Ohio Career-Technical Administrators: 10-14-16 (Updated 10-15)

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Robert Mahlman

http://news.webxam.org (posted: WebXam news, OhioACTE)
Post-workshop Photo Opportunity: Arts & Communication
AGENDA: WHAT WILL WE DO?

- **Summary: Test Development-Delivery**
  - Development schedule 2016-17: Education & Training, Ancillary CF (new, revised)
  - Test types delivered (# items): Practice (20), post- & pre- (40), field-test (90-100)

- **Enhancements & Clarifications: WebXam & Technical Testing Project**
  - Outcome-level reporting screenshot, pretest gain reporting screenshots
  - Data stream from CETE to stakeholders, pathway test score concept

- **WebXam News & Calendar:** staying up-to-date easily

- **Q & A or follow-up inquiries:**
  - BUT, policy questions referred to ODE Office of CTE (Leah Amstutz or Emily Passias)
Where do tests come from?

Ohio Subject-Matter Experts are Key!

Test Development Cycle
Recruitment

- Strategies based on field preferences plus ODE-ODHE input
- Targeted communications (directors, supervisors; DTC) & meetings like this one
  - WebXam News: updates, newsletters, blogs (http://news.webxam.org/item-writing)
- “Call for Item Writers” lists career fields + expected schedule
  - Instructors express interest, we update ODE, invite to workshop
  - 2016-17: Career Fields: Main is Education & Training (14) plus Other (14 across Construction, Health, Engineering, Law-Public Safety -- a blend of revision & new)
- Web videos used to 1) orient prospective item writers & 2) thank item writers
  - “Context”=big picture; “Item Writing” & “Item Review” provide details, “Field Testing” describes next steps & encourages participation
- Badges used to document SME participation (over 1200 issued last 3 years), would like to use for students
Stage 1: Test Design

Define Test Purpose(s)
- Summative assessments
- Test knowledge-skill learned in course (post) or gain (post - pretest = gain)
- Support federal and state reporting
- Support articulation (some PS courses)
- Program improvement at local level

Define Content Domain
- Course outlines drawn from CFTCS
- Course = Strands-Outcomes-Comps
- PS learning outcomes where defined

Draft Test Blueprint (Bank level)
- Distributes items across outcomes, (ensures key competencies covered)
- Post at WebXam news site – Hospitality, FCS, & Ag revised courses

CTE End-of-Course (EOC) Test Structure
- Take an EOC test for each course taken
- CFTCS (Revised)
  - Career Field
    - Strand, 1=generic, 2+=technical
    - Outcomes (subset)
    - Competencies (associated)
  - Courses drawn from CFTCS Strands
    - Course 1
    - Course 2
    - Course 3
    - Course 4
    - EOC Test 1
    - EOC Test 2
    - EOC Test 3
    - EOC Test 4
## Stage 2: Develop

### Item Bank Features
- 4-option multiple choice
- ~95 items each EoC “item bank”
- C2 items higher level (application, analysis, & evaluation: Bloom)
- Scenario-based for context
- Learning outcomes used when CTAN exists & linkage provided

### Write Items
- Facilitated, face-to-face workshop
  - Small groups (2-3+facilitator)
  - **NEW model: 1 day=1 course**
  - Launched Sept. 15-16
- Items stored in CAT software tool
- Items edited by CETE staff, graphics produced

### Review Items
- Large group format, facilitated
- **Part 1 of QA**: technical accuracy (key, formulas, C1/C2, scenarios)
- Put in best shape for item ratings

### Ratings & Performance Standards
- Judgments on iPads (=>10 SME) – **Part 2 of QA**
  - **NEW model: drop-by (6 sessions)** Mix in flux regional & CETE
  - Rate essentiality & quality (1-4 scale)
  - Recommend performance standards: Proficient, Advanced (2 Y-N items)
  - Open sessions held for more input
First generation bioenergy feedstocks are problematic because of


Injected mixtures in hydraulic fracturing consist of

- A. sand with chemical additives / B. water in silica suspension / C. sand slurry / D. water, sand, and additives.

A “texture chart” combines which parts of soil?

