The skills of American workers in today's labor market

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Are the education and skills of American workers adequate to the demands of today's jobs?[1] For at least three decades, academics and policymakers have heatedly debated this question. First came the perception, current in the 1970s, that the American labor force was overeducated relative to labor market needs. By this view, American workers faced a rough future in which their rising educational levels and aspirations for meaningful work had outstripped the demands of jobs available to them.

In the 1980s, however, the "skills glut" seemed rather rapidly to become a severe "skills deficit." Labor economists, observing that the wage premium for a college education had reached record highs, concluded that the growth in the demand for skills had outrun the supply, resulting in a large growth in wage inequality.[2] Sociologists such as William Julius Wilson argued that the same labor market changes were contributing to the problems of the urban underclass, as the skills of minority workers lagged behind rising employer requirements.

A vociferous sector of popular and academic opinion has argued that the skills mismatch can only grow worse as the pace of economic change accelerates, the workplace becomes more dependent on information technology, and an ever larger share of jobs requires workers with higher levels of literacy and technical expertise and with greater capacity for flexibility and change. The blame for this perceived crisis was laid squarely upon the country's educational system.[3] The best known and perhaps the most overheated expression of these concerns was the 1983 report of the National Commission on Excellence in Education (1983), which declared, "Our Nation is at risk. . . .If an unfriendly foreign power had attempted to impose on America the mediocre educational performance that exists today, we might well have viewed it as an act of war."[4]

The rapid about-turn in opinion regarding workers' skills and labor market needs is reason enough to look closely at the evidence. There appear, indeed, to be clear grounds for some skepticism about the current notion of a skills deficit. While education continued to be pilloried in the political and public discourse, many of the economic problems that had fueled concern in the 1980s had diminished significantly by the mid-1990s. Economic growth was more robust before the recent recession that at any time in the previous thirty years, and U.S. economic dominance remains unchallenged internationally, though trade with low-wage countries continues to prompt anxiety over the shrinking numbers of middle-income jobs available to less-educated workers. The source of these current anxieties is in striking contrast to the 1980s, when concern focused on Japan and its highly skilled and motivated workers—all distant memories today. The late1990s boom was built largely around new computer technologies, despite fears of a shortage of capable workers. In the late 1990s, before the recent recession, the wages of those in the lowest wage percentiles began rising for the first time in decades. None of this was predicted by theories of skills mismatch that emerged in the 1980s and remain the dominant discourse today.

Throughout, one sector of economic opinion—economists working in the segmented labor markets tradition—remained skeptical about the "skills decline" as a cause of labor market problems. They have always emphasized the importance of institutional conditions and employer characteristics in the wage determination process, rather than simply the human capital and other individual characteristics of workers. The real causes of inequality growth, they argued, lay in free-market government policies, declining manufacturing employment, deunionization, and managerial shortcomings in product quality, capital investment, work organization, and worker training that hindered competitiveness. As unionized manufacturing jobs that had provided middle-class incomes for less-educated workers were replaced by low-end service jobs, and as contingent work, outsourcing, and offshore production increasingly intruded into the primary labor market jobs, the quality of jobs declined and wage inequality grew. The skills mismatch discourse, from this perspective, was a classic example of "blaming the victims"—the workers who bore the brunt of low-road management strategies. In this view, the sometimes heated rhetoric over skills decline appears as a kind of "moral panic" that was entirely disproportionate to a sober estimate of the evidence.[5]

The speed with which the labor market reversed its course suggests, indeed, that swings in macroeconomic forces had a far greater effect on the nation's fluctuating fortunes in the 1980s and 1990s than did the modest trends in school quality or individual attainment. Were schools made the scapegoats for poor economic performance

whose real sources lay elsewhere? Any theory that attributes the 1980s decline to a skills mismatch or poor school quality must also account for the 1990s boom. In fact, even though many of the economic problems that helped fuel concern in the 1980s and early 1990s have stabilized or receded significantly since then, the sense of alarm regarding school quality has, if anything, grown. In this article, I explore some unresolved issues regarding whose education—and what skills—are believed to be deficient. I also examine the ways in which particular skill trends have been characterized and examine some explanations of the underlying causes offered by economists and sociologists. Because existing research and data sources leave so many questions about job skill requirements unanswered, I have also begun a new project to collect data on trends in the skills, technology, and work organization of U.S. jobs (see box).

