

# National Center Research on the Use of Assessment Data

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**ACTER, Nashville, Nov. 19, 2009**

**10:30 a.m.-noon**



# 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.*



# 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

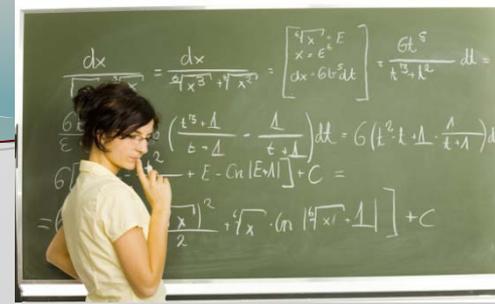
- **Survey research in 5 selected states with 4 selected CTE programs**
- **Administrator survey emailed to all CTE center directors and a sample of comprehensive high school CTE directors with the 4 selected programs**
- **Teacher survey distributed by these administrators to the teachers in the 4 selected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

# 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



# 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 with a possible individual sample size of 922

# 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

# Response Rates

**Schools: 19%**

## **Participants**

**Administrators: 17%**

**Teachers: 6%**

# Response Rates

## Career/Tech High Schools

**Schools: 31%**

### Participants

**Administrators: 28%**

**Teachers: 9%**

## Comprehensive High Schools

**Schools: 6%**

### Participants

**Administrators: 5%**

**Teachers: 1%**

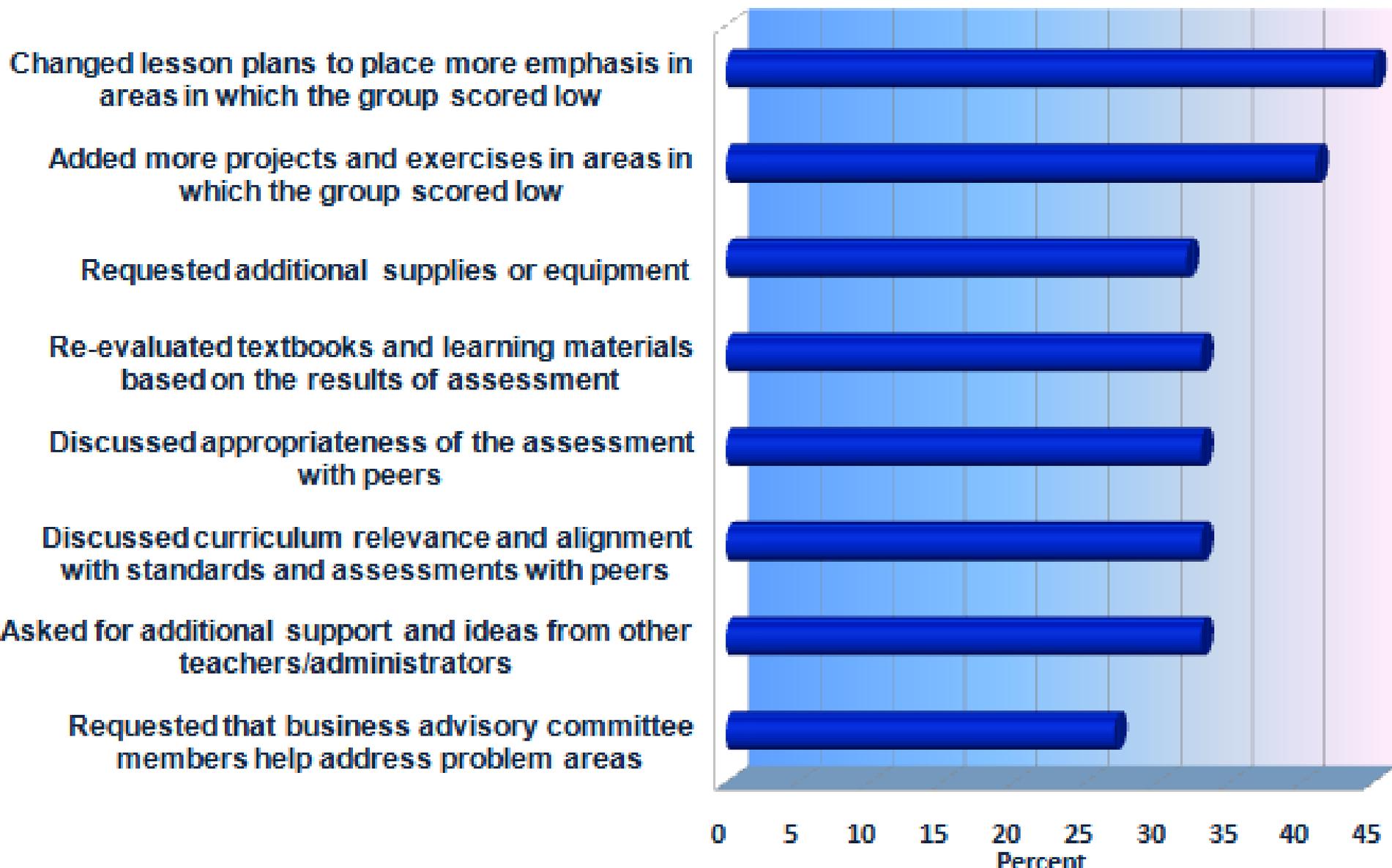
# Research Hypotheses

- 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

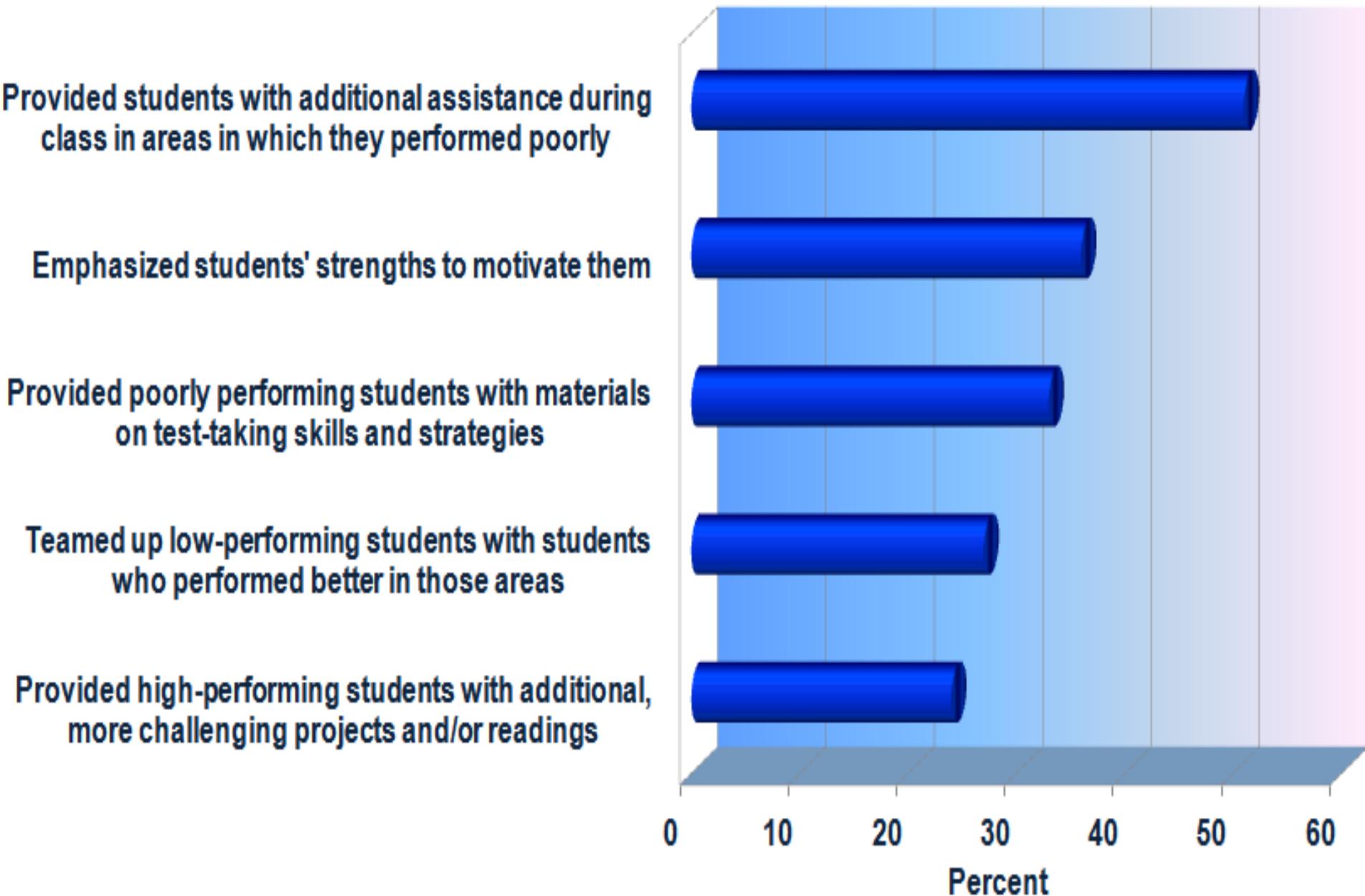
***H1: Those who know more about test data interpretation tend to use the data for purposes of instructional improvement more than those who know less***

