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

Drs. John Foster and Patricia Kelley

Pre-convention, Nashville, Tennessee

Nov. 18, 2009

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.

NOCTI

NRC CTE

National Research Center for Career and Technical Education

NRCCTE History

One Hundred Ninth Congress
of the
United States of America

AT THE SECOND SESSION

Begun and held at the City of Washington on Tuesday, the third day of January, two thousand and six

An Act

To amend the Carl D. Perkins Vocational and Technical Education Act of 1998 to improve the Act.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

SECTION 1. SHORT TITLE; AMENDMENT.

(a) SHORT TITLE.—This Act may be cited as the "Carl D. Perkins Career and Technical Education Improvement Act of 2006".

ED.gov U.S. Department of Education

OVAE
Office of Vocational and Adult Education

NRCCTE
National Research Center for Career and Technical Education

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.

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.

National Research Center on Career and Technical Education (NRCCTE)

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

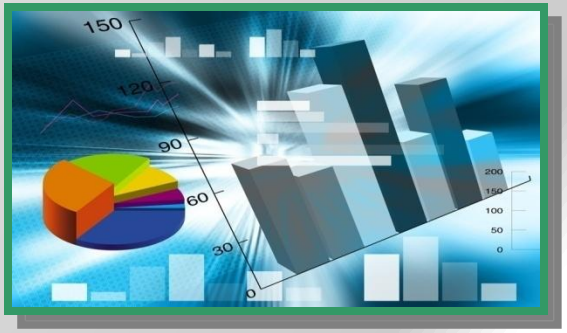
- **Engagement** - reducing dropouts and increasing school completion at both the secondary and postsecondary levels.
- **Achievement**- strengthening academic and technical knowledge and skills.
- **Transition** - increasing the movement of students from high school to postsecondary education and from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

Disclaimer:

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.***

NRC CTE
National Research Center for Career and Technical Education

Primary Topics



- Data-driven decision making in career-technical education

- Professional learning related to use of technical skills assessment data

NRC CTE
National Research Center for Career and Technical Education

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.

NRC CTE
National Research Center for Career and Technical Education

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

NRC CTE
National Research Center for Career and Technical Education

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

NRC CTE
National Research Center for Career and Technical Education

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

NRC CTE
National Research Center for Career and Technical Education

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

NRC CTE
National Research Center for Career and Technical Education

Methodology and Sample

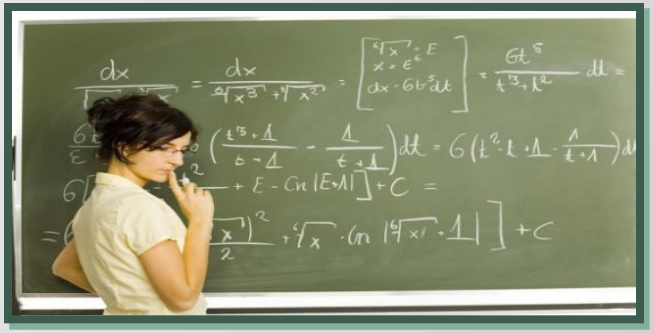
Development of the Survey

- 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

NRC CTE
National Research Center for Career and Technical Education

Topic Areas of Survey

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



NRC CTE
National Research Center for Career and Technical Education

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

NRCCTE
National Research Center for Career and Technical Education

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

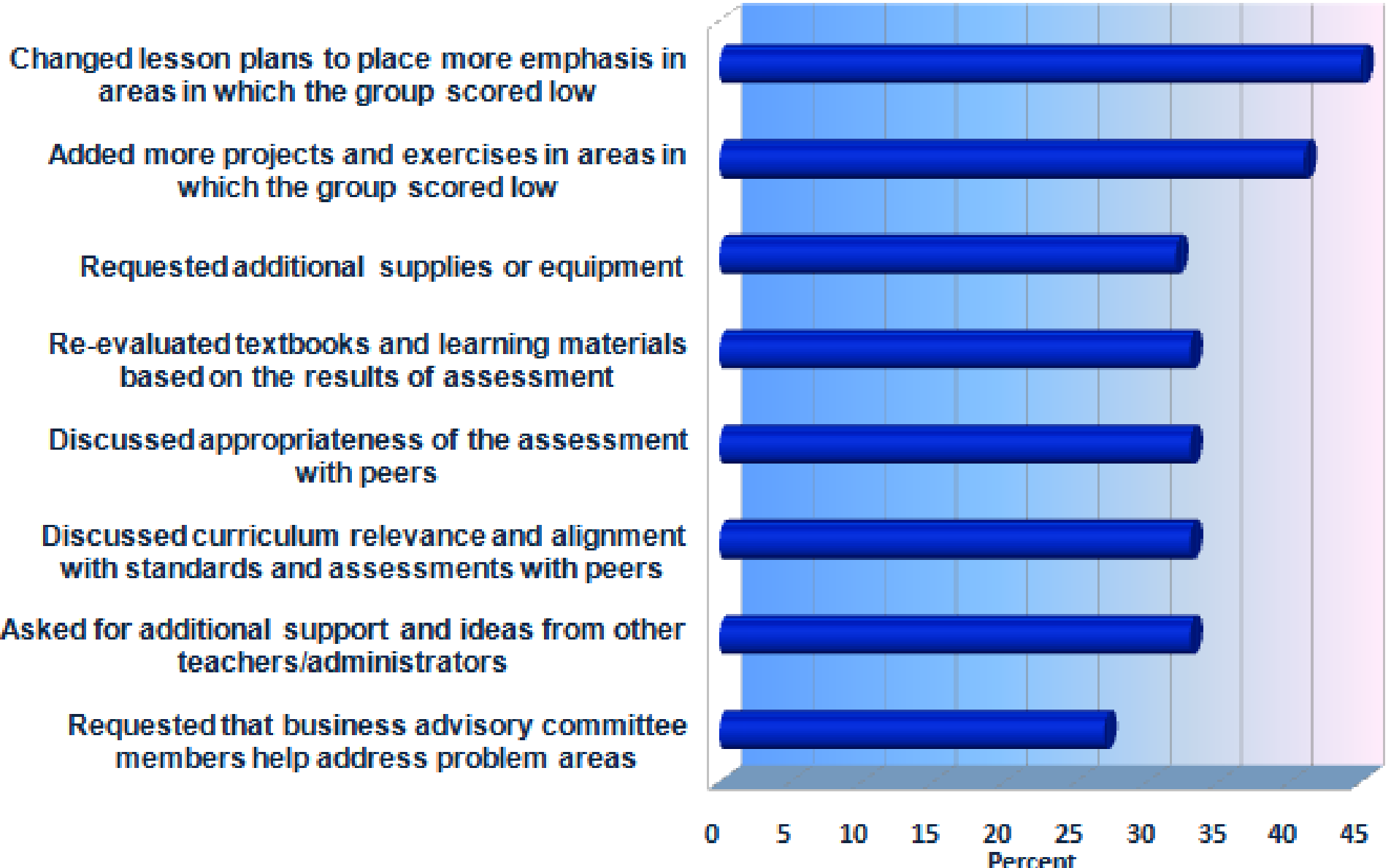
NRC CTE
National Research Center for Career and Technical Education