- A. Clay, sand / B. Sand, silt, clay / C. Loam, sand, clay / D. Loam, sand
How could this chart be used to create C2 items?
## Item Banks: 2015-16 “Build”

In field testing NOW: Year 1 (2016-17)

<table>
<thead>
<tr>
<th>Career Field (# EoC Item Banks)</th>
<th>C1</th>
<th>C2</th>
<th>Scenario</th>
<th>CF Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family and Consumer Sciences (18)</td>
<td>1018</td>
<td>699</td>
<td>343</td>
<td>1717</td>
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<tr>
<td>Hospitality and Tourism (11)</td>
<td>625</td>
<td>441</td>
<td>389</td>
<td>1066</td>
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<tr>
<td>Agriculture and Environmental Systems (26)</td>
<td>1457</td>
<td>1061</td>
<td>901</td>
<td>2518</td>
</tr>
<tr>
<td>Manufacturing [Welding Technologies] (1)</td>
<td>60</td>
<td>40</td>
<td>43</td>
<td>100</td>
</tr>
</tbody>
</table>

*C1 = recall-factual question (item);*  
*C2 = apply-analyze-evaluate question;*  
*Scenario = entry-level work “case”*  

<table>
<thead>
<tr>
<th>Sum of all data</th>
<th>C1</th>
<th>C2</th>
<th>Scenario</th>
<th>CF Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3160</td>
<td>2241</td>
<td>1676</td>
<td>5401</td>
</tr>
</tbody>
</table>
Stage 3: Test

Conduct Field Test
- Part 3 of QA for test question bank, uses all items written at workshop
- Matrix for Grades 9-11: give post-instruction
- Form finalized if enough test-takers (1.5 x number of items ~=140-150)
  - In 2015-16, 78 of 112 forms were finalized & rescored (70%)

Conduct Psychometric Analyses
- REASON to close field testing early is to complete/finalize forms, rescore
- Industry practices for evaluating items: difficulty & discrimination

Assemble Test Forms
- Industry best-practices used to select questions for final forms
- Two 40-item forms: pretest & posttest
- Balancing content coverage, SME ratings, & psychometrics

Policy Guidance -- CTE Assessment Matrix (Gr 9-11, Gr 12) – definitive, so check current [color-coded] version (posted ~8-1-16, just reposted)
Testing Year-Over-Year: All TTP Tests Combined

# Students Tested vs. School Years

- 2004-05: 23250
- 2005-06: 21778
- 2006-07: 20617
- 2007-08: 21875
- 2008-09: 20685
- 2009-10: 19569
- 2010-11: 22744
- 2011-12: 33261
- 2012-13: 50602
- 2013-14: 60380
- 2014-15: 79947
- 2015-16: 97884

Yearly testing numbers and growth trend.
**SAMPLE BLUEPRINT: Welding Technologies**
ODE Subject Code: 176009

<table>
<thead>
<tr>
<th>Outcome #</th>
<th>Outcome Name</th>
<th>% Items Approved by SMEs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Strand 1. Business Operations/21st Century Skills</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Employability Skills</td>
<td>10.5</td>
</tr>
<tr>
<td>1.2</td>
<td>Leadership and Communications</td>
<td>11.6</td>
</tr>
<tr>
<td>1.3</td>
<td>Business Ethics &amp; Law</td>
<td>4.2</td>
</tr>
<tr>
<td><strong>Strand 4. Materials Joining</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>Physics of Welding</td>
<td>11.6</td>
</tr>
<tr>
<td>4.2</td>
<td>Metallurgy of Welding</td>
<td>3.2</td>
</tr>
<tr>
<td>4.3</td>
<td>Arc Welding Processes</td>
<td>10.5</td>
</tr>
<tr>
<td>4.4</td>
<td>Non-Arc Welding Processes</td>
<td>4.2</td>
</tr>
<tr>
<td>4.5</td>
<td>Testing and Inspection</td>
<td>3.2</td>
</tr>
<tr>
<td>4.6</td>
<td>Thermal Cutting</td>
<td>5.3</td>
</tr>
<tr>
<td><strong>Strand 6. Precision Machining</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.1</td>
<td>Measurement and Interpretation</td>
<td>3.2</td>
</tr>
<tr>
<td>6.2</td>
<td>Layout and Planning</td>
<td>5.3</td>
</tr>
<tr>
<td>6.3</td>
<td>Cutting</td>
<td>5.3</td>
</tr>
<tr>
<td>6.8</td>
<td>Maintenance</td>
<td>5.3</td>
</tr>
<tr>
<td><strong>Strand 7. Safety, Tools and Equipment</strong></td>
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<td></td>
</tr>
<tr>
<td>7.1</td>
<td>Site Safety</td>
<td>10.5</td>
</tr>
<tr>
<td>7.2</td>
<td>Personal Safety</td>
<td>6.3</td>
</tr>
</tbody>
</table>
CETE staff emphasizes that any outcome-level information cannot be as reliable as the total 40-item percent correct score. They are often only based on one, two, or three test items. Therefore, we encourage teachers to use the information sensibly. In other words, don’t put undue weight on any given outcome score unless the difference is very large compared to the state, and/or the results are consistent over several administrations of the test.