Who lacks the necessary skills, and what skills are in short supply?

There are clear conceptual as well as evidential difficulties in the skills mismatch thesis. The diagnoses its proponents offer have frequently been unclear or ambiguous. Different groups of workers have at one time or another been cited as lacking appropriate work skills: cohorts educated since the 1960s, young workers, older workers, disadvantaged minorities, job-seekers with a high school education or less, and even the college-educated without a technical background.

The range of skills identified as deficient is correspondingly wide: eighth- or tenth-grade reading, writing, or math skills; college-level reasoning skills; underspecified "problem-solving" abilities; computer skills; "soft skills" such as teamwork or other interpersonal skills; or work-related attitudes, such as low work effort, poor demeanor, and unwillingness to follow direction, which are more personality variables than skills, strictly speaking. The vague but often heard complaint about inadequate "problem-solving" skills conflates both these views: employers seem to use the term to express dissatisfaction with workers' cognitive skills *and* their lack of interest in exercising them.

One version of skills mismatch argues that there are serious deficits in basic or intermediate-basic (eighth to tenth grade) skills among those educated since the 1960s, when test scores fell and the quality of schools is believed to have declined. This is an implied cohort thesis: according

New Labor Force Panel Survey to Track Changing Job Demands

Researchers across several disciplines, including sociology, labor economics, education, and public policy analysis, have shown keen interest in questions relating to the changing nature of work. There is a widespread belief that the skill requirements of jobs are growing significantly as a result of the spread of computers and increased employee involvement in workplace decision-making. These developments are believed to have significant implications for a wide range of issues, such as the growth of wage inequality and the labor market prospects of less-educated workers, including those making the transition from welfare to work.

Progress on these questions remains limited by the lack of any detailed, nationally representative data on what people actually do at work. Researchers have only crude information on levels and kinds of job skill requirements, rates of change, and the dimensions along which job skills are changing.

To address this gap in knowledge, Michael J. Handel, assistant professor of sociology at the University of Wisconsin–Madison and an IRP affiliate, is conducting a nationally representative, two-wave panel survey of wage and salary workers (N=2,500). The surveys will collect information on various cognitive skills required on the job (reading, writing, math, problem-solving), interpersonal skills, manual skills, and physical demands. The surveys will also collect detailed information on computer use at work and participation in high-performance workplace practices, such as self-directed teams, as well as standard labor force variables.

Most of this information has never been collected before or has been collected only for special samples, such as surveys of particular industries or cities, although the United Kingdom has sponsored two different series of somewhat similar surveys.

The goal of the project is to understand the incidence of various skill and technology-related job requirements and workplace practices, the interrelationships among these three sets of variables, and their relationship to various measures of job quality (e.g., wages, layoffs, job satisfaction). The use of a refreshed panel will also shed light on rates of change, a longtime subject of speculation. If future waves receive funding, the data will be the first consistent, long-time series on the changing nature of work in the United States.

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to this view, poorer skills should be persistent characteristics of the affected age groups, and should be apparent when we compare adults educated before and after the 1960s. Evidence discussed below does not support this view and raises the possibility that much of the literature mistakenly interprets transitory difficulties among youth in their adjustment to the labor market—an age effect—for permanent intercohort declines in skills.

Complaints about social skills and motivation also suggest that what employers perceive as a cohort effect may actually be an age effect. Young adults—and not only in recent years—may pass through a phase characterized by low effort and weak attachment to career employment, attitudes reinforced by a perceived scarcity of jobs offering career opportunities. As workers age and shoulder more adult responsibilities, their casual work attitudes yield to the workplace norms they find attached to the kinds of jobs they consider worth keeping. Indeed, the cohorts whose deficiencies were considered so alarming in *A Nation at Risk* are now in middle age, and are themselves among those who complain about the declining skills of the young. If the problem is the attitudes of young workers, time is the remedy, and there is no progressive problem facing the workforce overall.

Indeed, to the extent that the issue is the increased importance of computer skills and related technological competencies, younger workers should, in theory, be better placed than older workers, whose skills may have become obsolescent and who may have difficulty in retraining for a computerized workplace.

