

# National Research Center for Career and Technical Education

## Linking Occupational Information to Educational Programs Using the Career Clusters and Career Pathways Framework: The Crosswalk Validation Project

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NASDCTEc Webinar  
October 25, 2012

The work reported herein was supported under the National Research Center for Career and Technical Education, PR/Award (No. VO51A070003) as administered by the Office of Vocational and Adult Education, U.S. Department of Education. However, the contents do not necessarily represent the positions or policies of the Office of Vocational and Adult Education or the U.S. Department of Education and you should not assume endorsement by the Federal Government.



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thank you to our host

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# Crosswalk Validation Project: Glossary

- Table 7: Crosswalk developed by OVAE in 2006-2007
- SOC: Standard Occupational Classification
- CIP: Classification of Instructional Programs
- OSDS: Occupational Supply and Demand System
- Units of Analysis: A hybrid code that combines occupation and education information
- The 2007 crosswalk tables are referred to as Perkins Tables 1, 5 and 7. The NRCCTE/NASDCTEc crosswalk tables are referred to as Tables 1, 5, and 7.

# Important Milestones

- Project started in January 2010 with the Louisville meeting with CTE stakeholders focusing on accountability
- Joint project between NASDCTEc and NRCCTE; Bruce was hired as consultant to NASDCTEc
- Initial use of the 2007 Perkins crosswalk tables in the Georgetown University Cluster Report; it pointed out strengths and weaknesses of these tables; highlighted the need for an update

# Important Milestones (continued)

- Had a meeting in July 2011 in Washington DC area of CTE accountability specialists; at meeting a plan of action was developed
- Charge from the July 2011 meeting was to create a set of decision rules around categorizing a CIP or a SOC in relationship to Career Clusters™ and career pathways
- Initial Draft Recommendations sent to a group of experts for their review in March 2012
- Based on this review, the crosswalk was modified and updated
- In May 2012, the updated crosswalk was sent to CTE accountability specialists for review
- Final Report completed October 2012

# Crosswalk Validation Project: Goals

- Project initially focused on CIP assignments to cluster because of need to have national standardization for accountability reporting
- There was concern among the State Directors regarding the assignment of particular CIPs to particular Career Clusters™.
- Perkins Tables needed to be updated because of new pathways, and the CIP and SOC taxonomies had been updated to 2010

# Overview of Crosswalk Validation and Update Process

- The Crosswalk Validation project was divided into four stages:
  - **Stage 1:** Project staff reviewed the existing historical correspondence on decision rules that were used in the CIP2000 to Career Clusters™ assignments in Perkins Table 1 and made recommended revisions.
  - **Stage 2:** Project staff reviewed the SOC 2000 assignment in Perkins Table 5 and recommended assignments to Career Clusters™ and Career Pathways.
  - **Stage 3:** Initial work was completed using the CIP 2000 and SOC 2000, which was then updated to the CIP 2010 and SOC 2010 taxonomies.
  - **Stage 4:** Using the current NCES CIP-SOC Crosswalk, the SOC-Cluster-Pathway was connected to the CIP-Cluster tables to create a linked crosswalk.

# Stage 1: Revise Perkins Table 1 CIP 2000 Assignment to Career Clusters

- Determining the best Career Cluster™ to which to assign individual CIPs.
- Involved reviewing historical correspondence and revising and updating, as required, the CIP/Career Cluster™ matches from the original Perkins Table 1.
- Consultations with the National Crosswalk Center and the Occupational Supply Demand System (OSDS) project were helpful in identifying guidelines and information that could help make reasonable classifications offering the best fit.
- A revised Perkins Table 1 can be found the NRCCTE and NASDCTEc websites in Excel and PDF formats.

# CIP Decision Rule Example

26 of the 2-digit CIP codes strongly identify with a single Career Cluster™. For example, CIP 46 -- Construction Trades has a strong identification with the Architecture and Construction Cluster™

- Does the detailed CIP title clearly match a Career Cluster™ area?
  - If yes, assign to the Career Cluster™.
    - Example: CIP 01.0102 Agribusiness/Agricultural Business Operations is a clear fit with Agriculture, Food and Natural Resources
  - If no, read the description of the CIP and examine related occupations in NCES CIP-SOC Crosswalk to get an idea of possible alternative Career Clusters™
    - Example: CIP 49.0304 Diver, Professional and Instructor. The 2-digit CIP (49) is Transportation and Materials Moving. However, diver is not an occupation one initially associates with transportation. The CIP description is, “A program that prepares individuals to apply technical knowledge and skills to function as professional deep-water or scuba divers, diving instructors, or diving support personnel. Includes instruction in the use of diving equipment and related specialized gear; diving safety procedures; operation and maintenance of underwater life-support systems; underwater communication systems; decompression systems; underwater salvage; exploration, rescue, and photography; and installation and fitting of underwater mechanical systems and their maintenance, repair or demolition.”

