NRCCTE/NOCTI Research Study: Professional Development for Educators on the Use of Assessment Data

Drs. John Foster and Patricia Kelley
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National Research Center on Career and Technical Education

The Carl D. Perkins Career and Technical Education Act of 2006 (Perkins IV) authorizes the U.S. Department of Education to establish a national research center to carry out scientifically-based research and evaluation.

Overall Objectives

- Develop, improve, and identify the most successful methods for addressing the education, employment, and training needs of participants, including the integration of academic and technical education, education technology, and distance-learning approaches.
- Increase the effectiveness and improve the implementation of career and technical education (CTE) programs that integrate challenging academic and technical skill standards.
- Improve the preparation and professional development for teachers, faculty, and administrators.
- Improve student learning in the CTE classroom.

Perkins IV also authorizes the center to conduct dissemination and training activities based on this research.

The Office of Vocational and Adult Education (OVAE) competitively awarded a new five-year grant to conduct the center following the reauthorization of the Perkins IV legislation in FY 2007. The grant was awarded to the University of Louisville in Kentucky, in partnership with the University of Minnesota, Cornell University, Clemson University, and the Southern Region Education Board.

Broad Areas for Research and Dissemination

- Engagement - reducing dropouts and increasing school completion at both the secondary and postsecondary levels.
- Achievement - strengthening academic and technical knowledge and skills.
- Transition - increasing the movement of students from high school to postsecondary education and from education into the workplace.
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Primary Topics

- Data-driven decision making in career-technical education
- Professional learning related to use of technical skills assessment data
Why?

- Data-driven decision making is much discussed but most often with reference to reporting requirements and accountability.
- Of equal importance is to use the data to improve instruction of students.
- Little research specific to CTE on teachers and administrators implementing data-driven decision making on the basis of technical skills test data.
- Once some research shows the contours of the issues, professional development might be able to assist in enabling improvements.
Why NOCTI?

- Non-profit with a primary focus on improvement in CTE through use of technical assessment
- First formed to assure teacher quality
- Study does not directly involve assessments, but professional learning, which is a public service offshoot
Objectives

• Investigated the extent of and processes for CTE educator use of technical assessment data to inform instructional decisions and the sources of their knowledge that enables them to do so.

• Examined the types of professional development that CTE educators have received related to the primary objective and how they have been applied.
Objectives (continued)

- Investigated how CTE administrators and teachers rate types and characteristics of PD they desire for this purpose, to establish criteria
- Current fiscal year, to develop and pilot professional development (PD) that meets the criteria
- Future years, to offer the PD to states that request it
Study Design

- Survey research in 5 selected states with 4 selected CTE programs
- Administrator survey emailed to all CTE center directors and a sample of comprehensive high school CTE directors with the 4 selected programs
- Teacher survey distributed by these administrators to the teachers in the 4 selected program areas
- Support letter from State Director included with surveys
- Gift cards given to respondents
Sample Selection

- Sample chosen from list of high schools and career and tech centers offering at least 1 of the 4 cluster programs in the study
- 63% of CTE schools randomly chosen within states; a similar number of comprehensive high schools randomly selected to receive the survey
- Final sample included 286 schools
Methodology and Sample
Development of the Survey

- Survey items from proposal foundation of first draft
- Literature review to inform development; is continuing to enhance data interpretation, future PD
- Multi-level review and iterative revisions
  - Internal
  - External, review form to standardize response format
  - Cognitive laboratory
  - OVAE
  - IRB approval
Topic Areas of Survey

- Use of Assessments
- Use of Assessment Data
- Professional Development Opportunities
- General Perception of Assessments
- Demographics
Survey Administration

- Survey administration was conducted through a third party organization.
- Introductory description, letter of support from State Director, and link to survey was emailed to school administrators.
- Administrators were asked to forward the information to the teachers in the relevant programs.
- Non-respondents were sent email follow-ups/reminders.
- Final follow-up was conducted by phone.
Research Hypotheses

- Those who know more about test data interpretation tend to use the data for purposes of instructional improvement more than those who know less.
- Those who use data for program improvement perceive an impact from the data-driven changes.
- Those who use test data for program improvement have had professional development on the topic.
H1: Those who know more about test data interpretation tend to use the data for purposes of instructional improvement more than those who know less

