Assessing Workforce Readiness – (Our) Current Thinking and Challenges

Skills-Based Workforce Readiness Barometer

MERRILEA J. MAYO
LEAD STRATEGIST
NEW OPTIONS, NEW MEXICO

merrilea_mayo@comcast.net
Uh, no, actually...
Workforce Readiness Report Card Starts to Quantify the Need

(shown: employers’ view of high school graduates)

But a lot of these items – “professionalism,” “communication,” “diversity,” “social responsibility” – are complex concepts with many intertwined skill knowledge sets

Need to deconstruct to something more fundamental.

Employers’ Own Dialogue on this Topic Wasn’t Helping to Move the Ball.

“We Need...
• T-Shaped People”
• Critical Thinkers”
• Soft Skills”
• People Who are Customer-Focused”
• Someone Who Can Do the Job”

Much too vague to be useful. We couldn’t build a barometer off of this.
In the end, three non-negotiable requirements dramatically focused our search for a tool.

• The barometer had to actually WORK.
• It had to be deployable across large numbers of people (e.g., survey, test).
• It had to be available NOW.
It had to WORK: i.e., be much better at predicting who would be “successful on the job” than a degree would.

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Validity</th>
<th>No. of studies</th>
<th>Total subjects</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$M$</td>
<td>$SD$</td>
<td></td>
</tr>
<tr>
<td>Hunter and Hunter (1984)$^a$</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ability composite</td>
<td>.53</td>
<td>.15</td>
<td>425</td>
</tr>
<tr>
<td>Job tryout</td>
<td>.44</td>
<td>—</td>
<td>20</td>
</tr>
<tr>
<td>Biographical inventory</td>
<td>.37</td>
<td>.10</td>
<td>1</td>
</tr>
<tr>
<td>Reference check</td>
<td>.26</td>
<td>.09</td>
<td>10</td>
</tr>
<tr>
<td>Experience</td>
<td>.18</td>
<td>—</td>
<td>425</td>
</tr>
<tr>
<td>Interview</td>
<td>.14</td>
<td>.05</td>
<td>10</td>
</tr>
<tr>
<td>Training and experience ratings</td>
<td>.13</td>
<td>—</td>
<td>65</td>
</tr>
<tr>
<td>Academic achievement</td>
<td>.11</td>
<td>.00</td>
<td>11</td>
</tr>
<tr>
<td>Education</td>
<td>.10</td>
<td>—</td>
<td>425</td>
</tr>
<tr>
<td>Interest</td>
<td>.10</td>
<td>.11</td>
<td>3</td>
</tr>
<tr>
<td>Age</td>
<td>-.01</td>
<td>—</td>
<td>425</td>
</tr>
</tbody>
</table>

$M=0$ is equivalent to pulling a name out of a hat – no relationship between selection and ultimate performance.

$M=1$ is a 100% guarantee that your selection process picked the right guy.
Literature Supporting Validity of .3 to .6 for Cognitive Skill Tests’ Prediction of Job Performance

Literally over 1000 studies, over 40 years and many job types.


Another Way of Looking at The Numbers

Variation in individuals’ on-the-job performance is successfully explained by:

- Ability Composite/Skill Tests, 25%
- Level of Education, 1%
- Unknown, 75% and Unknown, 99% (These numbers are the prior validity numbers, squared.)
A Word About Terminology

• Ability Composite = General Mental Ability = General Cognitive Ability = Cognitive **Skills**
  – **ACTIVELY LEARNED.** NOT innate intelligence.
  – ≈Ability to reason one’s way from the unknown to the known, i.e., ability to figure things out. The ultimate “learn how to learn” skill.
  – Accurate measurement requires at least three independent, orthogonal assessments. (e.g., literacy, numeracy, spatial)

• School Skills
  – Measured by grades, grade level, courses taken, etc.
  – Emphasis on acquiring “the known” rather than learning to cope with the unknown.
  – Nevertheless, formal education does increase cognitive skills, albeit slowly.

• Soft Skills:
  – Vague, trendy term loosely meaning “not school skills.”
  – Attempts to actually measure soft skills reveal them to be highly developed, sophisticated and adaptive cognitive skills. Very few are independent of cognitive function.
  – “Soft” skills, like all cognitive skills, **can** be highly developed in individuals with little formal education.
Literature reveals most “soft skills” to be cognitive skills in disguise. Conscientiousness/ reliability/integrity is an exception. If we add reliability testing, we get:

“Showing up for work is half of the battle”

Well, more like 17%, averaged across all jobs. Probably more for lower-skill jobs.
Supporting Proof that Integrity/Reliability/Conscientiousness is Independent from Cognitive Skills.