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

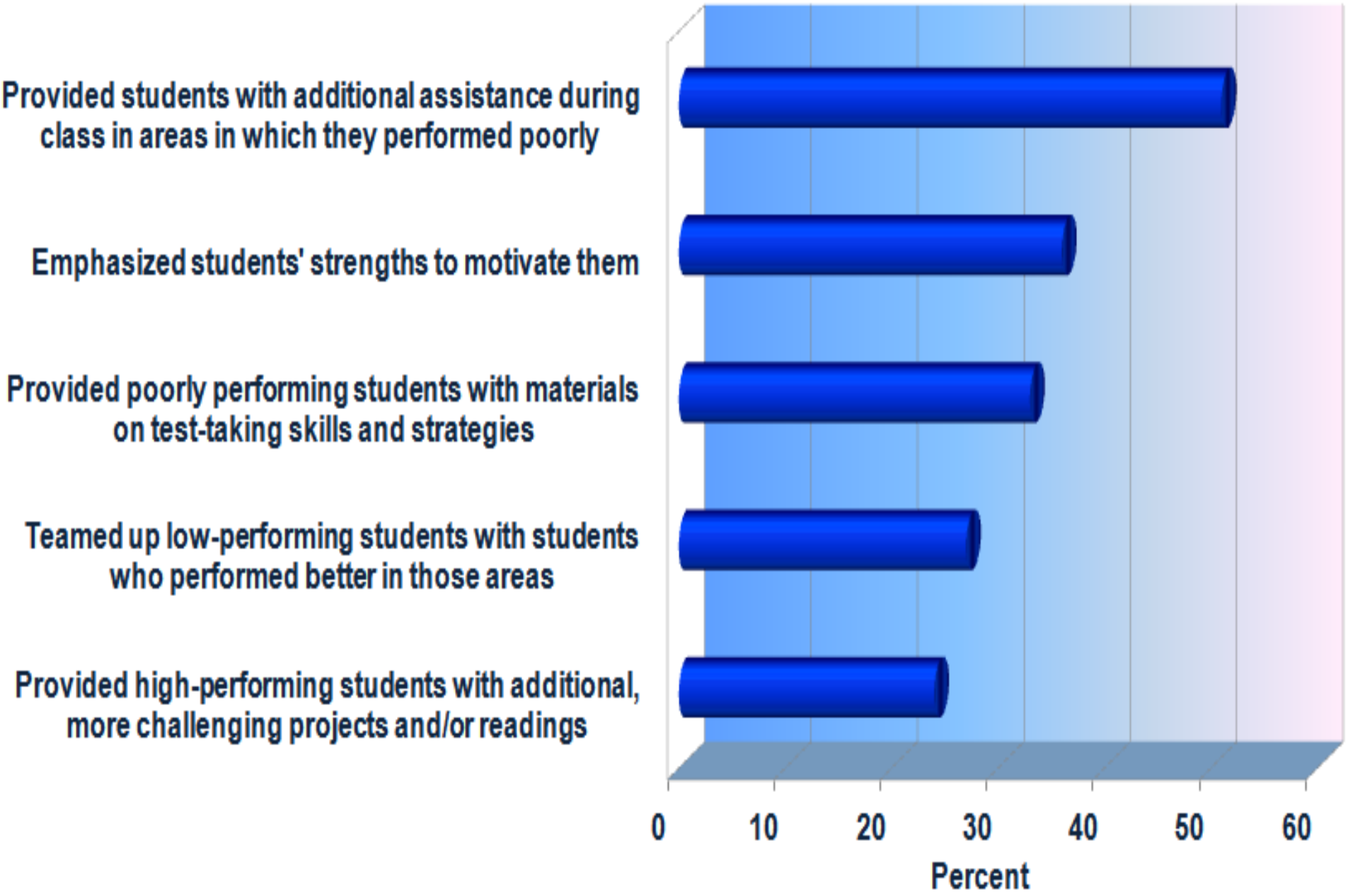
- **Respondents' reported training in how to interpret test data was correlated with whether or not an educator used data to make instructional improvements (r=.314; p=.003).**

NRC CTE
National Research Center for Career and Technical Education

Changes Made in Instruction of the Class as a Whole Based on Data (check all that apply)



Examples of Changes Made With Individual Students Based On Data (check all that apply)

