ASSESSING TECHNICAL EDUCATION SKILLS

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OBJECTIVES

- To identify the purposes of technical skill assessment
- To discuss major criteria used in assessing and selecting technical tests
- To identify and describe successful strategies for using technical tests to improve programs and accountability efforts
Many Reasons for Assessment

Program Improvement

Demonstrate Achievement

Provide Accountability
Purposes of Technical Skill Assessment

- Demonstrate Achievement
  - Student
  - Teacher
  - Program
- Program Improvement
- Provide Accountability
  - Perkins
  - State
  - Quality (ISO/Baldrige)
Demonstrate Achievement

- For the student, assessment can provide...
  - portfolio information for employment
  - connections to industry certifications
  - an articulated credit vehicle
Program Improvement

- For the school, assessments can provide...
  - a means for curricular improvement
  - a mechanism to demonstrate program success
  - an accountability measure for local constituents (parents, boards, community, employers, etc.)
  - a component of continuous improvement
Provide Accountability

- For the state, assessments can provide...
  - common data for statewide economic development plans
  - the mechanism for statewide articulations
  - a component for awarding school incentives
  - taxpayer accountability
  - accountability provisions for Perkins (CAR)
Assessing Technical Skills Attainment: *State of the States*

A Study Conducted for the National Research Center in CTE

Kenneth C. Gray, Cynthia Pellock, and Sang Hoon Bae
The Pennsylvania State University
Purposes of the Study

- What are states doing to report technical performance of CTE completers?
- What are the opinions of state leaders regarding a national technical skill assessment system?
Purposes of a National Assessment System

- CTE Program Improvement
- Portable Performance Credential
- Aggregate National Data

- Least Important
- Important
- Most Important
Types of Performance Data Reported to OVAE

- National/state standards: 20
- Industry-approved local standards: 5
- State-approved local standards: 8
- Locally-approved local standards: 6
- Grades, competencies mastered, etc: 24
- Completion of CTE programs: 19

$n = 45$
Defining Technical Assessment

Technical assessment includes:

- School/college-based assessments (e.g., used for grading and educational credentials)

and

- National/state assessments including industry and professional assessments where available and appropriate
Key Issues

- Learning Management—Using assessment in self-directed learning and learning process management
- Credentialing—strengthening and aligning educational credentialing including credit transfer and new types of certificates
- Accountability—data validity and reliability and student coverage
- Postsecondary Accountability—New directions in accreditation
Improving Technical Assessment for Perkins Accountability

- Full specification and transparency in industry-validated standards
- All technical assessments used in reporting skill attainment meet realistic validity and reliability guidelines
- Schools and colleges report on all students that they are accountable for, not just those taking state or industry assessments where available and appropriate
Barriers to Standards-Based Assessment

- Costs: 32
- Logistics at the local level: 18
- Lack of assessment materials: 11
- Unwillingness of local districts: 6
- Disruption to education: 5

\( n = 45 \)
Preferences for Appropriate Skill Level for National Technical Assessment

- Job Readiness: 5
- Transferable Skills: 7
- Cluster Level: 9
- Pathway Specific: 11
- Occupation Specific: 15

n = 45
Career Cluster/Program of Study Frameworks for Assessment

- Assessments should be developed and selected to fit within a larger career framework developed in cooperation with industry and other stakeholders

- Examples are:
  - National and state career cluster frameworks
  - Sector and career pathway frameworks in workforce development including bridge programs
  - National competency frameworks (e.g., DOL manufacturing framework)
Criteria for Review and Selection

- Validity and reliability
- Market value versus total cost of use
- Match to standards—scope and coverage
- Assessment approaches/types—meeting stakeholder expectations
- Learning management—support for learning and improvement
- Additional requirements for assessment and credentialing
Criteria for Selection of Technical Skill Assessments: Solid Psychometrics
Criteria for Selection of Technical Skill Assessments

○ A Quality CTE Assessment **must** ...

- include a performance
- be nationally validated
- proven reliable
- free from bias
- free from error
- include a mechanism to show gains
### National Occupational Competency Testing Institute Score Report

**Law Enforcement**

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**Total**  
64.0 74.6 10.6 68.1 70.3 67.4 60.8  

**NOTE:** All values represent % scored correct.
Criteria for Selection of Technical Skill Assessments

- A Quality CTE Assessment **should** ...
  - Assess all aspects of learning
    - Psychomotor, Cognitive, Affective
  - Be deliverable in multiple formats
  - Include a Pre-Post option
  - Be aligned with other metrics
    - O-Net, DOT, CIP, Lexile, etc.
  - Incorporate outside evaluators
  - Provide a preparation for students
  - Provide training for evaluators
  - Meet the requirements of Perkins
A Comprehensive Solution

Complete Occupational Assessments include

- Academic Skills
- Technical Skills
- Employability Skills

Comprehensive Assessment

+ Affective Skills
+ Cognitive Skills
+ Psychomotor Skills
Strategies for Using Technical Assessments

- Choosing the Right Scope of Effort—Career Clusters/Programs of Study
- Building Teacher Capacity in Using Assessment for Learning Management
- Public-Private Improvement Teams Using Proven Approaches and Methodologies
Using Technical Tests to Improve Programs and Accountability

- The Massachusetts Model: 
  **Program Improvement**
  - Assessments customized to state interests
  - Professional Development; teachers and local industry representatives discuss content (state support)
  - Data to be used to continually improve programs statewide
    - Approval system
    - Competency tracking
    - Integrated academics
Using Technical Tests to Improve Programs and Accountability

The Pennsylvania Model:

**Student Achievement**

- “Cut Scores” are established by industry representatives from across the state
- “Governor’s Skill Certificate” for student achievement
- Integrated academic reporting shows student gains
- Data used to maintain ISO registry
- Data used for “Concordance Agreement” (statewide articulation)
Using Technical Tests to Improve Programs and Accountability

- The Georgia Model: **Pathway Assessment**
  - State and national economic cluster alignment
  - Focus on pathway level assessment
  - Tied to curricular revisions (CTE performance standards)
  - Tied to professional development
Using Technical Tests to Improve Programs and Accountability

○ Cluster Leadership Model:

**National Consortium on Health Science and Technology Education**

- Created a foundation skill standard assessment (with NOCTI)
- Assesses knowledge and skill standards within the cluster
- Pre and post tests to show gain
- Utilized in conjunction with National Research Center’s math study
Meeting Perkins Requirements

- Entry level isn’t good enough
- Articulations based on institutions not faculty
- Strong focus on technical assessment
- Strong focus on increased rigor
- States will negotiate baselines with locals
  - Improvement plans...funding loss
- Model sequences – career pathways
  - Every local must implement at least one pathway
- Emphasis on the role of data in making decisions
Perkins and Accountability

- measures must be “valid and reliable and include at a minimum challenging academic standards and attainment of skill proficiencies, including achievement on technical assessments that are aligned with industry recognized standards”

- Section 113 [b.2.A] : (Secondary Indicators) [Post-secondary removes reference to academics]
Perkins and Accountability

- "effective use of scientifically-based data"
- "improving student achievement"
- "supporting partnerships"

[Section 124] : (Required: State Leadership Activities)