

Soft Skills for the Workplace

BY PATRICK C. KYLLONEN

Two years ago, in the middle of the darkest days of the recession, ABC's *This Week* hosted a panel of recent college graduates and a pair of industry leaders. After hearing from the graduates about the difficulties of finding a job in a tight, competitive market, host Christiane Amanpour addressed the employers:

Amanpour: Let me turn to you both. You've now listened to [the graduates]. You see what they've studied. You've heard their prospects. Mort, as the owner of a real estate company, as the publisher of newspapers and magazines, what do you think they need to do? And are they hireable, [given] what you've just heard right now?

Zuckerman: Well, I don't know enough about their individual skills and capacities, but this is the worst atmosphere for employment that we've had in 50 or 60 years. I mean, just think of the fact, in the '70s, '80s, and '90s, the United States created over 20 million jobs in each one of those decades. In the first decade of this century, we created zero jobs.

If I were hiring today, ... the one thing that I [would] look for more than anything else is some evidence of *determination*, which to me is the most important quality in terms of how people will do in their career. (ABC News, 2011, p. 13)

In this exchange, Mort Zuckerman—co-founder, chairman, and CEO of Boston Properties; owner and publisher of the New York Daily News and of US News & World Report;

and former owner of The Atlantic and Fast Money—identifies determination as the quality that best predicts success in the workforce. It was not that long ago that many management consultants, economists, industrial-organizational psychologists, and laypeople believed that cognitive skill was the single most important predictor.

What happened to change that?

THE IMPORTANCE OF SOFT SKILLS

Until quite recently, the predominant belief at the policy level, in education at all levels, and in workforce settings was that cognitive abilities were the ones that most mattered. This led to the deployment of large-scale efforts to assess those skills. The National Assessment of Educational Progress (NAEP, NCES), administered every year in all 50 states and several other jurisdictions in the US, and the Program for International Student Assessment (PISA, OECD), administered every three years in over 70 countries, were initiated primarily to compare states and countries on the cognitive abilities of their schoolchildren (e.g., in reading, mathematics, science, and problem solving).

The centerpiece of the No Child Left Behind Act of 2001 was "accountability for results," which meant that "student progress and achievement will be measured according to tests that will be given to every child, every year." By tests, the Act was referring to cognitive tests.

At the postsecondary level college-placement testing, which determines whether students are ready for credit-bearing college mathematics and English courses, was and to a large extent still is exclusively based on performance on cognitive tests in those subjects. Students who get passing scores on the mathematics placement test go into college-level, credit-bearing mathematics courses; the rest go into developmental courses.

Arguments about the validity and fairness of standardized cognitive admissions tests such as the SAT, ACT, and GRE have dominated discussions about higher education admissions policies. In academic circles and on editorial pages, there have been national debates about the importance of cognitive ability, its heritability, race/ethnic differences, the "bell curve," and the cognitive skills shortage.

In the workplace, companies and the military have historically focused selection testing almost exclusively on cognitive abilities, in part because a literature in industrial-organizational psychology attested to its preeminent importance in identifying workers most likely to succeed in training and on the job (Schmidt & Hunter, 1998). A generation was taught that other variables, such as personality, were unrelated to workforce outcomes or to just about anything else.

There had been occasional nods to the importance of personal qualities in education and the workplace (Willingham & Breland, 1982), but these were rare. The situation only began changing in the 1990s, when psychology began to coalesce around a five-factor model of personality (Goldberg, 1990). This led to rapid acceptance and expansion of the notion that personality mattered, and studies

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began contributing to an accumulating knowledge base about its importance.

By the middle of the millennium decade, researchers were able to link wide areas of human endeavor and outcomes to personality (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007): Personality measures were shown to predict mortality, divorce, occupational attainment, health behaviors, drug use, alcoholism, managerial success, leadership effectiveness, procrastination, creativity, job performance, absenteeism, team performance, and job satisfaction—to name just a few. The meta-analytic-based list of predictive relationships and their magnitude rivaled and in some cases exceeded similar analyses made a decade earlier for predictions based on cognitive ability (e.g., Gottfredson, 1997).