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

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



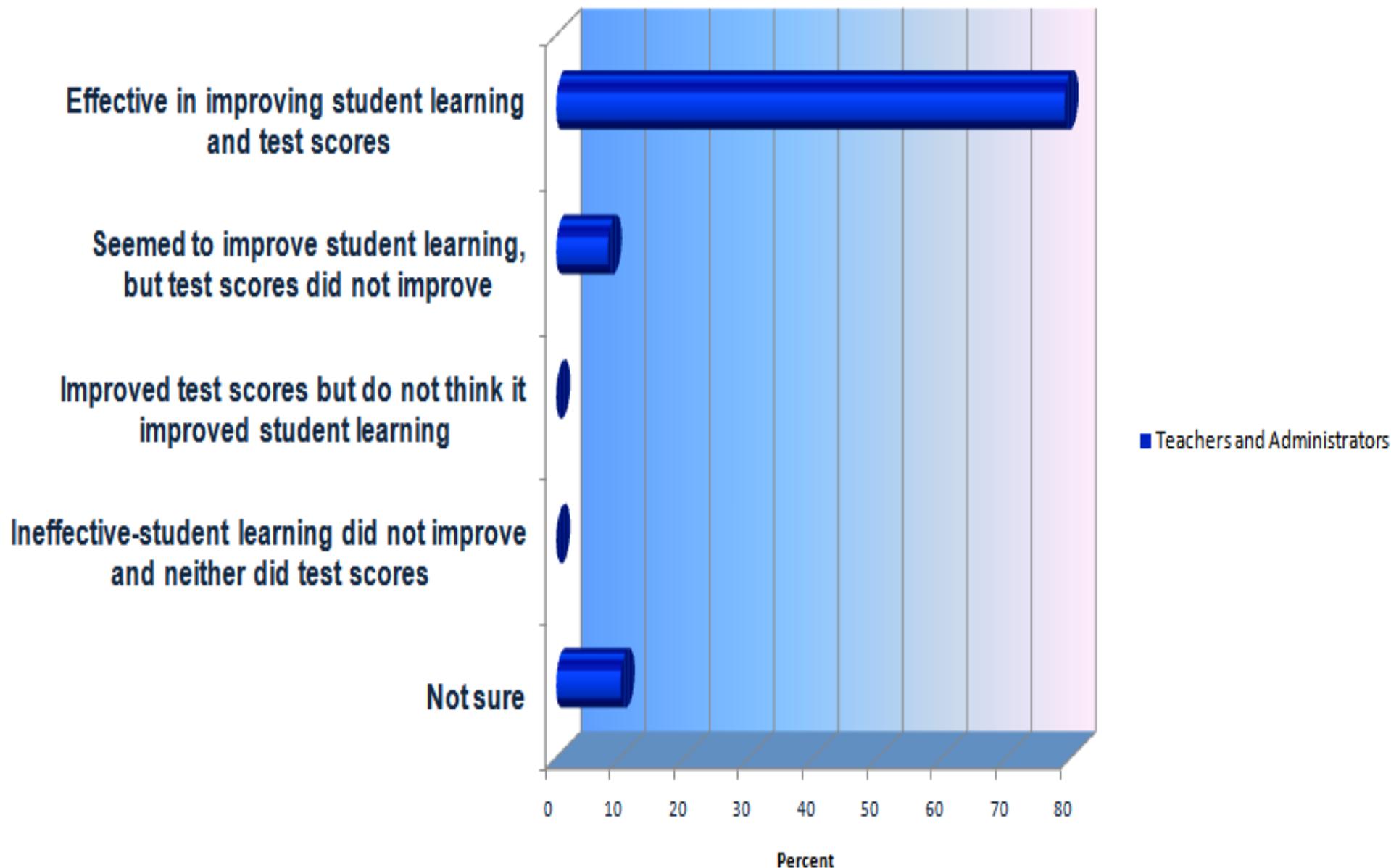
# Examples of Changes Made With Individual Students Based On Data (check all that apply)



## ***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.

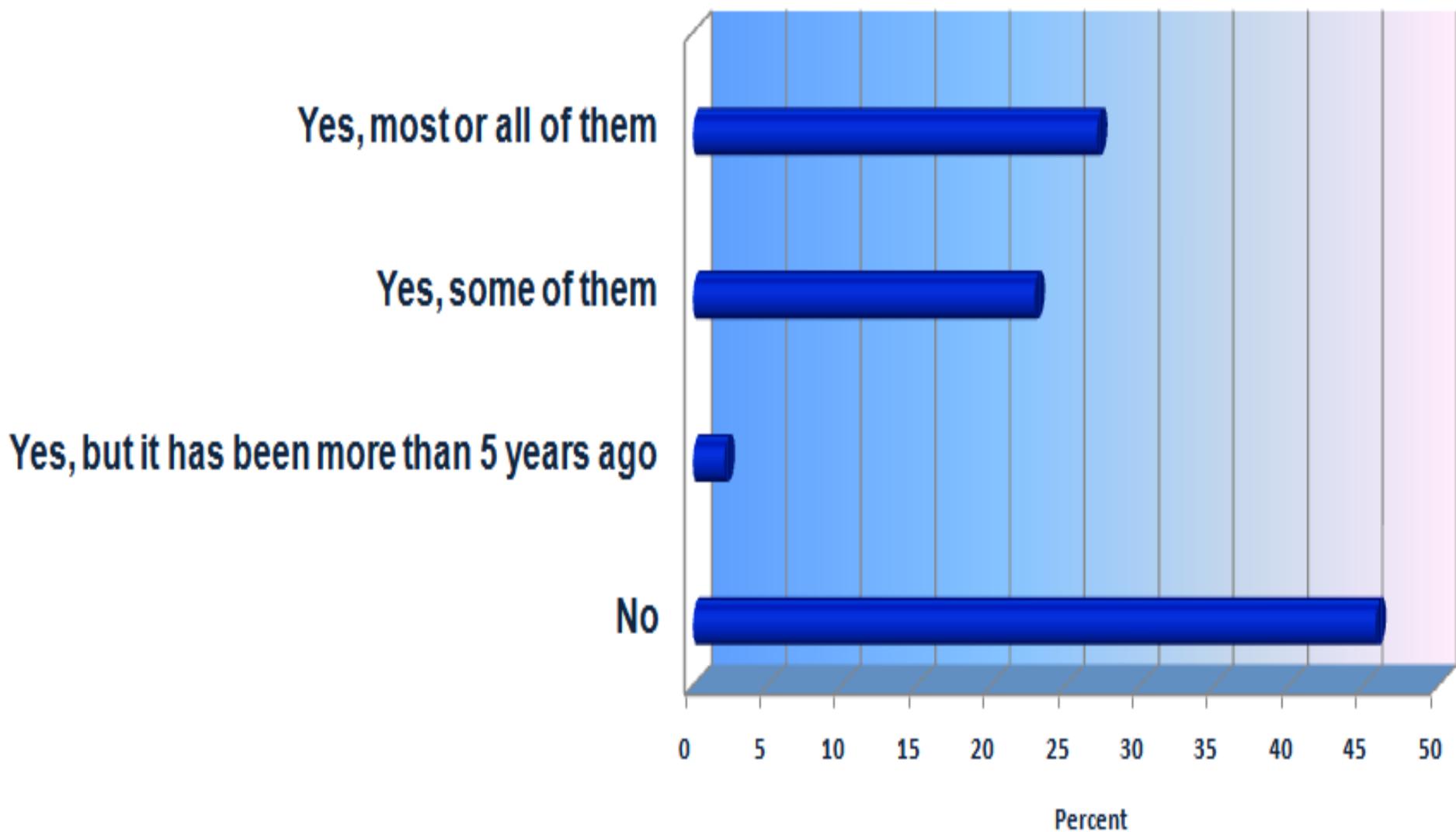
# If you have made or requested changes to your instruction or curriculum based on data, how effective have you generally found them to be?