### Table 1

**Predictive Validity for Overall Job Performance of General Mental Ability (GMA) Scores Combined With a Second Predictor Using (Standardized) Multiple Regression**

<table>
<thead>
<tr>
<th>Personnel measures</th>
<th>Validity (r)</th>
<th>Multiple R</th>
<th>Gain in validity from adding supplement</th>
<th>% increase in validity</th>
</tr>
</thead>
<tbody>
<tr>
<td>GMA tests</td>
<td>.51</td>
<td>.63</td>
<td>.12</td>
<td>24%</td>
</tr>
<tr>
<td>Work sample tests</td>
<td>.54</td>
<td>.63</td>
<td>.12</td>
<td>24%</td>
</tr>
<tr>
<td>Integrity tests</td>
<td>.41</td>
<td>.65</td>
<td>.14</td>
<td>27%</td>
</tr>
<tr>
<td>Conscientiousness tests</td>
<td>.31</td>
<td>.60</td>
<td>.09</td>
<td>18%</td>
</tr>
<tr>
<td>Employment interviews (structured)</td>
<td>.51</td>
<td>.63</td>
<td>.12</td>
<td>24%</td>
</tr>
<tr>
<td>Employment interviews (unstructured)</td>
<td>.38</td>
<td>.55</td>
<td>.04</td>
<td>8%</td>
</tr>
<tr>
<td>Job knowledge tests</td>
<td>.48</td>
<td>.58</td>
<td>.07</td>
<td>14%</td>
</tr>
<tr>
<td>Job tryout procedure</td>
<td>.44</td>
<td>.58</td>
<td>.07</td>
<td>14%</td>
</tr>
<tr>
<td>Peer ratings</td>
<td>.49</td>
<td>.58</td>
<td>.07</td>
<td>14%</td>
</tr>
<tr>
<td>T &amp; E behavioral consistency method</td>
<td>.45</td>
<td>.58</td>
<td>.07</td>
<td>14%</td>
</tr>
<tr>
<td>Reference checks</td>
<td>.26</td>
<td>.57</td>
<td>.06</td>
<td>12%</td>
</tr>
<tr>
<td>Job experience (years)</td>
<td>.18</td>
<td>.54</td>
<td>.03</td>
<td>6%</td>
</tr>
<tr>
<td>Biographical data measures</td>
<td>.35</td>
<td>.52</td>
<td>.01</td>
<td>2%</td>
</tr>
<tr>
<td>Assessment centers</td>
<td>.37</td>
<td>.53</td>
<td>.02</td>
<td>4%</td>
</tr>
<tr>
<td>T &amp; E point method</td>
<td>.11</td>
<td>.52</td>
<td>.01</td>
<td>2%</td>
</tr>
<tr>
<td>Years of education</td>
<td>.10</td>
<td>.52</td>
<td>.01</td>
<td>2%</td>
</tr>
<tr>
<td>Interests</td>
<td>.10</td>
<td>.52</td>
<td>.01</td>
<td>2%</td>
</tr>
<tr>
<td>Graphology</td>
<td>.02</td>
<td>.51</td>
<td>.00</td>
<td>0%</td>
</tr>
<tr>
<td>Age</td>
<td>.01</td>
<td>.51</td>
<td>.00</td>
<td>0%</td>
</tr>
</tbody>
</table>

Ability to predict something beyond what cognitive skills tests already predict.
When Used in Hiring, Cognitive Skills Tests Deliver Real World Results

<table>
<thead>
<tr>
<th>Employer</th>
<th>Positions Filled Using WorkKeys</th>
<th>Outcomes (compared to prior practices)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subaru of Indiana Automotive (Lafayette, IN)</td>
<td>Automotive assembly workers</td>
<td>25% reduction in turnover</td>
</tr>
<tr>
<td>Covidian Health Care (Macon, GA)</td>
<td>Manufacturing production</td>
<td>Per-person hiring cost reduced from $2300 to $600 Time-to-hire reduced from 45 days to 17 days Time to full employee efficiency reduced from 2 years to 6 months.</td>
</tr>
<tr>
<td>Steelscape (Calama, WA; Richmond and Rancho Cucamonga, CA)</td>
<td>Self-directed manufacturing teams</td>
<td>&lt;4% turnover overall and a “Best Practice” award from the American Psychological Association for its hiring process.</td>
</tr>
<tr>
<td>Bradner Village, a retirement community (Marion, IN)</td>
<td>Nurses, nursing assistants, dietary staff, etc.</td>
<td>37% reduction in turnover</td>
</tr>
<tr>
<td>Inova Health System (Falls Church, VA)</td>
<td>Customer assistants and clinical technicians</td>
<td>73% reduction in turnover; $1.8M cost savings</td>
</tr>
<tr>
<td>911 call center (Lexington county, SC)</td>
<td>Call center operators</td>
<td>50% reduction in turnover; skills-related turnover went to 0.</td>
</tr>
</tbody>
</table>
We took jobless, high poverty, at-risk youth in New Mexico, selected only the ones with high skill scores, and gave them directly to employers.