Particularly relevant were such studies showing that the big-five personality factors—most often conscientiousness (i.e., the trait of striving, being organized, and working hard)—predicted both workplace (Ones, Dilchert, Viswesvaran, & Judge, 2007) and academic success (Poropat, 2009). Other meta-analyses suggested additional non-cognitive predictors of school performance (grades and retention), such as having academic goals, institutional commitment, social support and involvement, academic self-efficacy and self-concept, conscientiousness, a tendency to procrastinate, a need for cognition, grade goals, time management skills, and persistence/effort regulation (Richardson, Abraham, & Bond, 2012).

Meanwhile, new conceptions about human-capital theory began appearing in the economics literature. Human capital is a worker's set of skills, broadly defined, that enhance productivity. They can be cognitive skills, abilities, knowledge, dispositions, attitudes, interests, etc. These attributes come from innate ability, education (e.g., years in school, quality of schooling), training, medical care, and/or parenting, or in other ways.

What was new was an increased awareness of the importance of non-cognitive skills. First, Heckman and Rubinstein (2001) showed that students who dropped out of high school but received GEDs possessed cognitive skills equal to those of high school graduates (based on standardized cognitive test scores) but had poorer performance in the workforce (e.g., lower wages, higher absenteeism, more unemployment, more legal troubles). The researchers attributed their relative lack of success to their lower non-cognitive skills, as reflected in their failure to persist to high school graduation.

The economists Samuel Bowles, Herbert Gintis, and Melissa Osborne showed that cognitive skills accounted for only 20 percent of the educational-attainment effects on labor-market outcomes (i.e., more schooling leads to higher employment and wages). Here the interpretation was that schooling develops non-cognitive as well as cognitive skills, and these non-cognitive skills drive workplace success (Levin, 2012).

A couple of recent studies make a similar point. In one, Segal (2012) showed that, controlling for cognitive test scores and family characteristics, teachers' ratings of 8th-grade male students on a non-cognitive five-item checklist—

1 is the student “frequently tardy?” “frequently absent?” “con-
2 sistently inattentive?” “rarely completes his homework?”
3 “frequently disruptive?” (National Educational Longitudinal
4 Study, or NELS:88) —predicted educational attainment.

5 The ratings also predicted workplace earnings 12 years
6 later, over and above cognitive test scores. This was true
7 regardless of educational attainment, whereas cognitive test
8 scores predicted earnings only for students with postsecond-
9 ary degrees.

10 Lindqvist and Vestman (2011) had a similar finding: They
11 tracked 14,000 Swedish 18–19 year-old military enlistees
12 who had been given both a two-hour cognitive test and a
13 25-minute non-cognitive interview. The interview had led to
14 a rating (on a nine-point scale) of their willingness to assume
15 responsibility, independence, outgoing character, persis-
16 tence, emotional stability, initiative, social skills, and lack of
17 personality disorders.

18 The researchers found that both the cognitive and non-
19 cognitive measures predicted employment outcomes (earn-
20 ings and unemployment) of those same men, now 32 to 41
21 years old. However, the non-cognitive measures predicted
22 outcomes at all levels of educational attainment, while the
23 cognitive score predicted them only for those who were
24 above the median. The cognitive measure was a stronger pre-
25 dictor of educational attainment, but, controlling for educa-
26 tional attainment, the non-cognitive measure was a stronger
27 predictor of earnings and employment.