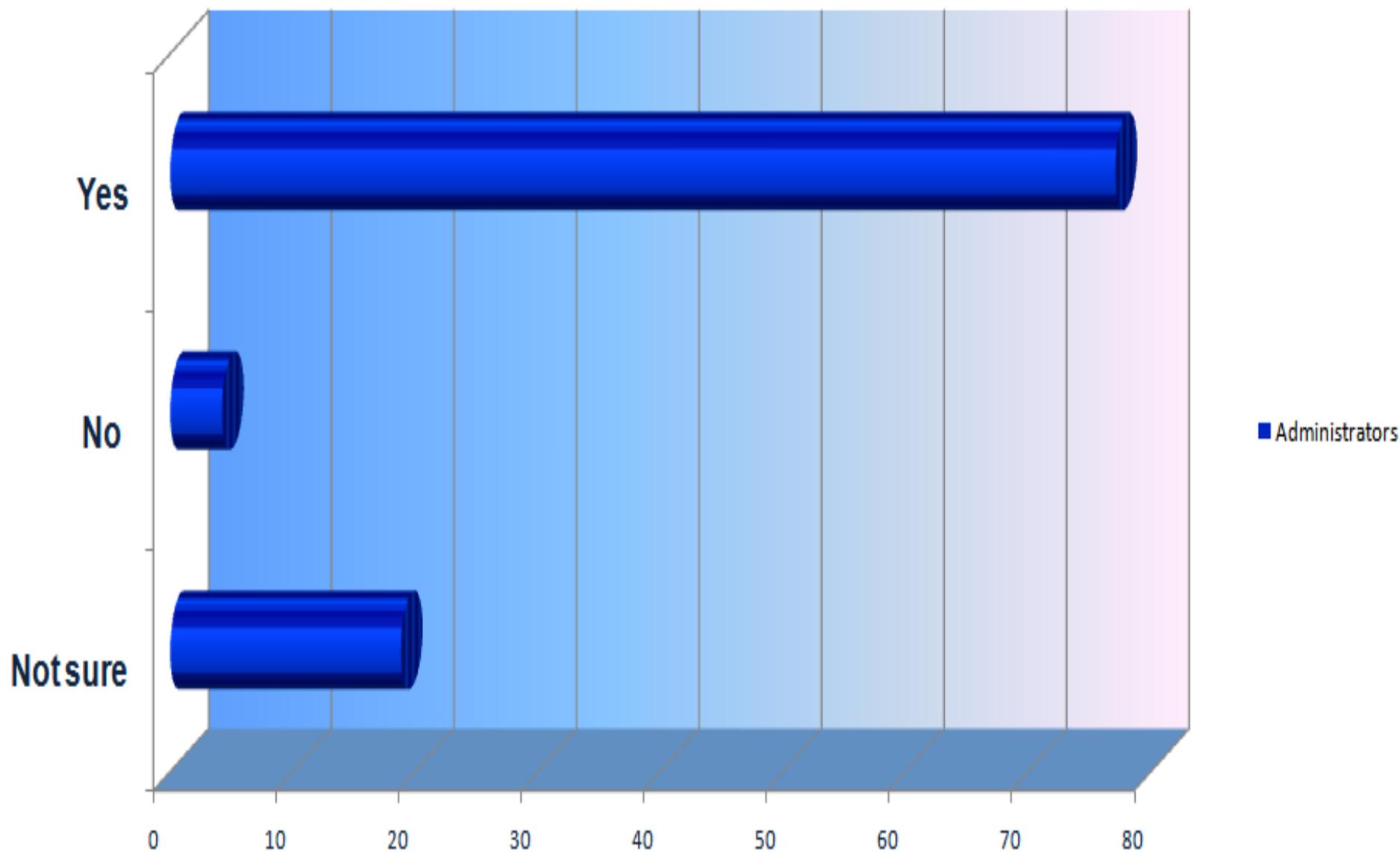
### ***H3: Those who use test data for program improvement have had professional development on the topic***