“We were unsure whether New Options NM would be able to send us the right person based on the project’s goals, but Madai has been an amazing pleasure for us to work with. We have trained her on both Quickbooks and as a telephone receptionist. Madai did not like math, but now understands that math can actually be fun if it is in using Quickbooks. We think this is a good opportunity for our company to mentor a youth, and to understand there is a different talent pool that exists to tap into.”
--Santa Fe Title Company

“Candance has just done a wonderful job. We are very pleased and would love to have her as a full time employee if a position existed. Dina and she are working on accessing positions that are available in our district and we will help her apply. She is well prepared, knowledgeable and through her training with you, it is obvious that she is well prepared to enter the work force.”
--Santa Fe Public Schools

“He’s fantastic! We are so pleased with his work, and we would not have had him in our employment if it wasn’t for you and New Options,”
--Smart Motors

Training? We didn’t train anyone! They were already this good.
But, but...HOW? WHY?

- How can a set of standardized tests do better at predicting workforce readiness/on-the job performance than a degree?
- Don’t we already take lots of standardized tests in school?
- What makes skills tests any different?
What Makes These Tests Different from School Tests?

INCLUDED

• Major: Reading, Observation, Listening, Locating Information, Applied Math (6th grade)

• Minor: Teamwork, Business Writing, Applied Technology

NOT INCLUDED

• Trigonometry, Pre-Calculus, Calculus, U.S. History, World History, Social Studies, Art, Music, Chemistry, Biology, Earth Sciences, Physics, Spanish, French, German, Physical Education are not.

• All Problems Defined Against Workplace Standards: Math through 6th grade only.

• All Problems Contextualized to Workplace: Only “word problem”-type math.
How Generic Are These Skills?

• So far, 16,000 different jobs have been quantified (profiled) using these same underlying cognitive skills

• Typically 3-6 skills needed to define job well.
Locating Information Level 3

**Sample Item:**
You regularly check the pressure gauge on a large tank. According to the gauge shown, what is the current pressure (in PSI)?

A. 30  
B. 35  
C. 40  
D. 45  
E. 100
Locating Information Level 6

Sample Item:
You are a road contractor and you have analyzed a soil that you want to use for road fill. Your analysis shows that the soil contains 15% sand, 65% silt, and 20% clay. You need to know what the shrink-swell potential is for the soil because it will affect the durability of the road. Based on the diagram and table shown, what is the shrink-swell potential at a 30-inch depth for this soil?

A. Low
B. Low to moderate
C. Moderate
D. Moderate to high
E. High
What Makes Cognitive Skills Tests Different From School Tests?

**Harder questions, on the skill scale, have the following features:**

- More and more extraneous information to sort through.
- More and more rearranging of information required to get to the answer.
- More and more chained steps. Sequencing important.
- Some information (typically jargon) determined only from context.

**In a word:** critical thinking, but along each information axis used on the job.
For Existing Skills Tests (WorkKeys, FSEE, etc), The Barometer Looks Like This

Increasing levels of critical thinking/cognitive skill

Different Modes of Information Intake

<table>
<thead>
<tr>
<th>Reading</th>
<th>Applied Math</th>
<th>Spatial (Charts/Graphs)</th>
<th>Observation</th>
<th>Listening</th>
</tr>
</thead>
</table>

20
Skills (Ability Composite) Tests Predict Performance on Complex Jobs Better than Simple Jobs

<table>
<thead>
<tr>
<th>Job Complexity</th>
<th>How Well Skills Testing Predicts Performance (Raw Validity)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(as determined from DOL’s “data” dimension in its Dictionary of Occupational Titles)</td>
<td>1 = perfect prediction of performance 0 = zero ability to predict performance</td>
</tr>
<tr>
<td>High Complexity</td>
<td>.58</td>
</tr>
<tr>
<td>Medium Complexity</td>
<td>.51</td>
</tr>
<tr>
<td>Low Complexity</td>
<td>.40</td>
</tr>
<tr>
<td>Unskilled</td>
<td>.23</td>
</tr>
</tbody>
</table>

If We Measure the US Population Against US Jobs in Terms of Cognitive Skills Requirements, What Do We Find?
We Aren’t So Badly Off in Reading and Math, Which We Teach Explicitly in School

Locating Information (understanding charts & diagrams) Is a Problem

There is not enough “excess” high skill population for employers to demand this skill at high levels PLUS any other criterion (e.g., individual lives in their state, has a particular degree, is a U.S. citizen, has prior experience).

