IQ**

II. Ampla

| *Gf*
Inteligência
fluida | *Gc*
Inteligência
cristalizada | *Gy*
Aprendiza-
gem e
memória | *Gv*
Processa-
mento
visual | *Gu*
Processa-
mento
auditivo | *Gr*
Armazena-
mento e
recupera-
ção de
informação | *Gs*
Processa-
mento
cognitivo | *Gt*
Velocidade
de
processa-
mento e de
decisão |

I. Específica

RG	V	MM	MS	SS	US	FE	P	R1
RQ	LD	MV	VZ	UP	FA	R9	R2	R4
I	CM	RS	SR	CS	UM	FW	N	R7

Life chances:	"High Risk"	"Up-Hill Battle"	"Keeping Up"	"Out Ahead"	"Yours to Lose"
% pop.:	5%	20%	50%	20%	5%

Training potential:

Upper band: Very explicit hands-on | Written materials plus experience | Gathers, infers own information

Lower band: Slow, simple, supervised | Mastery learning, hands-on | College format

Career potential:	Assembler Food Service Nurse's Aide	Clerk, teller Police officer Machinist, sales	Manager Teacher Accountant	Attorney Chemist Executive

WAIS IQ:	70	75	80	85	90	95	100	105	110	115	120	125	130
WPT score:[a]	6	8	10	13	15	17	20	23	25	28	30	33	36

Out of labor force 1+ mo/yr (men)	22	19	15	14	10
Unemployed 1+ mo/yr (men)	12	10	7	7	2
Divorced in 5 yrs	21	22	23	15	9
Had illegitimate child (women)	32	17	8	4	2
Lives in poverty	30	16	6	3	2
Went on welfare after first child (women)	55	21	12	4	1
Doing time/ever incarcerated (men)	7	7	3	1	0
Chronic welfare recipient (mothers)	31	17	8	2	0
High school dropout	55	35	6	0.4	0

Life chances:	"High Risk"	"Up-Hill Battle"	"Keeping Up"	"Out Ahead"	"Yours to Lose"
% pop.:	5%	20%	50%	20%	5%

Training potential:

Very explicit hands-on

Written materials, plus experience

Gathers, infers own information

Slow, simple, supervised

Mastery learning, hands-on

College format

Black

White

Career potential:

Assembler
Food Service
Nurse's Aide

Clerk, teller
Police officer
Machinist, sales

Manager
Teacher
Accountant

Attorney
Chemist
Executive

WAIS IQ:	70	75	80	85	90	95	100	105	110	115	120	125	130
Cumulative %:													
Black	10	**18**	30	44	**59**	73	84	92	**96**	98	99	**99+**	**99+**
Hispanic	8	**14**	23	34	**47**	60	73	82	**90**	94	97	**99**	**99+**
White	2	**4**	7	13	**22**	33	46	60	**72**	82	90	**95**	97
Asian	1	**2**	4	8	**14**	23	34	47	**60**	73	82	**90**	94

Ratio when:	IQ<75	IQ<90	IQ>100	IQ>110	IQ>125
Black/White	4:1	3:1	1:3	1:7	1:30
Hispanic/White	3:1	2:1	1:2	1:3	1:5
Asian/White	1:2	2:3	6:5	4:3	2:1