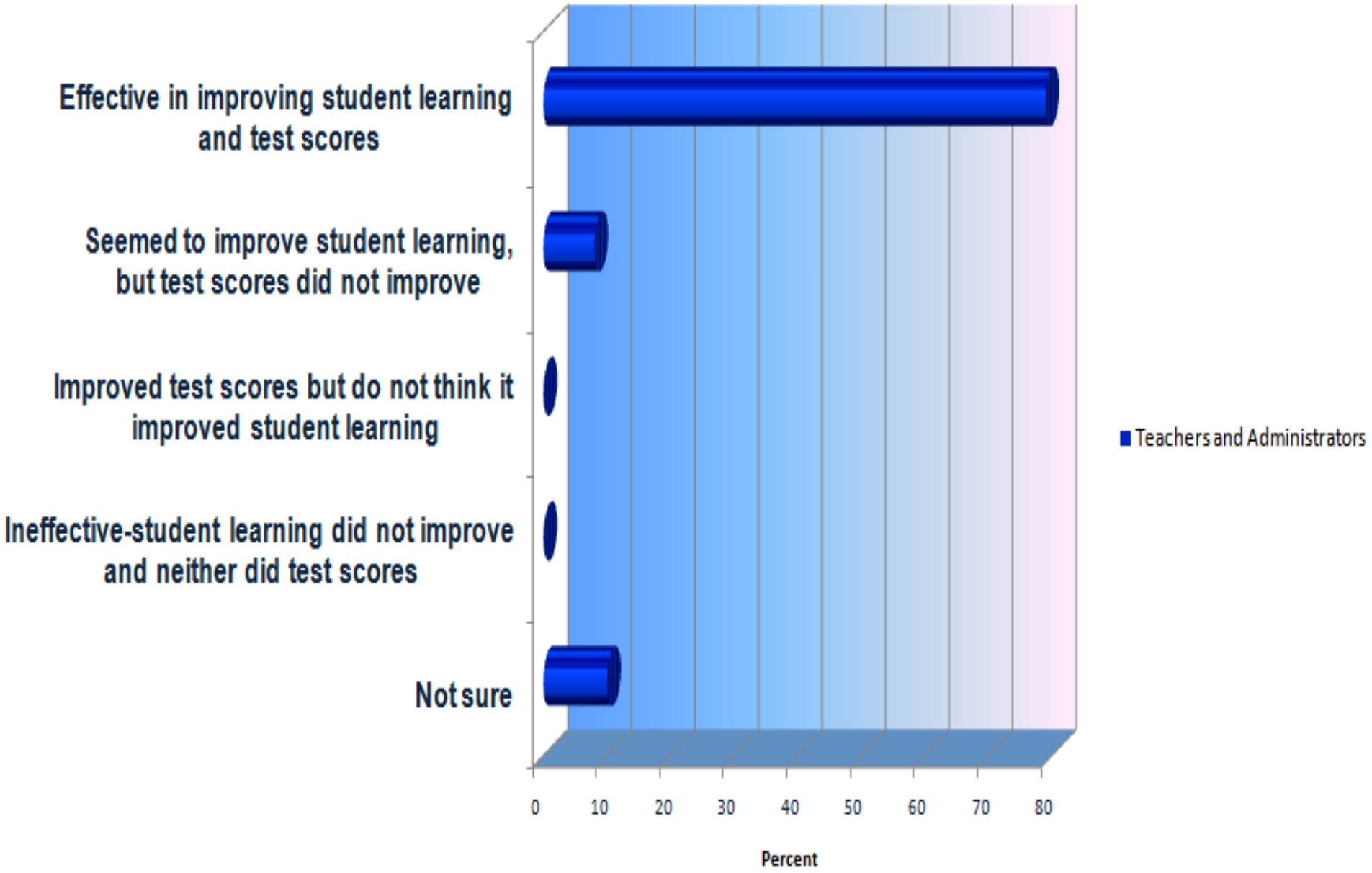


H2: Those who use data for program improvement perceive an impact from the data-driven changes

- **A majority of the respondents (79%) said they saw an impact in student learning and test scores from changes.**

NRC CTE
National Research Center for Career and Technical Education

If you have made or requested changes to your instruction or curriculum based on data, how effectvive have you generally found them to be?