Data from ACT, [http://act.org/workkeys/charts/locate.html](http://act.org/workkeys/charts/locate.html)
WHO NEEDS LOCATING INFORMATION LEVEL 6?

<table>
<thead>
<tr>
<th>O*Net Code</th>
<th>Title</th>
<th>Clusters</th>
</tr>
</thead>
<tbody>
<tr>
<td>17-2011.00</td>
<td>Aerospace Engineers</td>
<td>Science, Technology, Engineering &amp; Mathematics</td>
</tr>
<tr>
<td>17-1011.00</td>
<td>Architects, Except Landscape and Naval</td>
<td>Architecture &amp; Construction</td>
</tr>
<tr>
<td>13-1051.00</td>
<td>Cost Estimators</td>
<td>Arch / Construction; Bus / Mgmt / Admin; Sci / Tech / Eng /</td>
</tr>
<tr>
<td>51-4032.00</td>
<td>Drilling and Boring Machine Tool Setters, ...</td>
<td>Manufacturing</td>
</tr>
<tr>
<td>17-2199.00</td>
<td>Engineers, All Other</td>
<td></td>
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<tr>
<td>11-9061.00</td>
<td>Funeral Directors</td>
<td>Human Services</td>
</tr>
<tr>
<td>11-1021.00</td>
<td>General and Operations Managers</td>
<td>Bus / Mgmt / Admin; Gov / Public Admin</td>
</tr>
<tr>
<td>17-1012.00</td>
<td>Landscape Architects</td>
<td>Architecture &amp; Construction</td>
</tr>
<tr>
<td>19-2032.00</td>
<td>Materials Scientists</td>
<td>Science, Technology, Engineering &amp; Mathematics</td>
</tr>
<tr>
<td>19-2012.00</td>
<td>Physicists</td>
<td>Health Science; Sci / Tech / Eng / Math</td>
</tr>
<tr>
<td>13-1021.00</td>
<td>Purchasing Agents and Buyers, Farm Pro...</td>
<td>Agriculture, Food &amp; Natural Resources</td>
</tr>
<tr>
<td>27-3042.00</td>
<td>Technical Writers</td>
<td>Arts / AV Tech / Comm; Bus / Mgmt / Admin</td>
</tr>
</tbody>
</table>

MOSTLY STEM OCCUPATIONS.

National Deficiency in Locating Info is a major contributor to the “STEM crisis”
Workplace Observation, a key skill for many jobs, is largely missing from the applicant pool.

Many who “see,” but do not understand.

Data from ACT, [http://act.org/workkeys/charts/observ.html](http://act.org/workkeys/charts/observ.html).
WHO NEEDS OBSERVATION, LEVEL 5? Well, up to “E” we have..