- 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 ( $r=.244$ ;  $p=.023$ ).

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



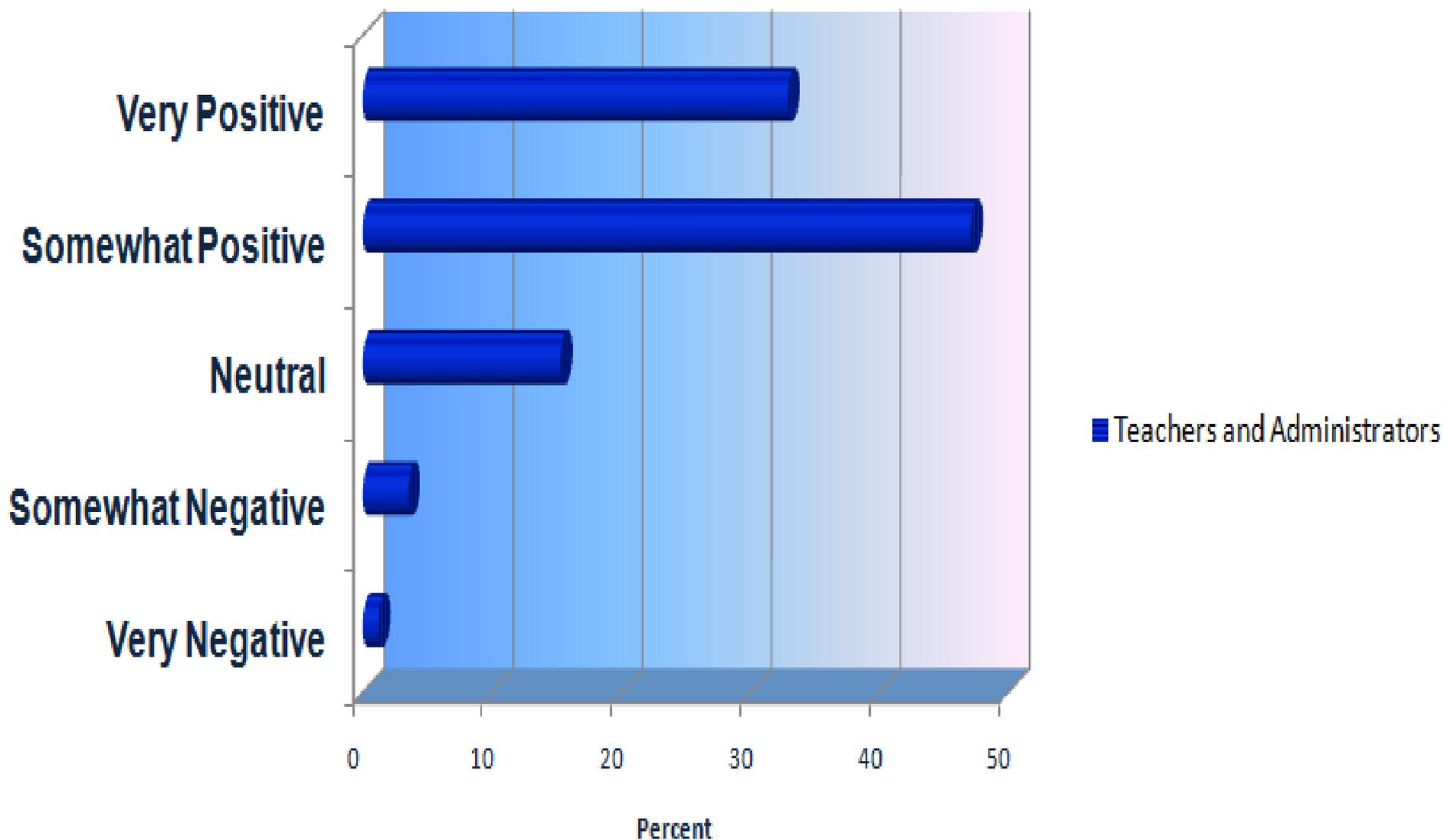
# Do you see a need for your teachers to have training (or additional training) in the use of assessment data for data-based decision making?