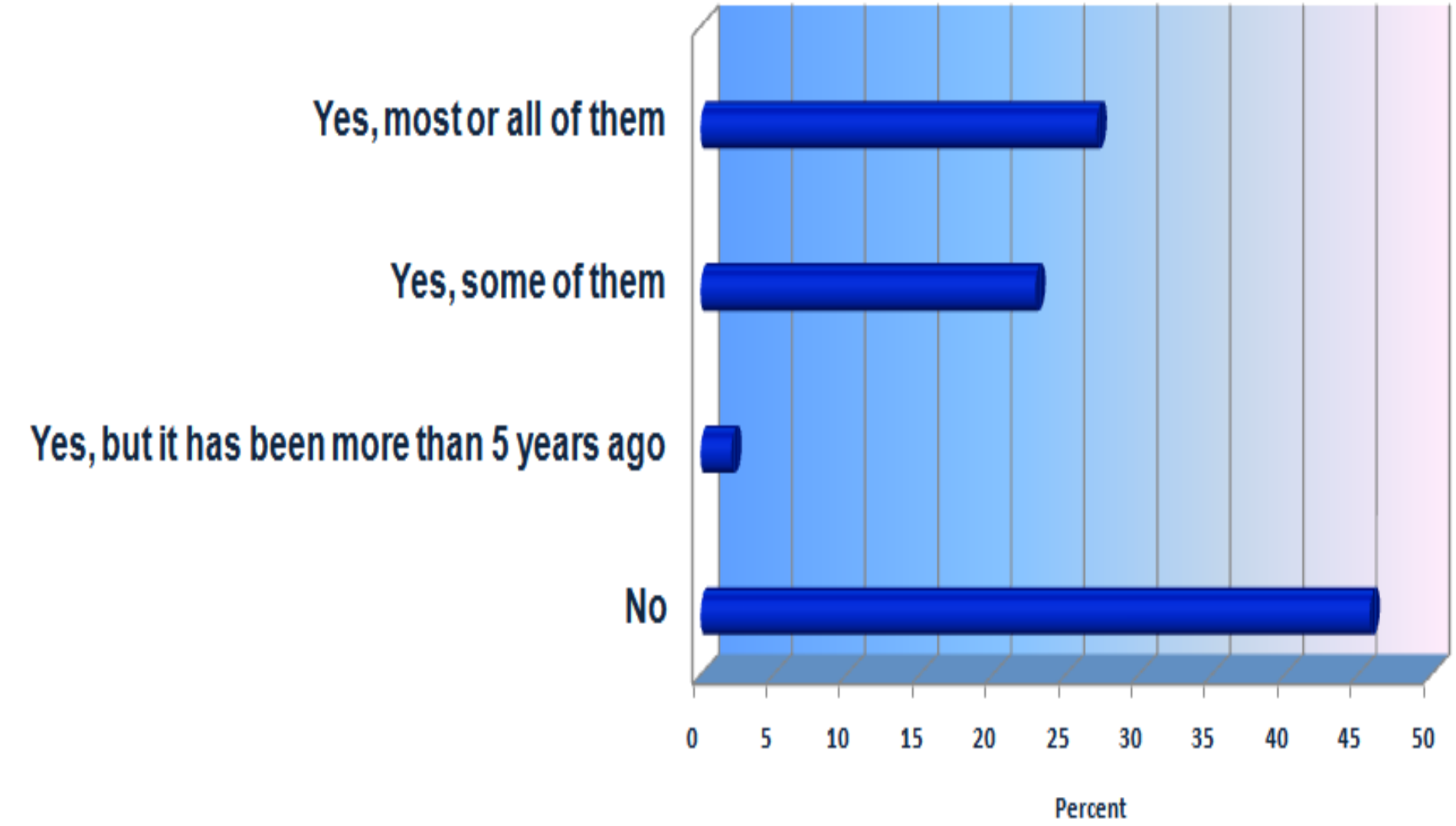


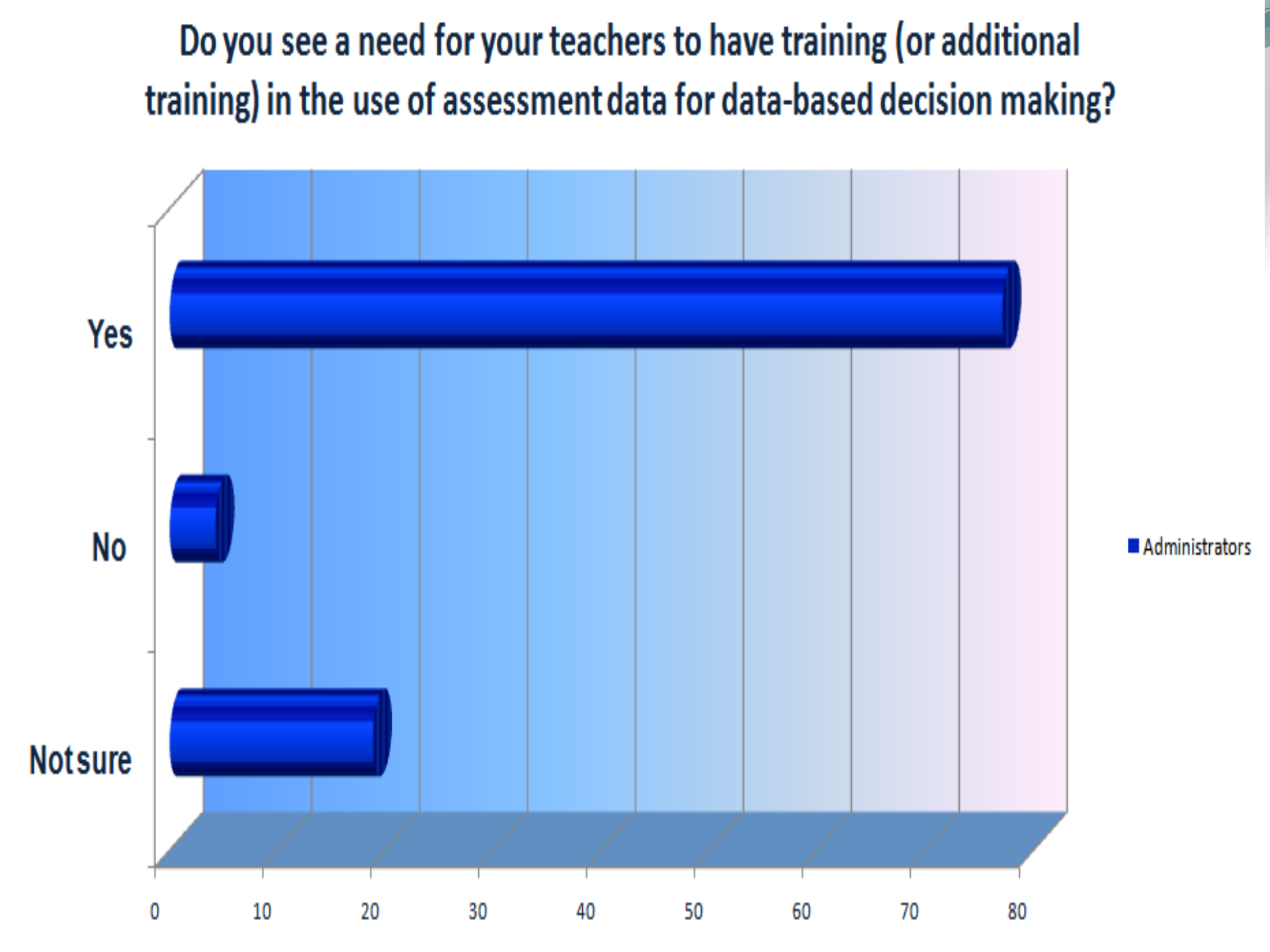
H3: Those who use test data for program improvement have had professional development on the topic

- **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).**

NRC CTE
National Research Center for Career and Technical Education

Have your teachers had professional development in the past five years specifically on the topic of interpretation and use of assessment data?