<table>
<thead>
<tr>
<th>O*Net Code</th>
<th>Title</th>
<th>Clusters</th>
<th>WK</th>
<th>Special</th>
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</thead>
<tbody>
<tr>
<td>11-3011.00</td>
<td>Administrative Services Managers</td>
<td>Bus / Mgmt / Admin; Gov / Public Admin; Health Science; Trans / Dist / Log</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>11-2011.00</td>
<td>Advertising and Promotions Managers</td>
<td>Bus / Mgmt / Admin; Marketing / Sales / Svc</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>17-3011.01</td>
<td>Architectural Drafters</td>
<td>Architecture &amp; Construction</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>49-3023.02</td>
<td>Automotive Specialty Technicians</td>
<td>Manufacturing; Trans / Dist / Logistics</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>43-3021.03</td>
<td>Billing, Posting, and Calculating Machine Operators</td>
<td>Business, Management &amp; Administration</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>49-3031.00</td>
<td>Bus and Truck Mechanics and Diesel Engine Spec...</td>
<td>Transportation, Distribution &amp; Logistics</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>51-7011.00</td>
<td>Cabinetmakers and Bench Carpenters</td>
<td>Manufacturing</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>11-1011.00</td>
<td>Chief Executives</td>
<td>Bus / Mgmt / Admin; Gov / Public Admin; Human Services; Trans / Dist / Log</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>39-9011.00</td>
<td>Child Care Workers</td>
<td>Human Services</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>17-3011.02</td>
<td>Civil Drafters</td>
<td>Architecture &amp; Construction</td>
<td>Yes</td>
<td></td>
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<tr>
<td>53-7061.00</td>
<td>Cleaners of Vehicles and Equipment</td>
<td>Manufacturing</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>27-1021.00</td>
<td>Commercial and Industrial Designers</td>
<td>Arts, A/V Technology &amp; Communication</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>15-1041.00</td>
<td>Computer Support Specialists</td>
<td>Ag / Food / Nat Rscc; Health Science; Info Tech; Manufacturing</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>35-2013.00</td>
<td>Cooks, Private Household</td>
<td>Hospitality &amp; Tourism</td>
<td>Yes</td>
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<tr>
<td>41-2011.00</td>
<td>Counter and Rental Clerks</td>
<td>Marketing, Sales &amp; Service</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>11-9011.02</td>
<td>Crop and Livestock Managers</td>
<td>Agriculture, Food &amp; Natural Resources</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>29-2021.00</td>
<td>Dental Hygienists</td>
<td>Health Science</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>43-5032.00</td>
<td>Dispatchers, Except Police, Fire, and Ambulance</td>
<td>Health Science</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>11-9032.00</td>
<td>Education Administrators, Elementary and Secondary</td>
<td>Education &amp; Training</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>11-9033.00</td>
<td>Education Administrators, Postsecondary</td>
<td>Education &amp; Training</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>47-2111.00</td>
<td>Electricians</td>
<td>Architecture &amp; Construction</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>17-3012.01</td>
<td>Electronic Drafters</td>
<td>Architecture &amp; Construction</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>29-2041.00</td>
<td>Emergency Medical Technicians and Paramedics</td>
<td>Health Science</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>53-7032.00</td>
<td>Excavating and Loading Machine and Dragline Op...</td>
<td>Architecture &amp; Construction</td>
<td>Yes</td>
<td></td>
</tr>
</tbody>
</table>
LISTENING IS
...HELLO, HELLO???
...NOT THERE

Too bad >70% of our economy is comprised by the service sector...i.e., listening to customers

WHO NEEDS LISTENING, LEVEL 5?

Anyone who has to listen to many conflicting, confusing, poorly organized and incoherent customer descriptions of a problem...to which they must then apply a highly sophisticated, technically correct, and exactly matched solution.

<table>
<thead>
<tr>
<th>O*Net Code</th>
<th>Title</th>
<th>Clusters</th>
</tr>
</thead>
<tbody>
<tr>
<td>39-9011.00</td>
<td>Child Care Workers</td>
<td>Human Services</td>
</tr>
<tr>
<td>15-1051.00</td>
<td>Computer Systems Analysts</td>
<td>Information Technology</td>
</tr>
<tr>
<td>17-3012.01</td>
<td>Electronic Drafters</td>
<td>Architecture &amp; Construction</td>
</tr>
<tr>
<td>11-3031.02</td>
<td>Financial Managers, Branch or Department</td>
<td>Bus / Mgmt / Admin; Finance</td>
</tr>
<tr>
<td>17-1012.00</td>
<td>Landscape Architects</td>
<td>Architecture &amp; Construction</td>
</tr>
<tr>
<td>11-3061.00</td>
<td>Purchasing Managers</td>
<td>Business, Management &amp; Administration</td>
</tr>
<tr>
<td>41-4012.00</td>
<td>Sales Representatives, Wholesale and Mass Merchandise</td>
<td>Finance; Marketing / Sales / Svc</td>
</tr>
<tr>
<td>41-4011.00</td>
<td>Sales Representatives, Wholesale and Mass Merchandise</td>
<td>Marketing, Sales &amp; Service</td>
</tr>
<tr>
<td>49-2022.00</td>
<td>Telecommunications Equipment Installers</td>
<td>Arts, AV Technology &amp; Communication</td>
</tr>
<tr>
<td>13-1022.00</td>
<td>Wholesale and Retail Buyers, Except Far and Wide</td>
<td>Marketing, Sales &amp; Service</td>
</tr>
</tbody>
</table>

IBM’s “service science,” CISCO’s “field engineers”...and day care workers!
The Skills View of the World is So Different

Conventional Wisdom

• There are thousands of different skills needed for thousands of different job titles

• School teaches fundamental skills; work requires specialized versions of these skills

• School degrees are a good first cut to predict who will perform on the job.

Skills-Based View

• Over 95% of all jobs require the same 3-5 fundamental skills.

• Work requires fundamental skills not taught in school (e.g., Listening, Observation, Locating Information). Work also requires more critical thinking than school.