28 This and other research started to raise the national con-
29 sciousness in this decade. For example, Paul Tough’s 2012
30 best seller, *How Children Succeed*, contrasted the “cogni-
31 tive hypothesis” that “success today depends primarily on
32 cognitive skills—the kind of intelligence that gets measured
33 on I.Q. tests” with a new view that success has more to do
34 with character skills such as perseverance, grit, curiosity,
35 optimism, and self-control. According to Tough, these also
36 happen to be more malleable than IQ. A plea to include
37 non-cognitive as well as cognitive skills in the educational
38 conversation could also be seen in a 2012 report by the
39 National Research Council entitled *Education for Life and*
40 *Work: Developing Transferable Knowledge and Skills in the*
41 *21st Century*.

42 This cultural shift is apparent not only in the quote from
43 Mort Zuckerman during *This Week* but in the results of sev-
44 eral large-scale surveys that asked employers which were the
45 most important skills for workforce success. A 2012 study
46 by Millennial Branding found “communication skills,” a
47 “positive attitude,” being “adaptable to change,” and “team-
48 work skills” to be the four most important traits employers
49 were looking for when they hired. Another major employer
50 survey sponsored in 2006 by the Conference Board and
51 others entitled “Are they really ready to work?” identified
52 “professionalism/ work ethic,” “teamwork/collaboration,”
53 and “oral communications” as the top three “very important”
54 skills for job success for new workforce entrants at all three
55 education levels: high school graduates, two-year college
56 graduates, and four-year college graduates.

Skills

CAN SOFT SKILLS BE TAUGHT?

The finding that cognitive test scores accounted for only 20 percent of educational attainment's effect on earnings and employment suggests that one possibly unintended accomplishment of schooling is to teach non-cognitive skills. Additional support for this idea comes from studies of early-childhood intervention programs that, although targeting cognitive skill development, have even greater effects on non-cognitive skills.

For example, Barnett (2011) examined several preschool programs for disadvantaged students: the High/Scope Perry Preschool program, the Abecedarian program, and the Chicago-Child Parent Centers program. All involved a random assignment of students to the program at an early age and followed them through their 20s and later. Barnett found mixed results for the programs' success in boosting the cognitive test scores (IQs) of participants but clear results with regard to many other outcomes, such as educational attainment, avoiding arrests and legal trouble, avoiding welfare, owning a home, and maintaining good health habits.

If preschool and regular schooling enhance a student's non-cognitive skills as a byproduct, can targeted interventions provide an even greater boost? This has been the theme of work by the Collaborative for Academic, Social, and Emotional Learning (CASEL), an organization with a mission "to establish social and emotional learning as an essential part of education" (<http://casel.org/about-us/mission-vision/>).

It does this by advancing the science of social-emotional learning, expanding evidence-based practice, and strengthening the field. CASEL defines the core social-emotional competencies as self-awareness, self-management, social awareness, relationship skills, and responsible decision-making (i.e., considering the social norms involved in and the ethics, safety, and consequences of making decisions).

CASEL performed a trio of meta-analyses: one an examination of 69 after-school programs, another of 213 regular school-based studies, and a third of 80 studies of children selected for signs of social-emotional problems (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). The targeted programs were effective in enhancing the students' academic and social-emotional skills.

The meta-analyses also suggested that particular program features could be considered best practices because they were associated with program success. One of these was program implementation adequacy, which seems obvious but is sometimes overlooked in reviews such as these. The others are captured by the acronym SAFE: Effective programs were

- *sequenced*, involving a planned set of activities to be executed step by step;
- *active*, requiring active learning activities such as role plays and behavioral rehearsals;
- *focused*, devoting sufficient time for developing social and emotional skills; and
- *explicit*, targeting specific social and emotional skills.

A different take on the trainability of soft skills was provided in a recent meta-analysis by Brent Roberts and colleagues, who had shown in earlier research that personality tended to change over a lifespan. Self-confidence, warmth, self-control, and emotional stability all tend to increase with age, particularly in young adulthood but continuing through middle and old age (Roberts, Walton, & Viechtbauer, 2006).