- Respondents’ reported training in how to interpret test data was correlated with whether or not an educator used data to make instructional improvements ($r=0.314; p=0.003$).
Changes Made in Instruction of the Class as a Whole Based on Data (check all that apply)

- Changed lesson plans to place more emphasis in areas in which the group scored low
- Added more projects and exercises in areas in which the group scored low
- Requested additional supplies or equipment
- Re-evaluated textbooks and learning materials based on the results of assessment
- Discussed appropriateness of the assessment with peers
- Discussed curriculum relevance and alignment with standards and assessments with peers
- Asked for additional support and ideas from other teachers/administrators
- Requested that business advisory committee members help address problem areas
Examples of Changes Made With Individual Students Based On Data (check all that apply)

- Provided students with additional assistance during class in areas in which they performed poorly
- Emphasized students' strengths to motivate them
- Provided poorly performing students with materials on test-taking skills and strategies
- Teamed up low-performing students with students who performed better in those areas
- Provided high-performing students with additional, more challenging projects and/or readings
H2: Those who use data for program improvement perceive an impact from the data-driven changes

- A majority of the respondents (79%) said they saw an impact in student learning and test scores from changes.
If you have made or requested changes to your instruction or curriculum based on data, how effective have you generally found them to be?

- Effective in improving student learning and test scores
- Seemed to improve student learning, but test scores did not improve
- Improved test scores but do not think it improved student learning
- Ineffective—student learning did not improve and neither did test scores
- Not sure

Percent

Teachers and Administrators
H3: Those who use test data for program improvement have had professional development on the topic

- Whether or not an educator used data to make instructional improvements was significantly correlated with respondents’ reports of having professional development on the use of test data (r=.244; p=.023).
Have your teachers had professional development in the past five years specifically on the topic of interpretation and use of assessment data?

- Yes, most or all of them
- Yes, some of them
- Yes, but it has been more than 5 years ago
- No
Do you see a need for your teachers to have training (or additional training) in the use of assessment data for data-based decision making?
Sample Topics on Which Teachers Would Like Professional Development

- What questions test data can and cannot answer
- Information on how tests are developed and what makes a good vs. poor test
- The meaning of technical terms used on tests (e.g., norms, mean, standard deviation, percentage, percentile, cut score)
- How to interpret group-level test data (e.g., shared strengths and weaknesses within a classroom, comparing results to classroom practices)
- How to interpret student level test data (e.g., determining student strengths and weaknesses, determining student improvement over time)
- How to measure student and classroom improvement over time
- How to compare classroom or individual data to school, district, state, or national averages
- How to select the most appropriate measure for the curriculum
Overall, what is your perception of the value of technical skills assessment?

- Very Positive
- Somewhat Positive
- Neutral
- Somewhat Negative
- Very Negative

Percent
Has your opinion on the value of standardized skill assessment changed over the past five years?

- Yes—it has become more positive: 35%
- Yes—it has become more negative: 15%
- No—it is about the same: 60%
- Not sure: 0%
Sample of reasons provided for improved view of assessments

- I have become more confident in the usefulness for continuous improvement.
- I worked with testing data extensively in the past and see how it is extremely beneficial
- As society and job requirements change, so too does the need to rightly use assessment data
- I have been given a greater understanding through the trainings of the need of assessment data and its application to career and tech ed.
- Identifies areas for improvement in student education
- It has become more positive now that I understand it and can use it more.
Additional Findings

- Most respondents want to use data for program improvement
- Respondents felt training with follow-up was needed
- Peer interaction desired in delivery of PD
- Most teachers who analyze their students’ test data do so on their own
- Case studies show positive gains
“CTE programs in XXX are relatively new to the data driven process and have been using assessment data for about two years. They have noted a need to improve/upgrade labs and facilities to coincide with industry testing and certification. In addition, they have begun to focus on student retention of information. They have also noticed programs in the area of early childhood education increasing their results steadily each year. They have determined that they need about four years of data to begin to see real longitudinal trends. In essence, XXX is becoming much more sophisticated in the use of data for improvement of instruction.”
“Their longitudinal use of data has given them the ability to predict success of new teachers, effects of long-term substitutions, and better indicators of the type of teacher to hire. The administrators and staff have collaboratively been able to “drill down” to find “root causes” of curricular issues impeding program improvement. There is a solid understanding of the relationship between standards, assessment data and program improvement. It is clear that this site has incorporated the use of assessment data into its overall philosophy and that they provide an excellent role model for other sites.”
What are we doing with these data?