The underlined phrases indicate that one of the career-related tasks this program prepares someone for is underwater salvage and installation, maintenance, repair or demolition. The NCES CIP-SOC Crosswalk relates this program to SOC 49-9092 Commercial Divers. According to O\*Net, the top knowledge area for Commercial Divers is Building and Construction. Also, according to O\*NET, the top industry for employment of Commercial Divers was Construction.

Assign CIP 49.0304 to the Architecture and Construction Career Cluster™, rather than the Transportation, Distribution and Logistics Career Cluster™

## Stage 2: Revise Perkins Table 5 SOC2000 assignment to Career Clusters™/Pathways

- Project staff looked at SOC coding structures and definitions and compared these to Career Pathway definitions to make assignment.
- Pathways have changed since the production of Perkins Table 5, so adjustments of SOC to Career Clusters™ and Career Pathway relationships had to be made (e.g., *accountant* was formerly located in the Business Career Cluster™ but was moved to the Finance Career Cluster™ because a new Accounting Career Pathway was located under Finance).
- Project staff drew upon O\*NET knowledge to verify the accuracy of assignments, particularly in STEM occupations.
- A revised Table 5 can be found the NRCCTE and NASDCTEc websites in Excel and PDF formats.

# SOC Decision Rule Examples

- Does the SOC title clearly match a Career Cluster™/Pathway?
  - If yes, assign to the Career Cluster™/Pathway
    - Example: SOC 11-2021 Marketing Manager is a clear fit with Marketing/Marketing Management
  - If no, read the description of the SOC and examine alternative Career Cluster™/Pathways
    - Example: SOC 11-9051 Food Service Managers. Should it be in a pathway in the Business Management Career Cluster™ or a pathway in the Hospitality and Tourism Career Cluster™? SOC Definition: Plan, direct, or coordinate activities of an organization or department that serves food and beverages
    - Hospitality & Tourism Career Cluster™ Definition: Encompasses the management, marketing and operations of restaurants and other food services, lodging, attractions, recreation events and travel related services.
  - Assign to Hospitality & Tourism Cluster™/Restaurants and Food/Beverage Services Career Pathway

# Some SOC Decision Rules

- Social Scientists are in the Science, Technology, Engineering and Mathematics Career Cluster™
- Extraction occupations are in Architecture and Construction
- Industry-oriented managers are in the more specific Career Cluster™, rather than General Management (Lodging Manager-Hospitality; Medical and Health Service Manager-Health)
- Engineering and Science Technicians are in the industry-specific Career Cluster™ reflecting highest employment concentration (Chemical Technicians-Manufacturing)

## Stage 3: Update CIP2000 and SOC2000 to CIP2010 and SOC2010

- The updating of the crosswalks to the 2010 CIP and SOC taxonomies took into consideration the deletion, addition, and renumbering of CIP and SOC codes.
- The assumptions, guidelines, and decision rules used in the project's first two stages to create a consistent process for assigning new programs and occupations to Career Clusters™/Pathways were again applied in order to update the crosswalks to the 2010 taxonomies.
- The updating to 2010 can be found in Tables 1 and 5, which are on the NRCCTE and NASDCTEc websites in Excel and PDF formats.

## Stage 4: Update the Perkins Table 7 Crosswalk

- The decision was made to modify the original Perkins Table 7 so it would serve as a more robust crosswalk than the 2007 version. The 2007 version had adopted the separate Career Cluster™/Pathway assignments for CIPs from Perkins Table 1 and SOCs from Perkins Table 5 in order to create Perkins Table 7. However, the CIPs and SOCs were not directly linked.
- In order to create a linked crosswalk, we used the 2010 National Center for Education Statistics (NCES) CIP-SOC crosswalk to combine the CIP-recommended Career Cluster™ table with the SOC-Career Cluster/Pathway table. The validity of the revised Perkins Table 7 crosswalk is dependent on the completeness and accuracy of the CIP-SOC crosswalk. See <http://nces.ed.gov/ipeds/cipcode/resources.aspx?y=55>, the CIP2010 to SOC2010 Crosswalk.

## Stage 4: Update the Perkins Table 7 Crosswalk

- It should be noted that the number of revised CIP codes in the Crosswalk Validation project's revised Table 1, as well as the number of SOC codes in the revised Table 5, are not the same in the revised Table 7.
- A revised Table 7, the full crosswalk, can be found on the NRCCTE and NASDCTEc websites in Excel and PDF formats.