Particular events in one's life seem to be associated with significant changes in personality: Successful careers are associated with increases in emotional stability and conscientiousness, remarriage is associated with a reduction in neuroticism, and engaging in negative workplace behaviors is associated with decreases in conscientiousness and emotional stability (Roberts & Mroczek, 2008).

Can personality enhancements be induced through specific interventions, such as psychotherapy? In a paper presented at the 2013 meeting of the Association for Psychological Science, Brent Roberts identified 144 studies (with 15,047 participants) that included personality measures as pretests and posttests for both clinical (e.g., for depression) and nonclinical (e.g., for eating disorders) samples, with an average intervention duration of 28 weeks. On average he found that interventions changed personality factors on average by about a half a standard deviation (e.g., from the 50th to the 67th percentile) and that the change did not fade over as much as five years.

While the interventions Roberts examined affected many personality traits, emotional stability was the most altered, perhaps because of the way the interventions were chosen (e.g., therapy for anxiety or depression is likely to target emotional stability). Interventions of a different nature (e.g., executive or life-skills coaching) might be expected to address different personality traits, such as conscientiousness, drive, and organization.

Finally, corporate training, a \$50 billion dollar industry, is concerned to a considerable extent with soft skills. In their meta-analysis of the effects of corporate training, Arthur, Bennett, Edens, and Bell (2003) identified 123 training programs targeting interpersonal skills that had an effect size even larger than the intervention effect size reported by Roberts. The programs used a wide variety of formats (lecture, audiovisual, discussion) and focused on various outcomes (learning the interpersonal skill, transferring it to the job, and seeing improvement in workplace performance as a result).

Together these studies show that effective programs that are already in place, from preschool to the workplace, can develop and increase soft skills. Given the newfound recognition of the importance of such skills, it is likely that this education and training will prove to be an active area of development in both education and the workplace in the coming decade.

WHAT CAN WE DO WITH SOFT SKILLS ASSESSMENTS?

Soft-skills assessments are commonly included in employee recruiting, prescreening, and selection, and there

1 is a major human-resources consulting industry around these
2 uses. Companies such as SHL, an industry leader, market
3 tests, simulations, and interview tools to capture biodata
4 and measure personality and behavior, situational judgment,
5 motivation, dependability, and safety.

6 According to a 2001 survey by the American Management
7 Association, 13 percent of employers used a personality test,
8 and almost all Fortune 500 companies did so. It is likely
9 that those numbers are higher today. In 2009 the United
10 States Department of Defense began to use a personality test
11 called the Tailored Adaptive Personality Assessment System
12 (TAPAS) for screening military recruits; Over half a million
13 have been tested so far.

14 Colleges have also recently begun to use personality
15 assessments to help in some admissions decisions. A few
16 years ago, the Educational Testing Service began adminis-
17 tering the Personal Potential Index (PPI) to supplement the
18 GRE for graduate school admissions (Kyllonen, 2008). The
19 PPI measures six factors: knowledge and creativity, commu-
20 nication skills, teamwork, resilience, planning and organiza-
21 tion, and ethics and integrity. Current users range from Notre
22 Dame Business School to the American Dental Education
23 Association. A major multi-institutional validity study is
24 currently underway, with results expected in 2014.

25 A study of law-school students, graduates, and practicing
26 lawyers by Berkeley Law School professor Marjorie Shultz
27 and psychology professor Sheldon Zedeck led to the devel-
28 opment of a soft-skills assessment for law-school admis-
29 sions—designed to measure, among other factors, commu-
30 nications, influencing and advocating, strategic planning,
31 self-management, conflict resolution and negotiation skills,
32 networking skills, community involvement, integrity, stress
33 management, passion, diligence, and self-development.