Much of the anxiety about skills mismatch focuses on one sector of the labor market—those with a high school diploma or less, or, more narrowly still, less educated, disadvantaged minorities. If a skills mismatch exists only for these groups, this problem must be distinguished from the idea that schools are failing to teach sufficient skills to the general population of school children. Similarly, the alleged declines in the quality of higher education or in the number of college graduates, especially in science and technology, must be distinguished from poor math and reading skills among high school graduates. In each case the scale of the problem and the potential consequences are very different, but they are often folded into the same rhetoric over inadequate skills.[6]

In sum, existing notions of skills mismatch are a confused jumble. Any satisfactory argument needs to specify whether the problem is a shortage of cognitive skills or a surplus of youthful attitudes, whether it is too many workers with inadequate basic English and math literacy or too few with sophisticated technological expertise, and whether all high school graduates are inadequately prepared for employment or whether the problem is confined to high school dropouts and certain other disadvantaged groups.

Skill trends: Declining/stagnating supply or greater demand?

The trends in skills are as much a subject of debate as the nature of skills mismatch. Is the workforce experiencing an *absolute* decline in skills across cohorts or large groups of workers, as many of those concerned about the school system insist? Or is the issue a *relative* deficit in skills? And if so, is it because growth in the supply of human capital has slowed or demand has accelerated? Labor economists studying inequality are still undecided.[7]

The difference between these questions has clear implications for where we might look for evidence. Absolute declines or slower growth in the supply of human capital suggest problems with the education system and with workers' behavior—failing schools, declining test scores, "underclass" or even mainstream youth values that diverge from mainstream work norms. Accelerating demand for human capital suggests employer-side changes—the spread of computer technology and a workplace that is more participatory and less hierarchically organized.[8]

The evidence for a skills decline: Education and test scores

The most readily available measures of workers' skills are educational attainment, measured by years of schooling, and educational quality, measured by test score trends.

Educational attainment

In 1964, before the perceived deterioration of public education, 47 percent of all Americans and 31 percent of young adults (ages 24–29) were high school dropouts. In 1997, only about 13 percent of either group had dropped out of high school.[9] Clearly, any view of the pre-1960 period as a golden age of public education is an exercise in nostalgia.

How much educational attainment has risen depends on the measure (is it mean years of education or categories of attainment?), the time range (the rate of growth has varied in different periods), and the population chosen (is it all workers or only young workers?). For the entire population, educational attainment grew most rapidly through the mid-1970s and slowed thereafter through the 1990s. Attainment among young adults rose most rapidly between 1965 and 1975, partly because of rapidly declining high school dropout and rising college attendance (boosted temporarily by Vietnam War draft deferments). Inequality in attainment declined by 25–30 percent for both all workers and young adults between 1962 and 1982; thereafter it did not change.

If educational attainment is the measure of skill, the workforce today is more skilled than ever, although the trend was flat for young workers during 1975–1990, when anxiety about education and the economy both were at their peak.

Test scores

Schools vary in quality, and educational categories such as "high school graduate" are imprecise measures of skill. Thus test scores have been used as an arguably more precise measure of cognitive skills. Economists and policy analysts whose focus is education are especially inclined to see the trends in public school test scores as evidence that the quality of the workforce is declining. This dissatisfaction underlies much of the current emphasis on high stakes testing and school vouchers as a way to improve the quality of schools and thereby enhance the skills of American workers. In contrast, labor economists concerned about wage inequality have been more skeptical about blaming declining educational quality, partly because older high school graduates who completed their education before 1960 experienced the same relative wage decline as younger workers.

The three measures most relevant for assessing any trend in cognitive skills are intelligence (IQ) tests, college entrance exams (the Scholastic Aptitude Test, SAT, and the American College Test, ACT), and, most complete and representative, the U.S. Department of Education's National Assessment of Educational Progress, NAEP.

Intelligence tests show large gains for Americans in every decade of the twentieth century, and there is no obvious, recent change in the rate of growth.[10] Indeed, the gains in the United States and other industrialized countries are so large that they have generated intense controversy over their meaning. But even if the large gains in IQ scores do not signify commensurate gains in intelligence, they are certainly not evidence of decline.

The decline in *college entrance exam* scores, beginning in the mid-1960s, initiated the recent concern over the state of U.S. public education. It has been less widely reported that math SAT scores started rising around 1980 and by the mid-1990s exceeded 1971 levels, though verbal scores did not recover. The ACT trends were the reverse: English scores have exceeded earlier levels in recent years and math has not fully rebounded. Contrary to the popular impression, then, the SAT test score decline ceased (verbal) or reversed (math) 20 years ago. Other test scores confirm that any downward trend was highly cohort-specific, that is, it was restricted to those educated in the 1960s and 1970s.