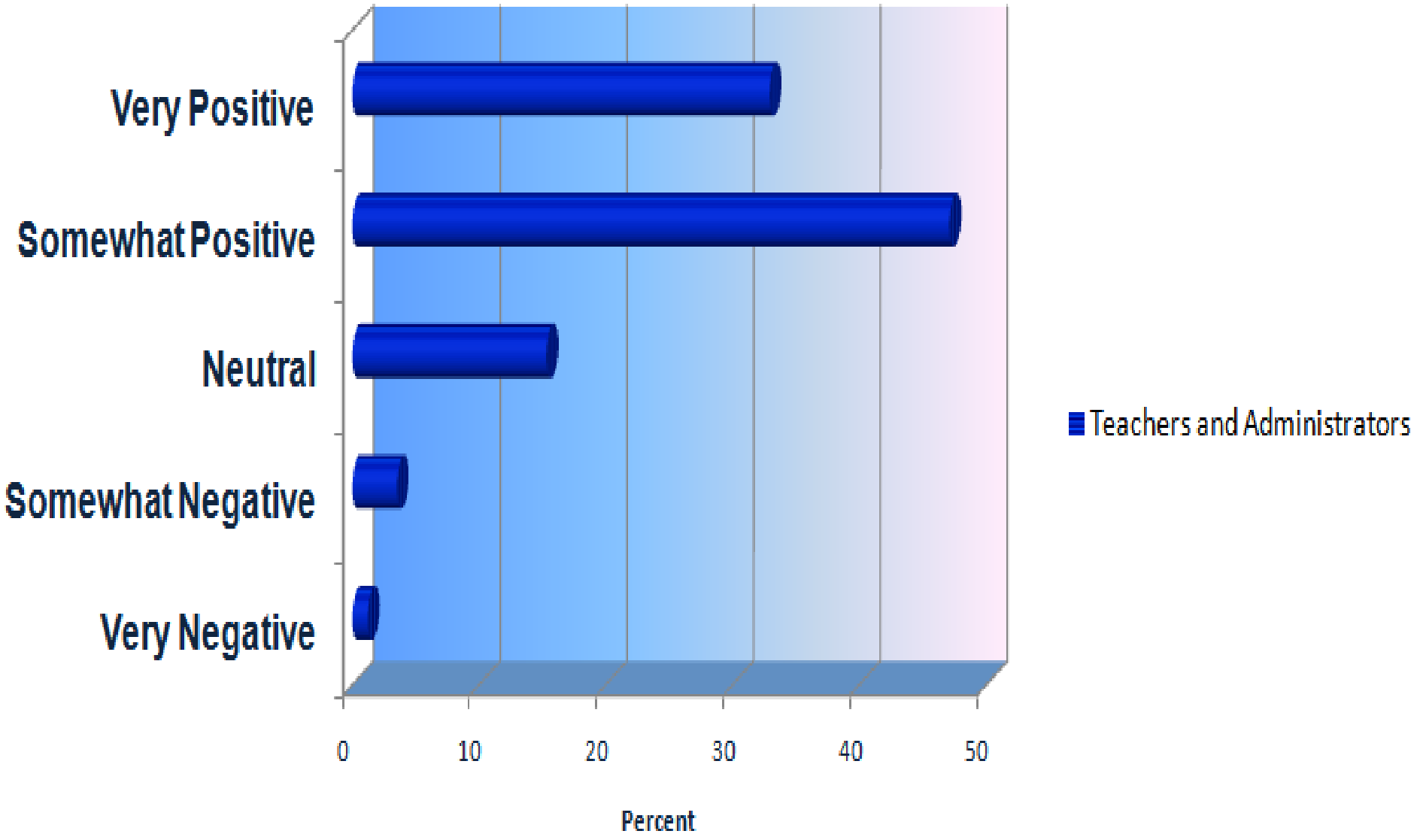


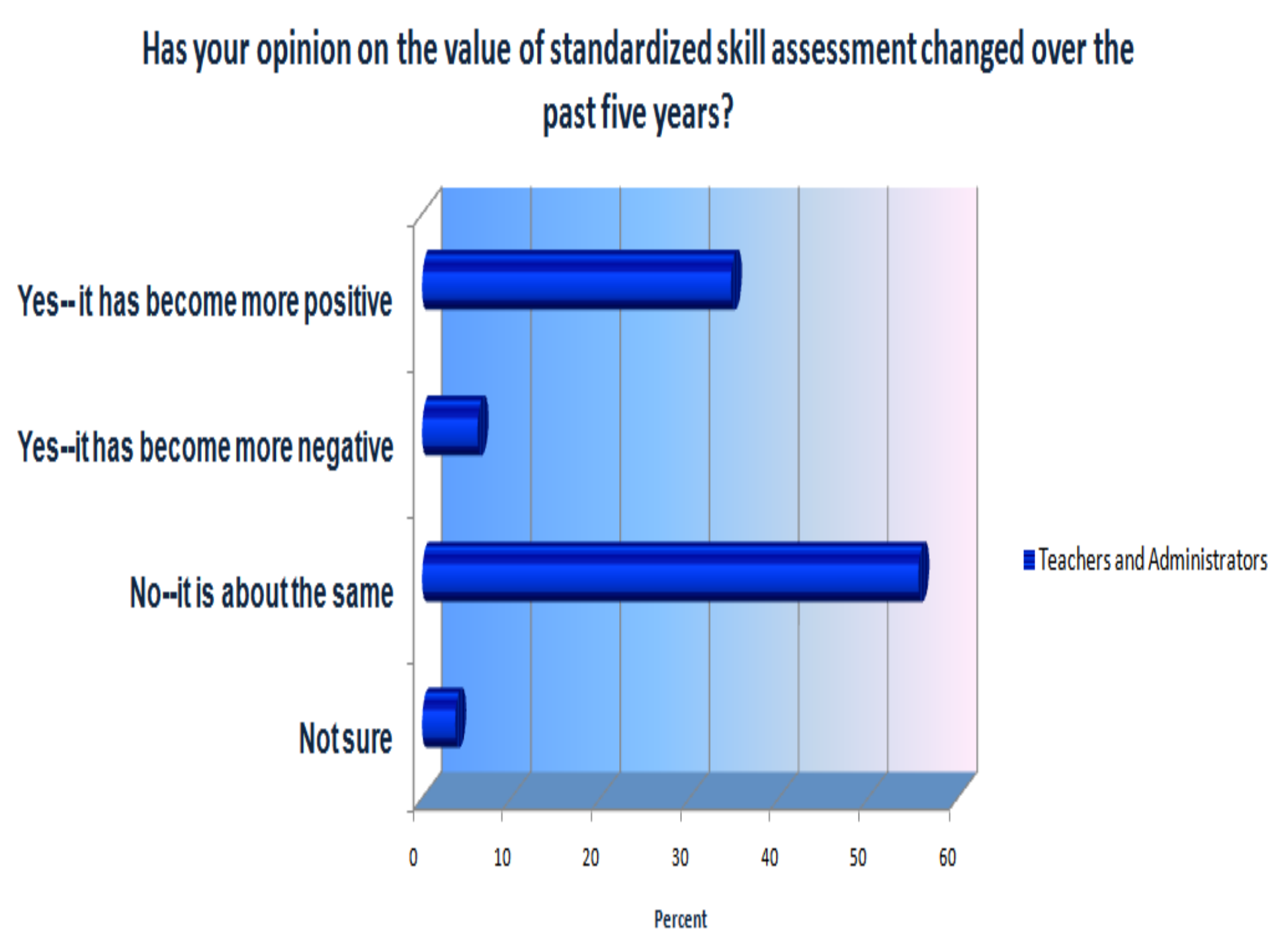

Do you see a need for your teachers to have training (or additional training) in the use of assessment data for data-based decision making?
Yes
No
Not sure
0
10
20
30
40
50
60
70
80
Administrators

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?




Has your opinion on the value of standardized skill assessment changed over the past five years?
Yes--it has become more positive
Yes--it has become more negative
No--it is about the same
Not sure
0
10
20
30
40
50
60
Percent
Teachers and Administrators

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