34 Several experiments with soft-skills assessment for higher
35 education admissions have been conducted in the past few
36 years. In a series of College Board studies, SAT-taking stu-
37 dents were given situational judgment and biodata items
38 designed to measure a variety of soft skills—including mul-
39 ticultural tolerance, leadership, interpersonal skills, social
40 responsibility, adaptability, perseverance, and ethics—that
41 were shown to have unique predictive validity for certain
42 college student outcomes (Schmitt, 2012).

43 One exciting development is the use of soft-skills assess-
44 ment in college-placement testing. Traditionally, placement
45 testing has been strictly cognitive—students take a math-
46 ematics test to determine their readiness for college-level
47 mathematics coursework. Those who do not make the cutoff
48 are assigned to take a non-credit-bearing developmental or
49 remedial course prior to being eligible for the credit-bearing
50 course.

51 But perhaps non-cognitive skills, such as motivation and
52 determination, can compensate to some extent for deficient
53 mathematics skills. A determined student is likely to do what
54 it takes to pass an entry-level course, whether that involves
55 doing extra homework, studying nights and weekends, or
56 working with a tutor.

1 For this reason, ETS is currently evaluating whether
2 non-cognitive information could supplement cognitive
3 test results for placement testing. The assessment, ETS's
4 *SuccessNavigator*, measures academic skills and soft skills
5 in the areas of commitment, self-management, and social
6 support (Markle, Olivera-Aguilar, Jackson, Noeth, &
7 Robbins, 2013).

8 In a recent issue of *Change*, Alexander McCormick and
9 colleagues discussed how the National Survey of Student
10 Engagement (NSSE) is being used to develop student typolo-
11 gies. "Disengaged" students, they found, "had lower first-year
12 GPAs, perceived learning gains, and persistence to the second
13 year" than "maximizers"—"their most-engaged peers."

14 ASSESSMENT METHODS

15 The overwhelming method of choice for soft-skills assess-
16 ment in both scientific research and in practice has been the
17 simple self-rating scale. A student or employment applicant
18 might be asked to "indicate your level of agreement with
19 the following statement: 'I meet my deadlines' (a) strongly
20 agree, (b) agree, (c) disagree, or (d) strongly disagree."

21 For many low-stakes applications, there is no incentive
22 for respondents to lie, so responses are probably reasonably
23 valid indicators of at least what they believe about them-
24 selves. However, if scores are used for something like school
25 admissions or employment screening, there is a strong incen-
26 tive for self-reporters to make themselves look good, and
27 scores are much less trustworthy.

28 For this reason, research has focused on several alterna-
29 tives to simple rating scales. One is a rating by another per-
30 son. A meta-analysis by Connelly and Ones (2010) showed
31 that compared to self-ratings, ratings by others were more
32 accurate, less biased, and more predictive of future out-
33 comes.

34 Letters of recommendation, which are widely used in
35 higher education admissions and employee selection, are
36 essentially ratings by others, albeit in a non-standardized
37 format. ETS's PPI is essentially a standardized letter of rec-
38 ommendation. It asks an evaluator to rate a graduate-student
39 applicant on six dimensions and for open-text comments on
40 each of the dimensions to support the ratings.

41 One of the drawbacks of ratings by others is that finding
42 someone to do a rating is not always straightforward, the
43 recommendations are often inflated, and there is sometimes
44 considerable disagreement between raters. So there is still
45 interest in assessments done by the person who is the target
46 of the assessment. This brings us back to self-assessments.

47 A form of self-assessment that might not be as suscep-
48 tible to faking as the simple rating scale is the pairwise-
49 preference format. This involves presenting two, three, or
50 four statements to examinees and asking them to indicate
51 which is the most true. For example, examinees might be
52 asked to choose between "I meet my deadlines," and "I work
53 well with others in teams." In this case, neither statement
54 seems to be clearly superior to the other in terms of what an
55 employer might be looking for.

SOFT SKILLS

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This format is the basis for the TAPAS assessment and is the reason why the US Department of Defense, after half a century of research, opted to go operational with a pairwise-preference soft-skills assessment. Their conclusion is in agreement with a meta-analysis that compared a single-statement personality measure with several forced-choice ones (Salgado & Tauriz, 2012).