**Percent Correct - Your Students** is the average percent correct obtained by test-takers in the class on the items linked to that outcome and on the form.

**Percent Correct - Statewide** is the average percent correct obtained by tested students statewide on the form items linked to that outcome – note the items are identical, but there are many more test-takers.

Classroom and statewide total test averages will likely not equal the average of the individual outcome scores, because each outcome may have different numbers of items associated with them.*

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<table>
<thead>
<tr>
<th>Outcome Code</th>
<th>Outcome</th>
<th>Your Students</th>
<th>Statewide</th>
</tr>
</thead>
<tbody>
<tr>
<td>02.01</td>
<td>Site Safety: Handle materials, prevent accidents, and mitigate hazards.</td>
<td>53.33%</td>
<td>46.74%</td>
</tr>
<tr>
<td>02.02</td>
<td>Personal Safety: Practice personal safety in construction.</td>
<td>25%</td>
<td>34.2%</td>
</tr>
<tr>
<td>02.04</td>
<td>Equipment and Machinery Preventative Maintenance: Clean, maintain, and perform planned...</td>
<td>50%</td>
<td>42.17%</td>
</tr>
<tr>
<td>04.01</td>
<td>Electrical Theory: Explain electrical principles and theories.</td>
<td>45%</td>
<td>37.1%</td>
</tr>
<tr>
<td>04.02</td>
<td>Circuits: Analyze and evaluate direct current (DC) circuits and alternating current (AC)...</td>
<td>40%</td>
<td>29.57%</td>
</tr>
<tr>
<td>04.03</td>
<td>Codes and Regulations: Explain and apply the National Electrical Code (NEC) and other...</td>
<td>40%</td>
<td>30.92%</td>
</tr>
<tr>
<td>04.05</td>
<td>Electrical Wiring: Install wiring in residential, commercial, and industrial settings in...</td>
<td>25.71%</td>
<td>34.16%</td>
</tr>
<tr>
<td>06.04</td>
<td>Construction Drawings: Read and interpret plans and diagrams within a construction...</td>
<td>40%</td>
<td>38.72%</td>
</tr>
<tr>
<td>06.05</td>
<td>Construction Math: Calculate materials needed to complete construction projects.</td>
<td>22%</td>
<td>25.17%</td>
</tr>
</tbody>
</table>

Average Test Score

37.50% 35.05%

Showing 1 to 9 of 9 entries
### Individual Report

**Melba Brock**  
**School Year: 2015-2016**

<table>
<thead>
<tr>
<th>Test</th>
<th>Pretest Date</th>
<th>Posttest Date</th>
<th>Pretest # Correct</th>
<th>Posttest # Correct</th>
<th>Student Gain</th>
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</thead>
<tbody>
<tr>
<td>145010 Web Design</td>
<td>8/24/2015</td>
<td>7/19/2016</td>
<td>16</td>
<td>33</td>
<td>+17</td>
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<tr>
<td>145010 Web Design</td>
<td>8/24/2015</td>
<td>1/11/2016</td>
<td>28</td>
<td>27</td>
<td>-1</td>
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<td>1/11/2016</td>
<td>10</td>
<td>24</td>
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<td>145010 Web Design</td>
<td>8/24/2015</td>
<td>1/11/2016</td>
<td>7</td>
<td>30</td>
<td>+23</td>
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<tr>
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<td>8/24/2015</td>
<td>1/11/2016</td>
<td>17</td>
<td>24</td>
<td>+7</td>
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<td>8/24/2015</td>
<td>1/11/2016</td>
<td>14</td>
<td>21</td>
<td>+7</td>
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</tbody>
</table>