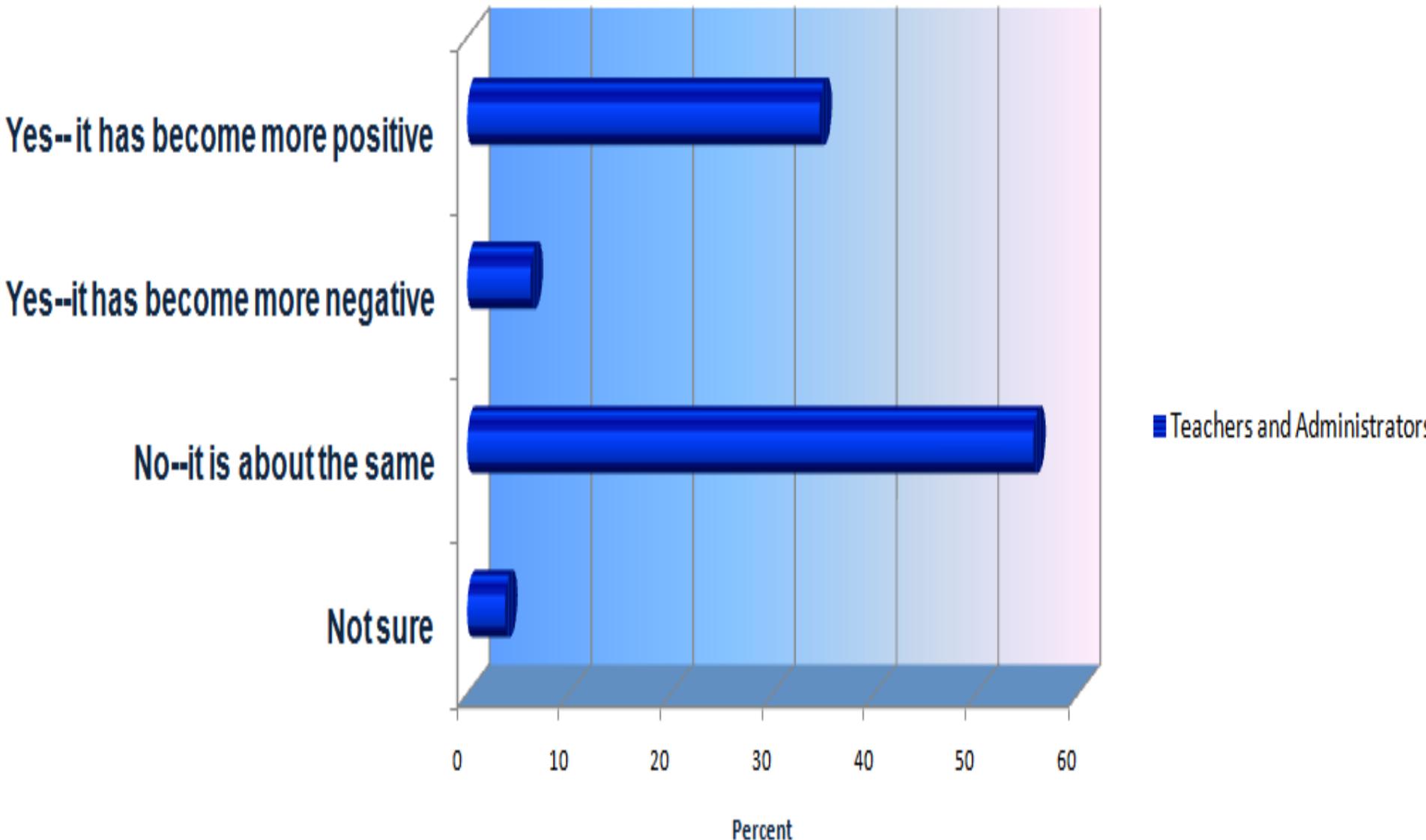
# Sample Topics on Which Teachers Would Like Professional Development

- 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?



# 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



# 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.”

# 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.”



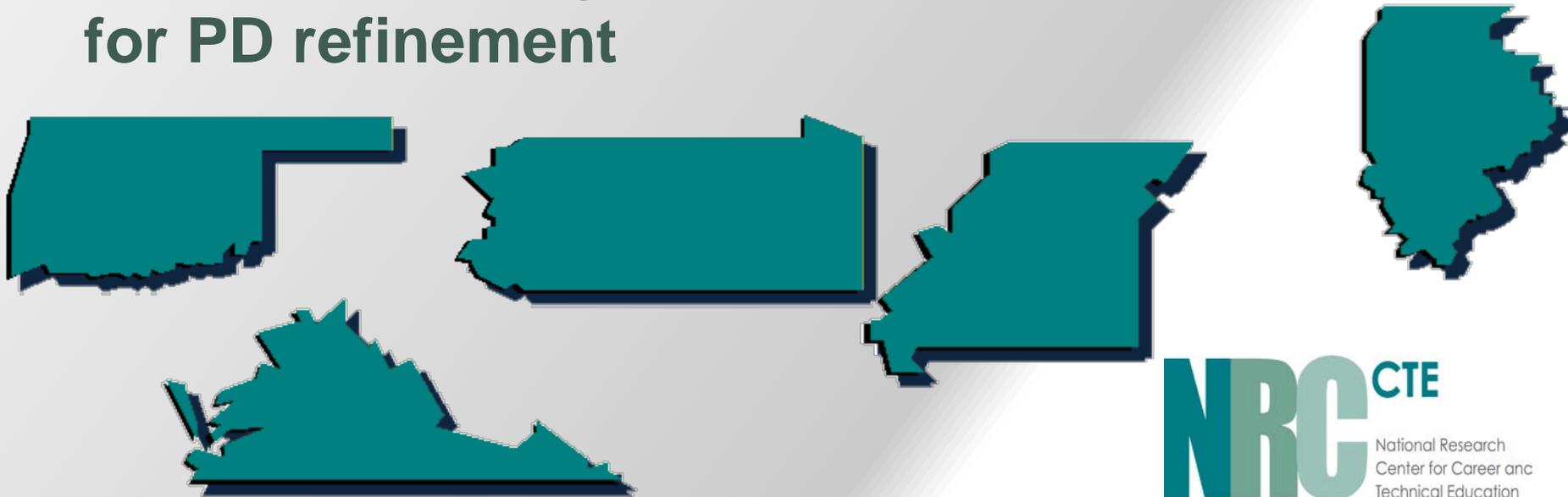
# What are we doing with these data?