Table 1  
A Segment of the Revised Perkins Table 7 Crosswalk: An Example

1	2	3	4	5	6	7	8	9	10	11	12
SOC CODE	SOC TITLE	SOC PTHWY NO	SOC PTHWY TITL	SOC Car Clstr No	SOC_Career Clusters	CIP 6 2010 Code	CIPTitle_2010	REC CLSTR NO	Recommended Cluster_2010	Mtch Clstr*	CrossWalk Rel Strength**
13-1051	Cost Estimators	2.1	Design/Pre-Construction	2	Architecture & Construction	52.0201	Business Administration and Management, General.	4	Business Management & Administration	0	1
13-1051	Cost Estimators	2.1	Design/Pre-Construction	2	Architecture & Construction	52.0101	Business/Commerce, General.	4	Business Management & Administration	0	1
13-1051	Cost Estimators	2.1	Design/Pre-Construction	2	Architecture & Construction	15.1001	Construction Engineering Technology/Technician.	2	Architecture & Construction	1	2
13-1051	Cost Estimators	2.1	Design/Pre-Construction	2	Architecture & Construction	14.3301	Construction Engineering.	15	Science, Technology, Engineering & Mathematics	0	1
13-1051	Cost Estimators	2.1	Design/Pre-Construction	2	Architecture & Construction	14.3601	Manufacturing Engineering.	15	Science, Technology, Engineering & Mathematics	0	1
13-1051	Cost Estimators	2.1	Design/Pre-Construction	2	Architecture & Construction	14.1801	Materials Engineering.	15	Science, Technology, Engineering & Mathematics	0	1
13-1051	Cost Estimators	2.1	Design/Pre-Construction	2	Architecture & Construction	14.1901	Mechanical Engineering.	15	Science, Technology, Engineering & Mathematics	0	1

*Note.* Mtch Clstr\* = If the SOC Recommended Cluster matches the CIP Recommended Cluster, the number in this column is 1. If there is no match, the number is 0. Cross Walk Rel Strength\*\* = If the NCES CIP-SOC Crosswalk shows a relationship and the Clusters match, the Crosswalk Related Strength is 2. If the NCES Crosswalk shows a relationship but the Clusters don't match, the Crosswalk Related Strength is 1.

# Discussion

- A major reason for undertaking this project arose from the tensions that continue to exist regarding the ultimate utility of crosswalks— are they mainly to be used for career guidance and planning, or are they primarily a tool for accountability?
- The level of precision in matching CIPs, SOCs, Career Clusters™, and Career Pathways should be much higher if crosswalks are to be used for accountability purposes, but for career guidance and planning, the latitude is much wider.
- Although the Crosswalk Validation project has not completely resolved the tension between the two functions (career guidance and accountability), the project’s addition of two indicators in the revised Table 7—*Mtch Clstr* and *Crosswalk Rel Strength*—offers a step toward resolving this tension.
- In general, this tension often results in the need to modify the crosswalk to suit particular purposes. If this is the case, we recommend that users begin by considering these two indicators—*Mtch Clstr* and *Crosswalk Rel Strength*.

# Issues Needing Resolution

- Whether to include some CIPs (e.g., 05, 16, and perhaps others) that are not typically associated with CTE.
- Whether Health Residency programs (CIP 60) should continue to be included in the Perkins tables. These programs were included in the original Perkins tables and have been included in our update. According to NCES, however, these programs are not valid for IPEDS reporting. From an accountability perspective, if they are not valid for IPEDS reporting, their continued inclusion would seem unnecessary.
- Whether Career Pathways with few or no SOCs should continue to be included in the Career Cluster™/Pathway structure. Nine Career Pathways contain two or fewer occupations.
- Whether a Social Science Career Pathway should be added to the STEM Career Cluster™ in order to allow a comparison of various STEM definitions.

# Some Parting Thoughts....

- We note that because the revised crosswalks are based on national data, comparisons may be made among educational programs, occupations, Career Clusters™, and Career Pathways only at the national level. The project offers downloadable Excel files for those states that wish to customize the information presented in the three crosswalks for their own purposes.

# Some Parting Thoughts....

- In general, it should be noted that modifying the crosswalk for an individual state carries with it certain risks of non-comparability across states.
- Modifying the crosswalks makes sense when the crosswalks are used for guidance and career planning information, because in being modified they more accurately reflect the education programs, occupations, Career Clusters™, and Career Pathways frameworks within a state.
- We caution users that modifying crosswalks to meet individual state needs may mean weakening the use of these crosswalks for presenting accountability information at the national level.

# Questions? Our guest speakers

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