- Combining them with our literature search information and the other NRCCTE professional development project work to create a highly interactive professional learning opportunity to respond directly to the needs
- Piloting the PD in the same five states
- Providing the PD to those who request it in future years of the NRCCTE
Methodology and Sample

- Create PL to be delivered to 9 sites in the 5 states
- Delivery through in-state facilitator
- Start 5 sites early and collect iterative data for PD refinement
Methodology and Process

- Use a social networking site as a means of building a community of practice
- Use pre-test, post-test, questionnaires, facilitator surveys, self-reported perceptions
- Involve 24-40 individual educators
The Professional Development Paradigm

**Old Model**
- A *box* of curriculum
- Short term “training”
- Little or no support after the “sage on the stage” goes away
- Replicable by individual teachers (assumed)

**New Model**
- Process, not an event
- Built on communities of practice
- On-going support; the learning curve
- Teams of committed teachers working together over time
Instructional Improvement Model for Use of Assessment Data

1. Collect Data
2. Understand Data
3. Analyze Data
4. Verify and Corroborate
5. Design Action Plan
6. Implement Plan
Sample Content of Educator Training

- Common assessment terms
- Sample reporting formats
- Methods of interpreting data
- How to interpret data in an applied setting
- External factors that can impact test scores and trends over time
- Strategies for using data
- Emphasis on interactive activities, contextualized to participants’ own school
- Follow up in terms of an action plan
General Login

Username
Password

Submit  Reset

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Will the test screen give full comments or a list of links to comments? --- carol.hodes 10/21/09

test for Wednesday --- eric.sawicki 10/21/09

testing comment date feature --- eric.sawicki 10/20/09
Research Questions

- Have educators increased knowledge on technical assessment?
- Can educators apply new knowledge?
- Will educators be motivated to continue to apply new knowledge?


Improving Technical Competence: How the CTE Community is Responding

Survey Delves into Educators' Use of Assessment Data

BY SANDRA PRITZ AND PATRICIA KELLEY

The term “data-driven decision making” has become a key phrase in education today, with many schools and districts incorporating complex assessment data into their instructional processes. In the case of Career and Technical Education (CTE), the goal is to provide students with the skills and knowledge they need to succeed in the 21st-century workforce. To that end, CTE educators have been working to improve their use of assessment data to better inform their teaching practices.

In recent years, researchers have investigated how secondary CTE educators, both teachers and administrators, use assessment data to improve instruction and student outcomes. Their findings suggest that CTE educators are increasingly using assessment data to inform their teaching strategies, but there is still room for improvement.

This article explores the ways in which CTE educators use assessment data and examines the challenges they face in implementing data-driven decision making. It also highlights some promising practices that CTE programs can adopt to improve their use of assessment data.

For more information on how CTE programs can use assessment data to improve student outcomes, please visit our website at www.cte-data.org.

Figure 1: Examples of Changes Made With Individual Students Based on Data

Figure 2: Examples of Changes Made With Individual Students Based on Data

The selection of these schools was based on their commitment to using assessment data to improve student outcomes. The schools included in this study were also selected because they demonstrated a high level of data literacy and a willingness to engage in professional development to improve their use of assessment data.

In conclusion, CTE educators must continue to focus on improving their use of assessment data to ensure that students receive the best possible education. By integrating assessment data into their instructional practices, educators can help students succeed in the workforce and beyond.

Data Availability

The data used in this study are available upon request from the authors. Please contact us at info@cte-data.org for more information.
Podcasts

On this study and other NRCCTE studies:

http://nrccte.podbean.com/
Visit http://www.nrccte.org/

To discuss your questions, email

John.Foster@nocti.org or Patricia.Kelley@nocti.org

www.nocti.org

Thank You for Coming!