- 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

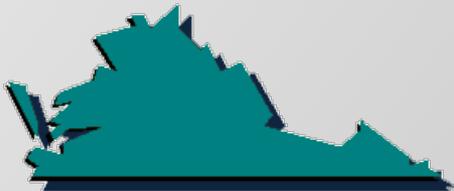
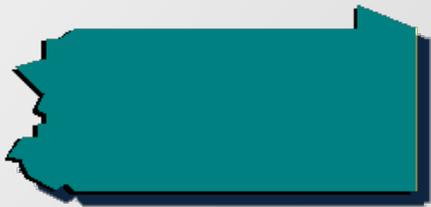
# Methodology and Sample

- 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



# 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 in Practice from the Math-in-CTE Study (Pearson et al.)

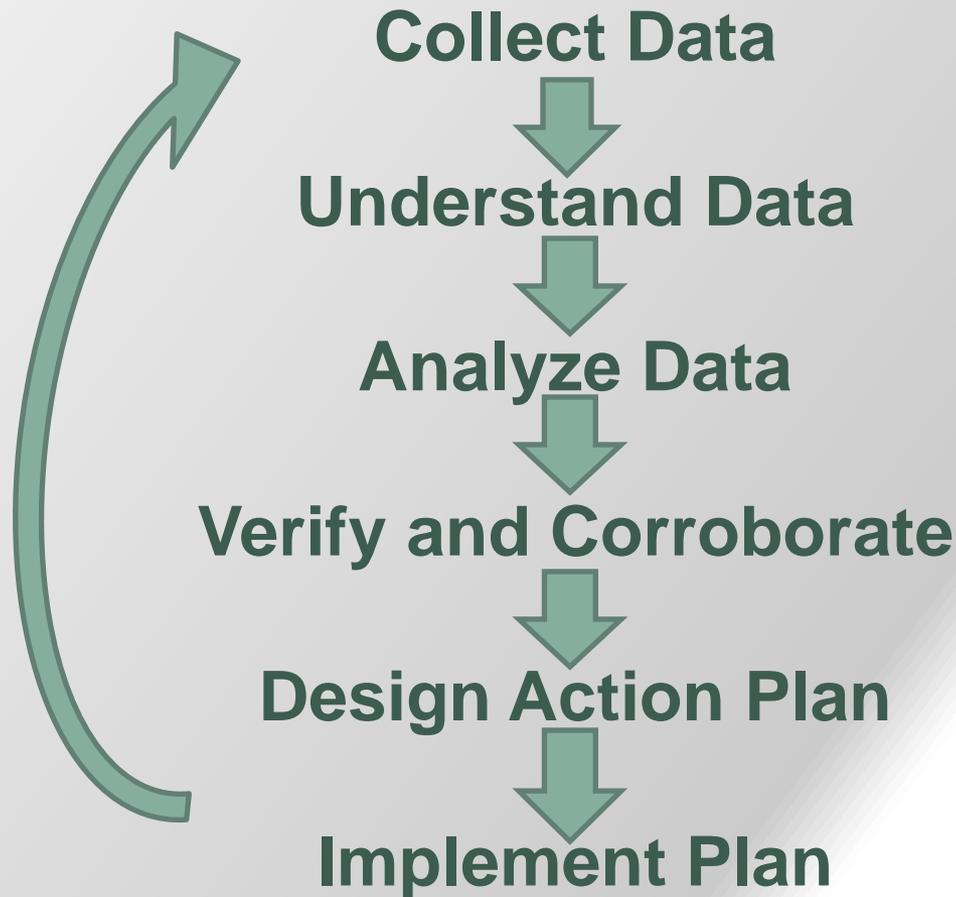
## *Old Model*

- 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*

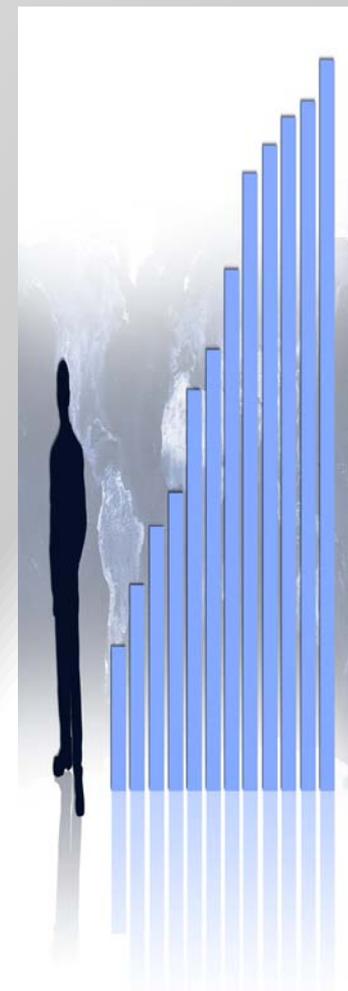
- Process, not an event
- Built on communities of practice
- On-going support; the learning curve
- Teams of committed teachers working together over time

# Instructional Improvement Model for Use of Assessment Data



# 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



# Research Questions

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

# Other NRCCTE PD Projects

- **Alternative Certification Induction for CTE Teachers**
- **Math in CTE**
- **Science in CTE**
- **Literacy in CTE**

# Project to Develop an Alternative Certification Induction Model for CTE Teachers

“...so that CTE students are actively engaged in rich, academically rigorous activities in which they develop 21<sup>st</sup> century skills.”

Project Proposal,  
2008

- Comprehensive, fast-track induction model to build substantial teacher capacity earlier in the teacher's experience
- Evidence based, meets the requirements of Perkins IV, and answers the needs of the field
- Impact teacher competence, self-efficacy, and retention

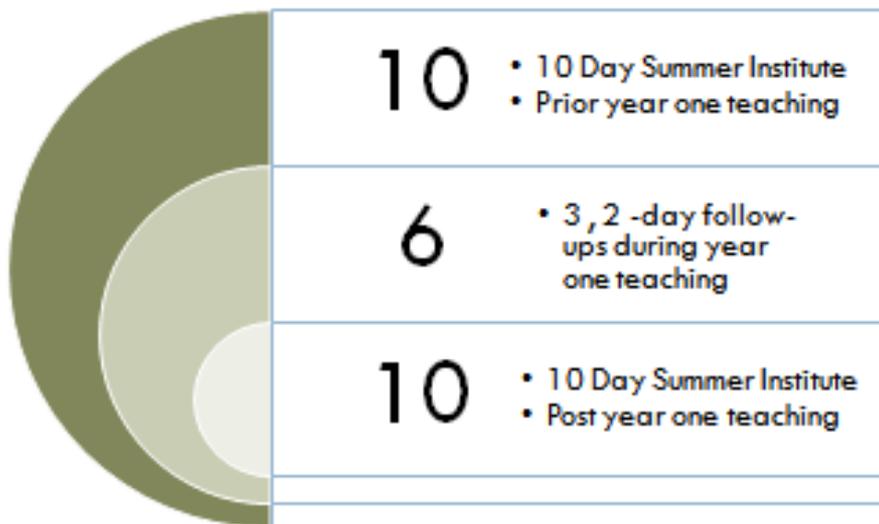
SREB



**NRC** CTE  
National Research  
Center for Career and  
Technical Education

# Alternative Certification Induction Model

## Professional Development



## Support

- On-site coaching visits from the professional development instructor
- Mentoring from a trained, experienced teacher
- Support from the building administrator