However, the usefulness of college entrance exams for tracking cohort-specific skill trends is highly problematic. The population of students who take such tests is not random and has changed so greatly over time that some researchers believe that no credible conclusions can be drawn from these data.[11] Others argue that a genuine decline can be inferred at least for the 1970s. But these scores offer no more definitive evidence of long-term deterioration than IQ tests do.

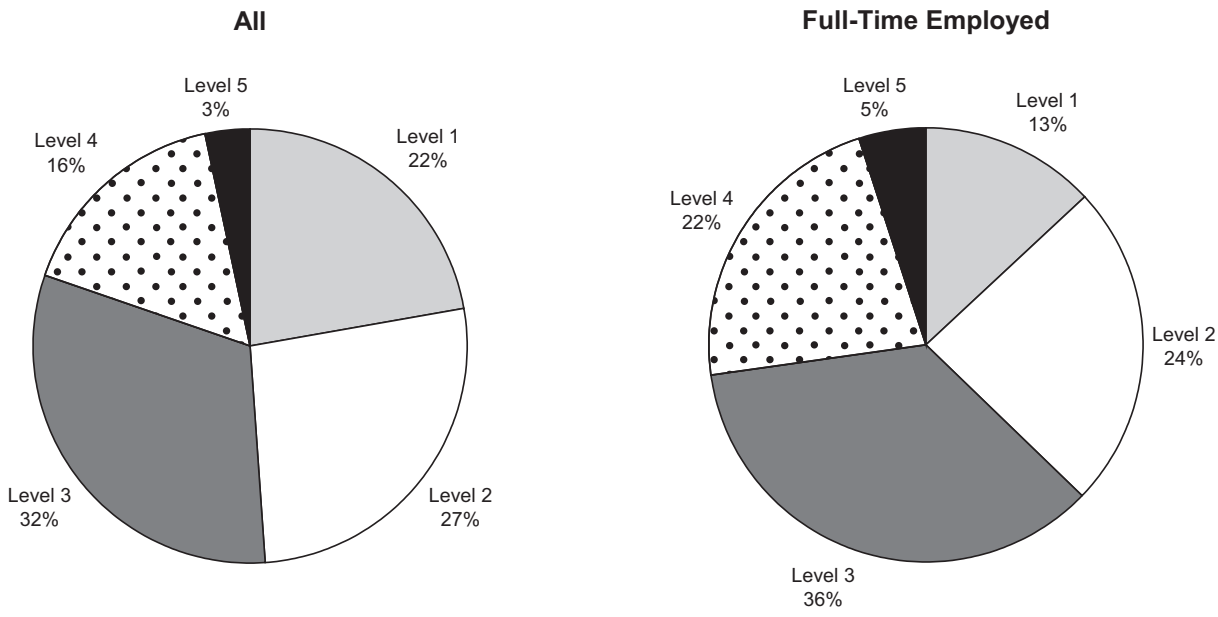

Figure 1. National Adult Literacy Test Scores, 1992.

Note: Percentage of entire sample and of full-time employed participants only in each level.

Scores: Level 1, 0-225; Level 2, 226-275; Level 3, 276-325; Level 4, 326-375; Level 5, 376-500.

The best data are provided by the *NAEP*, which has a continuous series of reading and math scores for representative samples of 17-year-olds, beginning in the early 1970s; the test itself has remained relatively unchanged over the last 30 years. From 1971 to 1999, reading scores did not change significantly, though their general trend was upward, unlike SAT scores. From 1973 to 1982 math scores fell; then they rose almost continuously and surpassed 1973 levels in 1999. Even critics of American education acknowledge that the changes are small. However, stable achievement scores at a time of rising demand for higher skills may in themselves be a reason for concern.

Because raw NAEP scores mean little to policymakers and the public, the NAEP scale was divided into five performance categories that in principle offer some indication of the tasks that students at each level can perform. The proportion scoring in the highest level is generally small—a statistic that has received great attention. But some research shows that as cohorts of students grow older, the proportion performing at higher levels rises. For example, 21 percent of one sample of young adults who took the NAEP scored at the highest performance level, although only 5 percent of the same cohort had done so at age17.[12] Evidence of this kind suggests that the NAEP scores of 17-year-olds cannot be taken at face value as measures of the competency of young adults. Other problems in the interpretation of test scores are discussed below.