NRC CTE
National Research Center for Career and Technical Education

Related Case Studies

"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."

NRC CTE
National Research Center for Career and Technical Education

Related Case Studies (cont.)

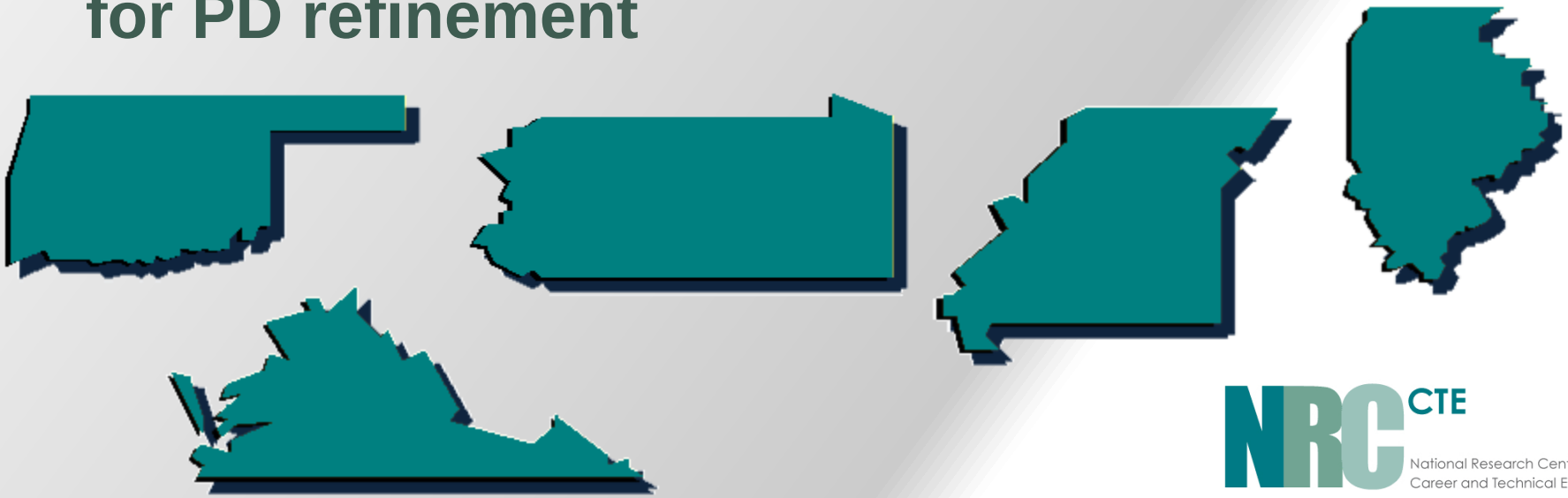
"Their longitudinal use of data has given them the ability to predict success of new teachers, effects of long-term substitutions, and better indicators of the type of teacher to hire. The administrators and staff have collaboratively been able to "drill down" to find "root causes" of curricular issues 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