### Teacher Effectiveness

**School Year: 2015-2016**

<table>
<thead>
<tr>
<th>Number of Students</th>
<th>Avg. pretest # Correct</th>
<th>Avg. posttest # Correct</th>
<th>Student Gain</th>
<th>Teacher Effectiveness Level</th>
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</thead>
<tbody>
<tr>
<td>22</td>
<td>24.23</td>
<td>25.32</td>
<td>+1</td>
<td>Least Effective</td>
</tr>
<tr>
<td>1</td>
<td>17</td>
<td>20.6</td>
<td>-3</td>
<td>Above Average</td>
</tr>
<tr>
<td>5</td>
<td>18.6</td>
<td>19.6</td>
<td>-1</td>
<td>Most Effective</td>
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<tr>
<td>7</td>
<td>15.86</td>
<td>25.71</td>
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<td>Most Effective</td>
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<tr>
<td>36</td>
<td>19.42</td>
<td>26.14</td>
<td>+7</td>
<td>Most Effective</td>
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<tr>
<td>37</td>
<td>18.61</td>
<td>23.62</td>
<td>+5</td>
<td>Average</td>
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<tr>
<td>18</td>
<td>27.39</td>
<td>30.9</td>
<td>+3</td>
<td>Most Effective</td>
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<tr>
<td>35</td>
<td>23.17</td>
<td>32.97</td>
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<tr>
<td>41</td>
<td>20.85</td>
<td>26.37</td>
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<td>19.27</td>
<td>26.38</td>
<td>+7</td>
<td>Most Effective</td>
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<td>42</td>
<td>23.85</td>
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<td>Average</td>
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<td>29.72</td>
<td>+13</td>
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<td>18.43</td>
<td>24.69</td>
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<tr>
<td>35</td>
<td>22.31</td>
<td>32.19</td>
<td>+10</td>
<td>Most Effective</td>
</tr>
</tbody>
</table>

[Back to Main Site]
Achievement defined in 3 ordered categories, used in reporting to Federal & state government agencies

- NON-PROFICIENT (N) means LIMITED-NOVICE (no mastery)
- PROFICIENT (P) means INTERMEDIATE level (mastery)
- ADVANCED (A) means HIGHEST level (above proficient mastery)
- INCOMPLETE (I) means too few tests for “pathway score” (1-2)

  * Sometimes a point of confusion for local district users, based on reporting to ODE
TIMELINES 2016-17

- **Pretesting Windows** (40 questions)
  - Aug 15 to Sept 16, 2016 (AUTUMN): *31,823 tests delivered*
  - January 2-27, 2017 (WINTER): *usually fewer*
  - Post-tests must be complete by April 21, 2017 (for eTPES)

- **Field-Test Window** (80-100 questions)
  - Opens October 3, 2016; Closes May 12, 2017

- **Post-test Forms Test Window** (40 questions)
  - Opens October 3, 2016; Closes June 3, 2017

- **Data Export to ITC for Districts**: Mid-June, 2017
  - Participation & Performance measures use CETE output, but ..........
## ABOUT THE ASSESSMENTS

- [http://news.webxam.org](http://news.webxam.org) -- Best source of info!!