Adult reading and math scores

There is little complete or representative information on adult reading and math scores over time. The richest source of data is the cross-sectional National Adult Literacy Survey (NALS) administered in 1992 to a representative national sample of Americans by the Educational Testing Service (which also writes the SAT) for the U.S. Department of Education. In 2003, the National Center for Education Statistics embarked on a second round of this survey, now called the National Assessment of Adult Literacy (NAAL).[13] This round includes new components that are designed to measure the literacy of those adults with the poorest comprehension skills, and an enlarged background questionnaire to provide more demographic and other information about the factors associated with literacy.

The NALS asked respondents to answer questions based on text, forms, and math tasks they would be likely to encounter in their daily lives. How well could the test-takers read newspaper articles or product instructions? Could they figure out documents such as payroll forms and bus timetables? Could they calculate a tip, balance a checkbook, determine the interest rate in a loan advertisement? Figure 1 shows calculated performance levels, on a scale of 1 to 5, for the 1992 sample, and Table 1 the average scores for various groups.

Table 1
National Adult Literacy (NALS) Test Scores, 1992

	Mean
All	270
In Labor Force	283
Employed Full-Time	287
Unemployed	258
Not in Labor Force	241
Employed Full-Time	
<1.25 poverty level	251
Not poor	298
Out of Labor Force	
<1.25 poverty level	213
Not poor	265
Some High School	228
GED	267
High School	268
2-Year College Degree	305
Bachelor's Degree	319
Postgraduate	332
Manager/Professional/Technical	320
Clerical/Sales	291
Craft	267
Operator/Laborer	251
Services	262
Age (high school dates)	
19–24 (1986–1991)	279
25–39 (1971–1985)	283
40–54 (1956–1970)	283
55–64 (1946–1955)	257
65+ (before 1945)	225
White	284
Black	230

Source: Kirsch and colleagues, *Adult Literacy in America*, pp. 17, 26, 31, 33) and Sum, *Literacy in the Labor Force*, pp. 24, 32ff., 62, 76ff.

Note: All values are simple means of prose, document, and literacy scores. Some occupational means are weighted averages of means for narrower occupational groups. Unless otherwise noted figures refer to all Americans, not simply workers.

The most widely reported—and deplored—result was the large number of Americans, 22 percent, placed in the lowest literacy level, Level 1. But the implications of this finding for the quality of public education or of the labor force are hardly clear. Those categorized in Level 1 were a demographically heterogeneous group. One-third were over 65, a category that includes disproportionate numbers of less educated and retired individuals for whom negative aging effects on cognitive performance are well documented. About a quarter scoring in Level 1 were foreign-born, including many with limited English skills and less schooling from their country of origin than natives. About two-thirds in Level 1 had not finished high school; a third had gone no further than eighth grade. One quarter reported a disability that precluded full-time work.[14]

Only 13 percent of those working full time had Level 1 NALS scores, 9 percentage points below the overall rate for the population. This has been used to suggest that the labor market filters out many low-scoring individuals, but clearly many Americans in the overall population performing at Level 1 are out of the labor market for reasons unrelated to low skills, such as age or physical disability. Insofar as foreign-born workers contribute to the numbers of Level 1 scorers in both the workforce and the overall population, the cause of this situation cannot be readily ascribed to the U.S. education system. Indeed, many in Level 1 who are employed have been drawn into the U.S. labor market from abroad, working for employers who are happy to trade off these workers' lower English literacy skills for the low pay they will accept. Clearly, the reported numbers in Level 1 cannot be used in a straightforward manner to draw conclusions about the number of native-born potential job-seekers who are hard to employ because of low skills.

The NALS results also lend no support to the idea that younger Americans have poorer literacy than older Americans. Indeed, the reverse seems true: among age groups with high probability of labor market participation, younger groups score better than those in the oldest category (aged 55–64) And although the race gap is large, it is smaller for younger adults; the gap for those aged 19–24 in 1992 was about a third smaller than for those aged 40–54 (not shown).

What do test scores mean for the skills mismatch debate?