The forced-choice measures that were studied by Salgado and Tauriz were ipsative (all statements are paired with all other statements), quasi-ipsative (some statements are paired with others, but not all), and normative (only statements measuring the same dimension are paired with each other, such as “I work hard” vs. “I work too hard”). This is a technical distinction, but the important finding was that one of these formats, the quasi-ipsative format, was found to be superior to the others.

Another approach that has been growing in popularity is the situational judgment test (SJT). In this format, respondents are given a situation such as “You have been assigned a team project, but one of the team members, call him ‘Joe,’ has a bad attitude and seems determined to thwart the team’s efforts.” Then they are given a series of possible responses, with instructions to select the one that would be most appropriate. These might include “(a) tell other team members to ignore Joe, (b) confront Joe and threaten to tell the boss about his behavior, (c) speak to Joe in front of the team and encourage him to contribute positively to the effort, or (d) talk to Joe privately and encourage him to participate by telling him how the team will only be successful if he is involved.”

SJT items such as these were used in the Schmitt (2012) and law school studies referred to previously. Their popularity might be attributed to their combining authenticity with reduced susceptibility to faking. SJTs also are amenable to video presentation of situations and alternative response formats, such as speaking, although the vast majority of those available today are written and require multiple-choice responses.

Interviews are a form of assessment that has been used in educational admissions and employment selection for a very long time. An attractive feature of interviews is that both candidates and employers like them. The latter often feel that they cannot get a real sense of the person without an interview, preferably face to face. But interviews are expensive and typically neither standardized nor reliable.

Behavioral interviews are a way to mitigate the lack of standardization. They are based on the soft skills an employer is interested in evaluating, such as drive, enthusiasm, or customer orientation. The interview consists of questions designed to elicit evidence that the applicant possesses those skills.

For example, the applicant might be asked to “describe a situation in which you had to meet a deadline but had competing commitments,” or “a time when you felt extremely excited about an event at work.” Often such interviews are accompanied by scoring rubrics that require the interviewer to evaluate the candidate on several scales pertaining to the responses expected.

But behavioral interviews are as expensive as any other. Employers are increasingly attempting to reduce those costs with technology, using remote interviewing methods (e.g., teleconferences or video-conference calls). In the near future, asynchronous interviewing—e.g., where a candidate uploads a video-recorded response to a question presented through a website—may become the norm. Such systems are already in wide use.

The next steps will be to score such interviews with expert raters, in much the same way essay tests from standardized exams such as the SAT or GRE are scored today. Automated scoring is likely to follow soon thereafter.

There is considerable interest in the idea of a standardized soft-skills assessment that avoids the problems of ratings. Standardized tests of soft skills, such as the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), ask examinees to identify the emotions (e.g., happiness, fear, sadness) expressed in a picture of a face; the emotion one might feel if given additional work; or to recognize how much a particular action (e.g., making a list) might affect one’s mood. Such assessments are beginning to be used in industry. It is likely that efforts to develop such measures will continue.

FUTURE DEVELOPMENTS

In the latter part of the 20th century, behavioral scientists and society more generally adopted a cultural belief that cognitive ability was the most significant determinant of educational and workforce outcomes. This led to efforts to raise students test scores, the promotion of teachers who were successful in doing so, and heavy if not exclusive reliance on test scores for admissions and employment screening.

But behavioral science research in psychology and economics suggests that non-cognitive factors—soft skills such as motivation, work ethic, teamwork, organization, cultural awareness, and effective communication—play a role that is as important or even more important in determining success in school and in the workplace.

So the 21st century is becoming the era in which we recognize the importance of soft skills, the role education plays in developing those skills, and the way they evolve throughout the life cycle. And we are developing new education, training, and intervention methods and new assessments in recognition of this importance. ☐

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