### Agriculture and Environmental Systems

<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th># of Items</th>
<th>Performance Standard</th>
<th>Advanced Performance Standard</th>
<th>Field Test?</th>
<th>Pretest?</th>
</tr>
</thead>
<tbody>
<tr>
<td>010105</td>
<td>Agriculture, Food and Natural Resources</td>
<td>40</td>
<td>59</td>
<td>91</td>
<td></td>
<td></td>
</tr>
<tr>
<td>010115</td>
<td>Business Management for Agricultural and Environmental Systems</td>
<td>89</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>010120</td>
<td>Mechanical Principles</td>
<td>40</td>
<td>67</td>
<td>86</td>
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</table>

### Family and Consumer Sciences

<table>
<thead>
<tr>
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<th>Name</th>
<th># of Items</th>
<th>Performance Standard</th>
<th>Advanced Performance Standard</th>
<th>Field Test?</th>
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<td>091025</td>
<td>Child Development</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>ID</th>
<th>Name</th>
<th># of Items</th>
<th>Performance Standard</th>
<th>Advanced Performance Standard</th>
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<tr>
<td>091052</td>
<td>Personal Financial Management</td>
<td>95</td>
<td>N/A</td>
<td>N/A</td>
<td></td>
<td></td>
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</tbody>
</table>
Data Paths for Reporting

What IS provided for PARTICIPATION state-level reporting?
PARTICIPATION = # Tested / # Taught (Numerator from CETE, Denominator from district/ITC)

What IS provided for PERFORMANCE state-level reporting?
Performance = #/% Nonproficient, #/% Proficient, & #/% Advanced
Performance = Nonproficient (Fail), Proficient & Advanced (Pass)

PATHWAY TEST SCORE: 3-25-2015 at news site (USE search function)

NEW NOTE: Dates found on WebXam calendar at news site, please visit
**TRENDS: Ohio CTE Testing**

- Continuing to emphasize test security for score credibility
  - Changes in procedures: acceptable use policy changes (at first log-in each year)
  - Documenting exceptions (“do-overs” decrease score credibility for any purpose)
  - EXAMPLE: Past request to drop large number of pre-tests, CETE will write-up for record-keeping
  - Testing from home OK? **N-O!!**, violates proctoring & district-owned device acceptable use

- Increase # items on forms (>40 = higher reliability, **say 50**)
  - “Crowdsource”: Teacher-written items valuable for practice tests and eventually, for secure EoC item banks if quality can be evaluated & confirmed

- Validate interpretations of gain/growth for other purposes
  - Correlate parts of evaluation system: self- & peer ratings, observations, SGM

- Switching to SSID over next two years for data integrity
  - Will ask for uploads to contain identifier, coordinating with DASL (MIS provider)
Questions with initial answers & some decisions

- How can “we” be sure of the currency of the content?
  - Course outlines public, created by ODE/Vendor, given to CETE; cycle now 5 years
- Something (was) going on with Welding tests (Manufacturing CF)
  - Checked counts of test-takers, performance standards, & levels (A-P-N)
  - CETE reviewed & revised performance standards
- Test maintenance – CETE implement a review of comments & was able to incorporate many suggestions before finalizing & rescoring – collected during field testing
- LEP accommodations (time, reader, etc.) – CETE inquired at ODE (will develop reporting)
- Proportions of C1/C2/Scenario items (between 60/40 & 70/30 splits)
- Pretesting: score reporting (available by Winter window)
- FCS testing & participation? CETE recommends, + pathway test score
Q&A: 2016 OCTA FALL MEETING

- Recollected audience Q’s with answers or options:
  - Maintenance: Collected comments used when finalizing in May (2015-16 55 items modified-replaced using comments across 78 pairs)
  - Proportions of C1/C2/Scenario items (60/40 to 70/30 splits in final forms)
  - Blueprints: NOT all posted yet, will check with IT (NOTE: All available are posted)
  - Pretests & post-tests: outcome score reporting (available now & Winter window, 2017)
  - FCS testing & participation? CETE recommends, + pathway test score
  - Possible move to reporting by courses, but EMIS would require modifications before implementation so years away
  - 2018 graduation requirements: Scoring system at course level, accumulated data but must be approved & evaluated before launch (starting early, but drawing closer)
LEGAL “test prep” tools we share with instructors at PD sessions to review assessment practices

- GET/USE course outlines posted at ODE (linked from “About Assessments”)

- Try PATHWAY practice tests as they become available (now posted for career fields: Construction, Human Services-Cos, Engineering, Health, IT, Law-Public Safety, Manufacturing, Transportation-G)

- Obtain blueprints when posted (sample shown above)

- Use outcome-level reporting (sample shown above)