The significance of test scores is widely debated, and the differing views are reflected in the skills mismatch debate. A sizable group of skeptics believes that the tests underestimate the real-world skills of minorities and low-scoring individuals and that they are biased either in their content or in the way they are used to select employees.[15] Others, especially those in education testing, industrial/organizational psychology, and traditional intelligence psychology, believe that test scores are among the strongest predictors of outcomes, including job performance. Those who score higher, they argue, can perform many jobs faster and more accurately, require shorter training and less on-the-job assistance, and can generalize their knowledge better to unfamiliar circumstances. Yet supporters of the predictive value of test scores do acknowledge that scores account for only a modest amount of the overall variance in job performance and wages, that personality traits and work attitudes are also important predictors of performance, and that the less complex the job, the smaller the association between test scores and job performance.[16]

However, what is particularly problematic for the present discussion is the strong impulse to use test scores to infer absolute levels of cognitive skills and real-world abilities that might be matched against the skills demanded by employers. All the tests described previously may be reasonably valid for ranking individuals relative to one another, but policymakers and other consumers of these data seek to use them as absolute measures of the tasks people can or cannot perform, a more difficult standard for a test to meet. To use the language of educational psychology, observers mistakenly treat *norm-referenced* tests as if they were *criterion-referenced* tests. There are good reasons to believe that scores on test like the NAEP or NALS are not easily matched with what people can or cannot do outside the test situation.

Because raw scores do not mean a lot by themselves, the five discrete performance categories established for the NAEP are central to drawing connections between test scores and the real world. But the reliability and validity of these categories are dubious. Indeed, evaluators have recommended that they be discontinued, among other reasons because the assignment of test items to performance levels by raters is unreliable and the competency descriptions attached to each level tend to give a lower impression of students' abilities than their scores on other tests warrant.[17] The NALS has not received the same scrutiny, but sample items and their assigned performance levels also suggest that individuals' capabilities would be underestimated if their performance on NALS tasks were interpreted literally as reflecting what they could accomplish in their daily lives. For example, it would not necessarily be expected that people in Level 1 read a newspaper daily. Nevertheless, about 35 percent reported that they did, though this is significantly lower than the average of 50–60 percent in higher levels.

The probability criteria that assign performance levels in the different tests are themselves arbitrary and controversial. The NAEP math test assigns scores based on a 65 percent probability of answering correctly the items classified at that level, but uses an 80 percent probability for reading. NALS uses an 80 percent criterion for all scales. Other tests differ, some setting the criterion as low as 50 percent. There seems to be no strong theoretical or conceptual reason for choosing one standard rather than another, and individuals may be placed in different literacy categories, depending on the test they take and the corresponding probability criterion used to assign scores to performance levels.

Also, it is often forgotten that assignment to a given level does not mean that individuals *cannot* perform at a higher level, merely that they have a lower probability of doing so. For example, someone at the mid-point of Level 2 in NALS, a bit below the average for high school graduates, has about a 30 percent probability of performing tasks at Level 4, which is considered above average for those with at least a bachelor's degree. *Education Week*, reporting the large proportion in NALS Levels 1 and 2, declared, "Nearly half of all adult Americans cannot read, write,

and calculate well enough to function fully in today's society."[18] One of the most widely cited implications of the distribution of NALS scores across performance levels was that nearly 80 percent of adults do not have the skills to calculate a restaurant tip or understand a bus schedule. From these and similar claims, one might conclude that a large proportion of Americans are not only unfit for moderately skilled jobs but might even have trouble finding their way to work, although millions of Americans, disproportionately lower income and likely to have lower test scores, negotiate the public transportation system daily.

These problems with inferring real-world cognitive skills from test performance point to other limitations of such tests. Completing paper-and-pencil exercises in a solitary context is an unrealistic model of how people actually function. In the give-and-take of work, for example, people can ask for clarification or assistance when they find something confusing or unclear; this is not allowed in test situations.