• School degrees predict 1-10% of work performance variation. Structured interviews (small N) or skills tests (large N) are 5-25 times more effective as a first screen.
The Skills View of the World is So Different

Conventional Wisdom

- Math courses teach you Math; English courses teach you English.

Skills-Based View

- Pre and post testing of college algebra class showed zero gains in applied math skill, because content was taught but critical thinking was not (NONM data).

- “Reading & Critical Thinking” class gave a very nice boost to Locating Information skill (NONM data). Any class that advances critical thinking will tend to raise skill scores across the board.
What happens if you redesign curricula so they emphasize cognitive (=workplace) skills rather than academic content?
Skills Based Education: The Marsha Harmon Experiment

• Incoming students are dropped out or almost dropped out with typical GPA of 1.0-1.5
• Usually referred by counselors from their home high schools.
• If students are below Level 3 (basic literacy) in Reading, they are given a free curriculum and not entered into the program until they can achieve Level 3 reading.
• Students take a skills curriculum and graduate whenever they hit the skills benchmarks, regardless of seat time. Most of the work is online.
• Students get diploma from home high school, not a GED.
Skills Based Education: The Marsha Harmon Experiment

• Graduation rate of the at-risk youth was 76%.

• Skill level of Harmon’s graduates = skill level of top 5% of juniors-seniors in NM public schools (comparison to NONM data)

• 82% of Harmon graduates go on to jobs or college
  – 21% community college
  – 36% vo-tech
  – 6% military
  – 20% jobs
Marsha Harmon Experiment Was a Financial Win for the Public School System

State Per Pupil Allocation to School: $5,000

Per Pupil Payment to Community College: $4,300

Per Pupil Cost for Community College to deliver hybrid curriculum: $1,443 profit

Per Pupil Payment to Community College: $4,300

Per Pupil Cost for Community College: $1,443 profit

43% per pupil cost savings

$2856
In New Mexico, we are embarking on an experiment to change the education-workforce system to a skills-based model

- Skills-Based Hiring
- Skills-Based Credentialing
- Skills-Based Education
• Skills-Based Hiring
• Skills-Based Credentialing
• Skills-Based Education

1 Skill-based Hiring
Employers code job openings by skills required

We need to hire someone who is a 3,3,5!

2 Skills-Based Credentialing:
Individual takes tests to determine skill scores

I already have scores of 3,3,5!

3 Skill-based Education/Training:
Targeted to Closing Specific Skill Gaps

I’m a 3,3,4, but I can be a 3,3,5 in two weeks!

4 Marketplace of Jobs Offered by Skill Scores
Powered by Monster
Skills-Based Hiring

- Company hires EEOC-compliant, professional job profiler

- Profiler codes job opening – e.g., a 5 for Applied Math, a 4 for Reading for information, a 3 for Observation"

- Employer advertises job opening in terms of skill levels: “Now hiring a 5 Applied Math, 4 Reading, 3 Observation ...”

- Applicants get tested on their own, at testing locations throughout the region, then apply with their scores and ancillary materials.

- Employers use skill scores as FIRST cut to get best pool.
NM Employer Benefits Similar to Those Seen Nationally

• Turnover goes down to <2%
  – Buckman Regional Water Treatment Plant: 0% after 1 year

• Time to full employee proficiency is typically halved (less training time)

• Thousands of resumes can be sorted in days or weeks, rather than months.
  – Farmington Public Library: Hiring costs $2500->$750, 5 days to 2

• Employers find applicants that were previously “invisible”
Applicant Benefits

• Individuals with no formal credentials can get jobs (NONM)

• Incredible lateral mobility: many jobs require fundamentally the same skills.
  – Example: a 5, 4, 4 can be
    • Office supervisor
    • Health & Safety Specialist
    • Recreation Worker
    • Salesperson

• Incredible vertical mobility:
  – Promotion is often just one level away, in 1 or 2 categories
  – 2-12 weeks of online or hybrid study (e.g., Keytrain, WIN)
Skills-Based Education

• Now statewide in New Mexico and free to user (at-risk students actually paid)

• Community colleges examining skill-based curriculum as replacement for ABE/remedial education

• Also measuring skill gains in existing college classes (pre and post testing)

• Since the employer sets the goal (skill scores) and not the path, ANY form of education that works is now legitimizd.
Skills-Based Job Board
Skills-Based Job Board
Extra Slides
Sample Item:

You are a cashier. According to the notice shown, what should you write on a store employee's receipt?

A. The employee's identification number
B. The employee's department number
C. The amount of sales tax
D. The 20% discount price
E. Your initials

ATTENTION CASHIERS:
All store employees will now get 20% off the price of clothes they buy here. Please follow the new directions listed below.