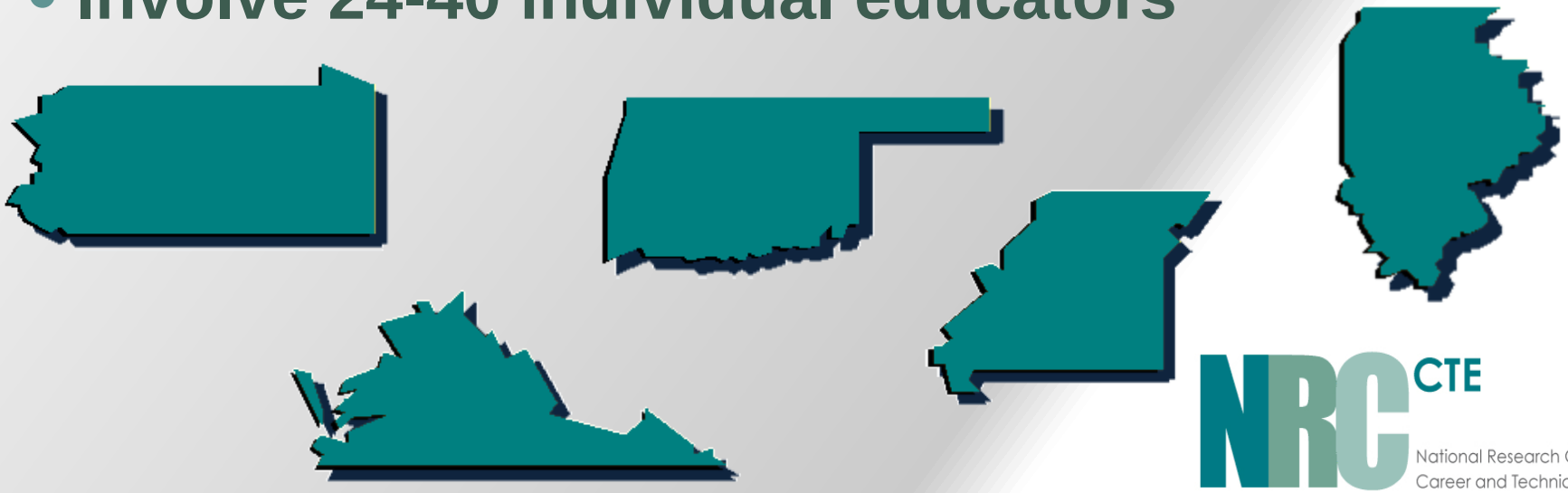
- Create PL to be delivered to 9 sites in the 5 states
- Delivery through in-state facilitator
- Start 5 sites early and collect iterative data for PD refinement



NRC CTE
National Research Center for Career and Technical Education

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



NRC CTE
National Research Center for Career and Technical Education

The Professional Development Paradigm

Old Model

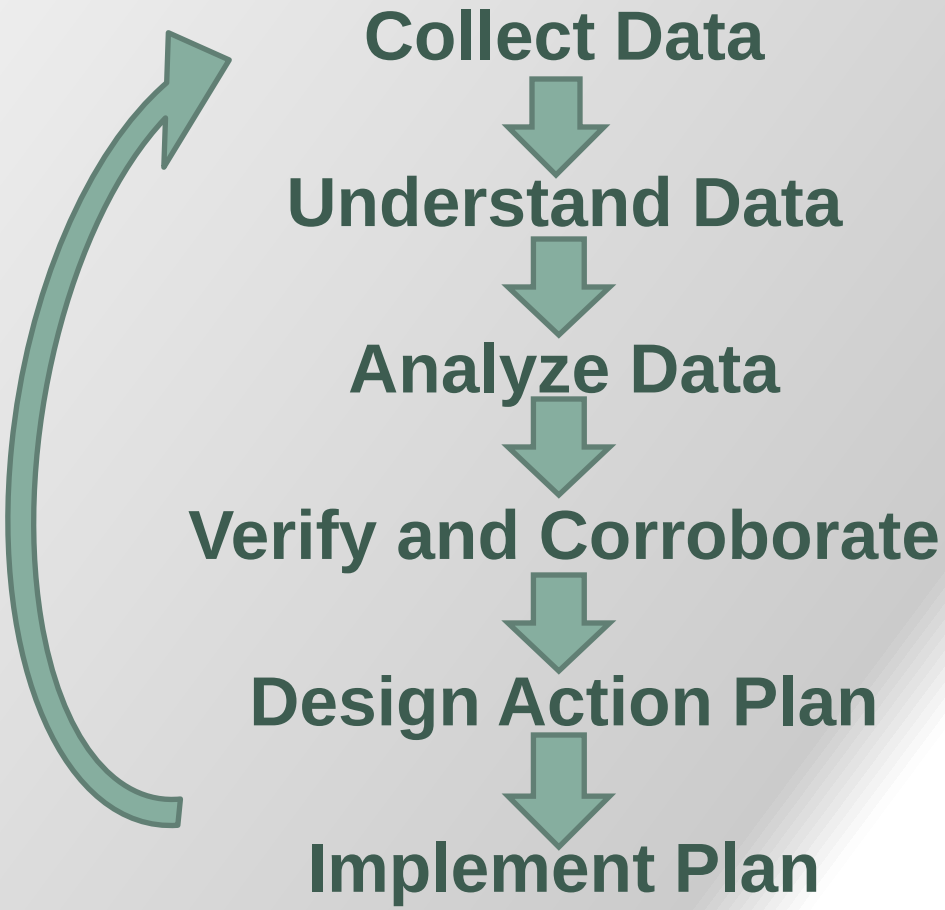
- A *box* of curriculum
- Short term "training"
- Little or no support after the "sage on the stage" goes away
- Replicable by individual teachers (assumed)