The distinction between academic or test-taking skills and real-world competencies is reflected in an alternative conception of skills known as "practical intelligence" or "situated cognition." Traditional testing and intelligence psychology presuppose that individual tests using prestructured, often abstract tasks in a formal setting generally provide the best general measure of skills. The alternative approach argues that people display greater skills when performing tasks in natural settings, learning from others and through daily experience. Case studies in the workplace and elsewhere support this view.[19] Delivery drivers with near-perfect performance on daily multiplication tasks at work made many mistakes on paper-and-pencil tests with similar problems. Studies of civilian jobs consistently find that the correlation between cognitive tests and job performance declines with experience.[20]

In general, then, it appears that the skills workers can develop and for which they are rewarded are partly a function of the jobs employers offer, and that the intrinsic capacities of individuals do not operate as a hard constraint. The NALS analysts acknowledged as much when they cautioned, "These results do not answer the question, 'Are the literacy skills of our nation's workers adequate?'" but they offered a message that was, in the end, mixed: "For an economy that . . . is becoming dependent on high-performance workplaces to spur economic growth, competitiveness, and productivity, many members of the existing labor force appear ill-equipped with respect to key literacy proficiencies."[21]

U.S. test scores in an international context

Those worried about the skills of U.S. workers argue that the nation's exceptionally low rankings in international comparisons threaten its economic competitiveness. To assess this claim, we can turn to the International Adult Literacy Survey (IALS), modeled on the NALS.[22] From 1994 to 1998, the IALS was administered to representative samples of adults aged between 16 and 65 in 21 countries, though unfortunately not including Japan. As Table 2 shows, the United States is among a lower-scoring group of advanced industrialized nations that includes most other English-speaking countries. The average American is at the 53rd percentile of the pooled sample of all high-income countries—hardly dire, though some have argued that the scores do not match the higher levels of schooling and per capita expenditure in the United States.[23]

Table 2
International Adult Literacy (IALS) Test Scores, 1994–1998

	1 Mean	2 5th pct.	3 95th pct.	4 95/5 ratio	5 GDP/U.S.
1. Ireland	263	151	353	2.34	0.66
2. United Kingdom	267	145	360	2.48	0.70
3. Switzerland	271	143	352	2.46	0.90
4. United States	**272**	**133**	**371**	**2.79**	
5. New Zealand	272	158	361	2.28	0.62
6. Australia	274	146	359	2.46	0.76
7. Belgium	277	163	359	2.20	0.79
8. Canada	280	145	372	2.57	0.81
9. Germany	285	208	359	1.73	0.76
10. Netherlands	286	202	355	1.76	0.75
11. Finland	288	195	363	1.86	0.72
12. Denmark	289	213	353	1.66	0.89
13. Norway	294	207	363	1.75	0.95
14. Sweden	304	216	386	1.79	0.71

Source: Organisation for Economic Cooperation and Development and Statistics Canada, *Literacy in the Information Age: Final Report of the International Adult Literacy Survey* (Paris: OECD, 2000), pp. 135ff., 176; CIA World Factbook.

Note: Values in Column 5 are per capita GDP divided by value for United States. Values for Switzerland are averages for three language groups weighted by their share of the population speaking them: German, 70%; French, 21%; Italian, 9%.

Perhaps the most notable feature of these international comparisons is the high U.S. inequality in cognitive skills (Table 2, column 4), especially compared to those countries with the highest mean scores. But when immigrants are excluded from the samples, differences in test score inequality shrink or disappear. In one study of eight countries that excluded immigrants, and that measured inequality as the difference between scores at the 50th and the 10th percentiles, test score inequality in the United States disappeared for women, and shrank by 55 percent for men.[24]

The implications of these results for international economic competitiveness are not obvious. High scorers like the Scandinavian countries and the Netherlands are not usually considered a serious economic threat to the United States. Even when we adjust for the fact that U.S. employees work more hours than employees in the other countries, there seems to be no strong relationship between skill rankings and GDP. Despite the popular assumption that there is a close relationship between the two in wealthy industrialized nations, the links appear, instead, to be weak. U.S. economic performance remains comfortably ahead of most other nations, after a quarter-century of concern over skills deficiencies in the U.S. workforce. ■

[1]This is a summary of Michael J. Handel, "Skills Mismatch in the Labor Market," *Annual Review of Sociology* 29: 135–65 (2003). A more extended treatment of these issues will be published by the Economic Policy Institute.

[2]Examples of the views described here are D. Bell, *The Coming of the Post-Industrial Society: A Venture in Social Forecasting* (New York: Basic Books, 1976); W. J. Wilson, *The Truly Disadvantaged: The Inner City, the Underclass, and Public Policy* (Chicago: University of Chicago Press, 1987); L. Katz and K. Murphy, "Changes in Relative Wages, 1963–1987: Supply and Demand Factors," *Quarterly Journal of Economics* 107 (1992): 35–78. See U.S. Department of Health, Education, and Welfare, *Work in America* (Cambridge, MA: MIT Press, 1973).