Selling clothes to employees
- Ask to see the employee's store identification card.
- Enter the employee's department code number into the cash register.
- Use the cash register to take 20% off the price. Then push the sales tax button.
- Write your initials on the sales receipt.
- Sell clothes to employees during store hours only.

Accepting clothing returns from employees
- Employees receive a store credit certificate for clothes they return to the store.
- Store credit certificates are next to the gift certificates.
- Employees may not get a cash refund for clothes they return to the store.
Confidentiality
Client and Consultant agree to maintain the confidentiality of each other's trade secrets and any confidential business information disclosed during the term of this agreement, except as authorized by the party that disclosed the information. When the consulting services have been completed, the parties will return all confidential materials and equipment provided during the term of this agreement, unless keeping the materials is authorized by the party that provided them. Each party is responsible for identifying all trade secrets, confidential business information, and confidential materials.

Nothing in this or in any other agreement will prevent any party from using or disclosing confidential information to the extent necessary to carry out the responsibilities in this agreement; or will restrict any party's use or disclosure of information that is or becomes publicly known through lawful means, that was rightfully in that party's possession or part of that party's general knowledge prior to the term of this agreement, or tht is disclosed to that party without confidential or proprietary restrictions by a person who rightfully possesses the information; or will prevent any party from responding to a lawful subpoena or court order.

Client agrees that Consultant will neither use nor disclose the trade secrets, confidential information, or confidential materials of third parties, and Client will neither ask nor require Consultant to do so.

Miscellaneous Provision
All agreements and understandings between the parties concerning the subject matter of this agreement are embodied in this agreement and any proposal to which the parties agreed. It is understood and agreed by both parties that there are no oral or other agreements or understanding between the parties affecting this agreement.

This agreement shall supersede all prior and contemporaneous agreements and understandings between the parties, with respect to any subject covered by this agreement, except as otherwise provided in this agreement.

This agreement may not be amended except in writing by an instrument, signed by each of the parties. No failure or delay in exercising any right under this agreement shall operate as a waiver thereof.

Neither party shall assign or otherwise transfer any rights or obligations under this agreement without the written consent of the other party. Subject to the foregoing agreement, this agreement shall be binding upon and shall inure to the benefit of the parties' respective heirs, successors, attorneys, and permitted assignees.

If any provision of this agreement, or its application to any person, place, or circumstance, is held by an arbitrator or a court of competent jurisdiction to be invalid, unenforceable, or void, such provision shall be enforced to the greatest extent permitted by law, and the remainder of this agreement and such provision as applied to the other persons, places, and circumstances shall remain in full force and effect.

This agreement shall not become binding on either party until both parties execute it.

Sample Item:
You have hired a consultant to work with your firm. Based on the agreement shown, what will happen if the consultant’s business is taken over by a major competitor?

A. The agreement will confidentially go into arbitration.
B. The agreement will not be enforceable and is void.
C. The consultant is bound by the agreement.
D. The obligations will pass to the new owner.
E. You must renegotiate the agreement with the new owner.
Skills-Based Credentialing

- Skills testing now available at 23 Department of Workforce Solutions locations
- Additional walk-in testing capacity being developed at community colleges.
“Without the program we would not have had any contact with our 7 candidates for the job, and Marissa was one of them. Marissa was the only one who came in, asked questions, and seemed generally interested in the greenhouse and what we do. She was the only one out of the seven that was engaged during the interview process. She has done everything she has been asked to do and keeps the greenhouse looking good. She shows initiative in her work; getting started and working without needing help or supervision. She is very good and who you hope to get in the workplace.”
--New Earth Orchid

“We enjoy her very much. She was a great hire for the summer. We actually offered her a permanent job, but she decided she was going to attend UNM this fall. I do like WorkKeys because it helped determine who was eligible for the job and who could handle the work, so that is a big plus for WorkKeys. To be honest, we would’ve found someone else through our ads, but I’m glad we used WorkKeys.”
--Vogue College of Cosmetology

Danielle is very qualified for the job, is kind, sweet and does what she is told in a timely manner. We found her through the New options NM Workkeys project. She has performed at all tasks given to her and we would very much like a way to keep her on when she goes back to high school in the fall.
--First Tee of Santa Fe
What Makes Skills Tests Different From School Tests?

Ranking Methodology is Different:

A. What is the sin of 30°?  
B. What is the sum of 2+2?

• School View: Problem A is harder than Problem B because A is trigonometry (taught in 9th grade) and B is arithmetic (taught in 2nd grade).