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

NRCCTE
National Research Center for Career and Technical Education

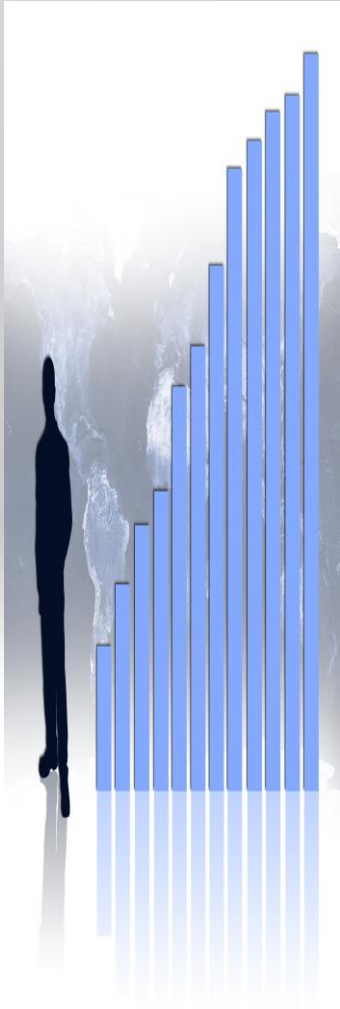
Instructional Improvement Model for Use of Assessment Data



NRC CTE
National Research Center for Career and Technical Education

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



NRCCTE
National Research Center for Career and Technical Education

Professional Development Sharing Center

General Login

Username

Password

Submit Reset

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.

Professional Development Sharing Center

Facilitator Login Page || Logout

Browse... Upload

To upload a file... Click Browse to select, then Upload.

NOCTIquestionsCompiledRev.doc
your.name

de-NOCTI ASSESSMENT GLOSSARY.docx
your.name

NOCTIquestions Compiled.doc
john.foster

IMG_1171.JPG
john.foster

Add Comment

Search for specific comments

Search

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?

NRC CTE
National Research Center for Career and Technical Education

Resources from the Center

NRCCTE National Research Center for Career and Technical Education

Search

Research | Dissemination | Professional Development | Technical Assistance

Home
About the Center
Center Staff
Center Partners
Center Researchers
Center Work
Center Publications
Additional Resources
Contact Us

CENTER PRIORITIES | Engagement | Achievement | Transition

Home > About the Center > Professional Development - Publications

Professional Development - Publications

Castellano, M., Harrison, L., & Schneider, S. (2008). State secondary CTE standards: Developing a framework out of a patchwork of policies. St. Paul, MN: National Research Center for Career and Technical Education. (PDF, 1,049KB)

Lewis, M. V., & Pearson, D. (2007). Sustaining the Impact: Follow up of Teachers Who Participated in the Math-in-CTE Study. St. Paul, MN: National Research Center for Career and Technical Education. (PDF 1,139KB)

Stone, J. R., III, Alfeld, C. Pearson, D., Lewis, M. V., & Jensen, S. (2006). Building academic skills in context: Testing the value of enhanced math learning in CTE (Final study). St. Paul, MN: National Research Center for Career and Technical Education. (PDF 3,181KB)

Stone, J. R., III, Alfeld, C. Pearson, D., Lewis, M. V., & Jensen, S. (2005). Building academic skills in context: Testing the value of enhanced math learning in CTE (Pilot study). St. Paul, MN: National

CENTER ISSUES

Programs of Study
Curriculum Integration
Math-in-CTE
Dual Enrollment
Dropout
Accountability

www.nrccte.org

Improving Technical Competence:

How the CTE Community is Responding

BY JOHN C. FOSTER

In the summer of 2006, Congress approved the renewal of the Carl D. Perkins Career and Technical

need to establish baselines of technical competence, determine how to identify completers, increase the number of com-

the community know and understand the significant contributions that CTE makes to the individual, the economy, the infra-

achievement, improve instruction, and maintain the currency of a particular program offering.

states across the country—not only in their understanding of data, but also in the effective use of data for program

teachers becoming more sophisticated with the incorporation of data derived from reports and testing, but they have

SURVEY DELVES into Educators' Use of Assessment Data

BY SANDRA PRITZ AND PATRICIA KELLEY

The term "data-driven decision making" has become

dents' skills and about the effectiveness of instruction—and then to apply that learn-

NOCTI has a long history, well over four decades, of providing comprehensive

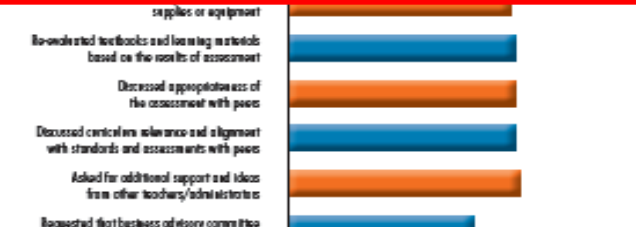
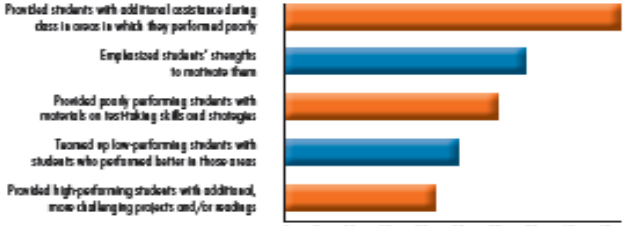


Figure 2: Examples of Changes Made With Individual Students Based on Data



investigated how secondary CTE educators, both teachers and administra-

fectiveness of this training; and what types of professional development they would

The selecti
so that the
be compar

The cri
to result in
tative as p
and as non
ables such
outcome v
student ge
and use of
terion was
found amo
have a hig
large numb
frame.

In orde
survey adm
tracted tha
nia State U
Center (PS
the survey
and impar
against the
another en
a variety o
were condu
the five sta
assessment
improvem
from these
in the proj
available a

Data Ana

Podcasts

On this study and other NRCCTE studies:

http://nrccte.podbean.com/

National Research Center for Career and Technical Education

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!

NRC CTE
National Research Center for Career and Technical Education