[3]H. Levin, "Schools – Scapegoats or Saviors?" *New Political Economy* 3(1998): 139–43.

[4]U.S. National Commission on Excellence in Education, *A Nation at Risk*, report commissioned for the U.S. Department of Education (Washington, DC: GPO 1983), p.1.

[5]E. Goode and N. Ben-Yehuda, "Moral Panics: Culture, Politics, and Social Construction," *Annual Review of Sociology* 20 (1994): 149–71.

[6]Examples of these and similar discussions are National Research Council, *Building a Workforce for the Information Economy* (Washington, DC: National Academy Press, 2001); D. Card and T. Lemieux, "Can Falling Supply Explain the Rising Return to College for Young Men? A Cohort-Based Analysis," *Quarterly Journal of Economics* 116 (2001): 705–46; R. Murnane and F. Levy, *Teaching the New Basic Skills: Principles for Educating Children to Thrive in a Changing Economy* (New York: Free Press, 1996).

[7]See, e.g., Card and Lemieux, "Falling Supply"; D. Autor, L. Katz, and A. Krueger, "Computing Inequality: Have Computers Changed the Labor Market?" *Quarterly Journal of Economics* 113 (1998): 1169–1213.

[8]For discussions of employer demands see Murnane and Levy, *Teaching the New Basic Skills*; Autor and colleagues, "Computing Inequality"; Harry Holzer, *What Employers Want: Job Prospects for Less-Educated Workers* (New York: Russell Sage, 1996).

[9]These are my calculations, based on the March Current Population Survey.

[10]J. Flynn, "IQ Gains over Time: Toward Finding the Causes," in *The Rising Curve: Long-Term Gains in IQ and Related Measures*, ed. U. Neisser (Washington, DC: American Psychological Association, 1998).

[11]R. Hauser, "Trends in Black-White Test Score Differentials: Uses and Misuses of NAEP/SAT Data," in Neisser, ed., *The Rising Curve*.

[12]I. Kirsch and A. Jungblut, *Literacy: Profiles of America's Young Adults* (Princeton: Educational Testing Service, 1986); J. Campbell, C. Hombo, and J. Mazzeo, *Trends in Academic Progress: Three Decades of Student Performance*, National Center for Education Statistics, U.S. Department of Education, Washington, DC, 2000.

[13]For an overview of the 2003 NAAL, see the World Wide Web site of the NCES, <http://www.nces.ed.gov/naal/design/about02.asp>.

[14]I. Kirsch, A. Jungblut, L. Jenkins, and A. Kolstad, *Adult Literacy in America: A First Look at the Results of the National Adult Literacy Survey*, National Center for Education Statistics, U.S. Department of Education, Washington, DC, 1993.

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[16]L. Gottfredson, "Why *g* Matters: The Complexity of Everyday Life," *Intelligence* 24 (1997): 79–132.

[17]See, e.g., J. Pellegrino, L. Jones, and K. Mitchell, *Grading the Nation's Report Card*: *Evaluating NAEP and Transforming the Assessment of Educational Progress* (Washington, DC: National Academy Press, 1999).

[18]*Education Week*, quoted in R. Stiles, "'How Much Literacy Is Enough?' Issues in Defining and Reporting Performance Standards for the National Assessment of Adult Literacy," Working paper No. 2000-07, National Center for Education Statistics, U.S. Department of Education, Washington DC, 2000.

[19]C. Stasz, "Assessing Skills for Work: Two Perspectives," *Oxford Economic Papers* 53 (2001):385–405.

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[21]A. Sum, *Literacy in the Labor Force*, National Center for Education Statistics, U.S. Department of Education, Washington DC, 1999 (quotations on pp. xvi and 33, respectively); The designers of the NAAL were warned against "the temptation to directly address this question" (Stiles, "How Much Literacy Is Enough?").

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[23]A. Sum, I. Kirsch, and R. Taggart, *The Twin Challenges of Mediocrity and Inequality: Literacy in the U.S. from an International Perspective* (Princeton, NJ: Educational Testing Service, 2002).

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