• Skills View: Problem A and Problem B are the same. Both require simple memorization of a fact. There is no way to solve either problem using reasoning or deduction. Thus, both questions measure math skill at a sub-literate level.
If this barometer represents our best tool to date in predicting on-the-job performance, what does this imply?

• Our ability to perform on the job is strongly tied to our ability to take in information and process it (apply critical thinking) - to the point where we can act on that information.

• The skills barometer is really an information processing skill barometer. Those who can’t “learn how to learn” on the job are doomed.

• The barometer is successful at predicting performance in all jobs, but more successful in predicting performance in non-rote jobs than rote jobs.
Outline

• A Skills Based Barometer That Works
  – Statistical Validity Proof
  – On-the-Ground Results Proof

• Why Work Readiness is Not Quite the Same as School Readiness

• Implications for the Country
  – Skills of the US population vs. skills required by US jobs

• Building a Skills-Based Ecosystem in New Mexico (case study)
Marsha Harmon Experiment
Graduation Criteria

• Reading for Information: Level 5
• Applied Mathematics: Level 5
• Locating Information: Level 4
• Applied Technology: Level 4
• Observation: Level 4
• Teamwork: Level 3
• Business Writing: Level 3
• 30 hours hands-on technology lab
• Independent Portfolio project

(Levels are WorkKeys-Tested skill levels)
Mapping the “Learn How to Learn” Skills Onto the School Curriculum

<table>
<thead>
<tr>
<th>If information intake is via</th>
<th>The ability to make “actionable” sense of this information is measured by the (WorkKeys) skills test</th>
<th>The corresponding high school course is</th>
</tr>
</thead>
<tbody>
<tr>
<td>Text</td>
<td>Reading for Information</td>
<td>English</td>
</tr>
<tr>
<td>Numbers/Math</td>
<td>Applied Math</td>
<td>Math</td>
</tr>
<tr>
<td>Charts/Diagrams/Graphs</td>
<td>Locating Information</td>
<td>[no dedicated course, some in science &amp; math]</td>
</tr>
<tr>
<td>Visual/Physical object (the world around us)</td>
<td>Observation</td>
<td>[no dedicated course]</td>
</tr>
<tr>
<td>Sound (listening)</td>
<td>Listening for Understanding</td>
<td>[no dedicated course; some in all courses]</td>
</tr>
</tbody>
</table>
Cognitive Skills Testing is the Best Predictor of Future Job Performance We Have, but It’s Still Not That Great.

What Can We Add to Improve it?

Variation in Individuals’ On-the-Job Performance is only 25% predicted by skills tests.
These data imply that if we add reliability/conscientiousness testing, we should get:

Of the “Big 5” Personality traits (personality = things about you that are slow to change), Conscientiousness is the only one universally tied to work performance.

“Showing up for work is half of the battle”

Well, more like 17%, averaged across all jobs.

New Options has a side project testing this assumption in New Mexico.
We/I Don’t Know What Is in The Remaining 57.75%

Guesses to work on:

1. Skill Output measures (e.g., writing; see next slide)
2. “Soft skills” that are not actually cognitive skills in disguise (many are)
3. Employer caprice ("I randomly rate brunettes and my golf buddies higher")

New Options are testing some of these assumptions in New Mexico.
Possibly, real professions not only require input skills but also “output” skills, for which we have few corresponding tests.

<table>
<thead>
<tr>
<th>If information intake is via</th>
<th>The ability to produce clear, actionable content in this information mode is measured by the skills test</th>
<th>The corresponding profession is</th>
<th>The corresponding high school course is</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Text</strong></td>
<td>Writing/Business Writing</td>
<td>Almost all</td>
<td>English</td>
</tr>
<tr>
<td><strong>Numbers/Math</strong></td>
<td>--</td>
<td>Engineering, Science, Architecture, Mathematics, Finance</td>
<td>Math</td>
</tr>
<tr>
<td><strong>Charts/Diagrams/Graphs</strong></td>
<td>--</td>
<td>Engineering, Science, Architecture, Mathematics, Finance</td>
<td>[no dedicated course, some in science &amp; math]</td>
</tr>
<tr>
<td><strong>Visual/Physical object (the world around us)</strong></td>
<td>--</td>
<td>Engineering, Construction, Performance &amp; Visual Arts</td>
<td>Art, Film, Theatre, Shop</td>
</tr>
<tr>
<td><strong>Sound (speaking)</strong></td>
<td>--</td>
<td>Politics, Teaching</td>
<td>Debate, Speech</td>
</tr>
</tbody>
</table>

Lack of good “information output” skills tests may be part of what’s keeping these tests from predicting job performance better (?)