- Electronic communities of practice

# Math-in-CTE Technical Assistance



# Math-in-CTE Technical Assistance

- An approach to curriculum integration grounded in scientifically-based research
- Guided by five core principles:
  - A. Develop and sustain a community of practice
  - B. Begin with the CTE curriculum and not with the math curriculum
  - C. Understand math as essential workplace skill
  - D. Maximize the math in CTE curricula
  - E. CTE teachers are teachers of “math- in-CTE” *NOT* math teachers

# Math-in-CTE Technical Assistance

Provide Math-in-CTE Technical Assistance in response to requests from states, regional consortia, or large districts.

Over an academic year:

- Build capacity of site leadership to sustain and expand the model into the future
- Provide teachers with high quality, extended professional development

# Math-in-CTE Technical Assistance

## Introductory presentations

Promote deeper understanding of curriculum integration and build consensus for implementation

## Jump-Start initiatives

Provide with in-depth exposure to key aspects of the Math-in-CTE model in preparation for full implementation

## Full implementation

Provide training for site leaders

Facilitate ten days of PD for teachers over the school year

# Resources from the Center



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| Research | Dissemination | Professional Development | Technical Assistance |

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## 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](#)

# Podcasts

On this study and other  
NRCCTE studies:

<http://nrccte.podbean.com/>

# Your questions?

Visit <http://www.nrccte.org/>

To discuss your questions, email  
[Sandy.Pritz@nocti.org](mailto:Sandy.Pritz@nocti.org) or  
[Patricia.Kelley@nocti.org](mailto:Patricia.Kelley@nocti.org)

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*Thank You for Coming!*