

Professional Development: Meeting the Needs of Early Career High School CTE Teachers

Drs. Heather Sass and Sandra Pritz

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NRCCTE Partners



Definition of Professional Development

Activities that increase teachers' knowledge and change their instructional practice in ways that support student learning .

Guiding Principles of Professional Development

- Continuous and on-going
- Contextual to the teachers' work
- Emphasis on analysis and reflection
- Active engagement that reflects adult learning principles
- Collaborative communities of practice
- Connected to efforts to improve student learning

Why NOCTI?

- **Non-profit with a primary focus on improvement in CTE through use of technical assessment**
- **NRCCTE studies do not directly involve assessments, but professional development, which is a public service offshoot**
- **First formed to assure teacher quality**



The way it was: CTE teacher testing

- In 1966, 23 state representatives met to deal with the challenge of certifying non-degreed teachers in the vocational education field. They determined a priority for development and implementation of national occupational competency examinations.
- NOCTI was established as a consortium with a grant from the U.S. Commissioner of Education.
- Over the years, university pre-service programs found it helpful to use national technical skills tests for their CTE teacher candidates and awarded credit toward their teaching degree/certificate.



Area Test Centers

- **Area Test Centers are established by State Departments of Education for the purpose of administering NOCTI Experienced Worker written and performance tests to CTE teachers and teacher candidates.**
- **Many of these are university-based.**
- **Each state and/or institution determines what the passing score will be and the amount of credit to be awarded.**



Current Professional Development Issues

- A major issue is the decrease in number of CTE pre-service programs over last 20 years. (Documented in a forthcoming NRCCTE publication , “The Status of Professional Development for Career-Technical Education: Implications for Change“)
- As of June 2010, NOCTI will use a national teacher cut-score on Job-Ready Assessments to establish competence in all areas of the top 20 industries. Avoids problems of revalidation.

Professional Development Research Project Collaboration

“Increasing teacher quality is essential to improving the academic and technical achievement of CTE students.”

Project Proposal,
2008

SREB



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

Professional Development Context

Unique Needs of Beginning CTE Teachers

- Alternatively certified have more difficulty with pedagogy
- Planning, instructional methods, classroom management, assessment, and supporting students
- Support from administrators, mentors, and colleagues

Increased CTE Teacher Responsibility

- Fulfilling the new mission—all students college and career ready
- Student diversity
- Intellectually rigorous
- Project- and problem-based
- Embedded college and career-readiness academic content

Professional Development Context

Complexity of Alternative and Provisional Certification in CTE

- Increasing percentage of alternatively certified teachers
- Diversity of certification routes
- Decreasing number of preparation programs
- Teacher attrition
- Shortage of CTE teachers

Research on Characteristics of Effective Alternative Preparation

- On-going professional development experiences
- Interactive mentoring from a trained, veteran teacher
- Supervised classroom experience from an instructor
- Support from administrators and colleagues
- Learning communities

Intervention for Early Career Teachers

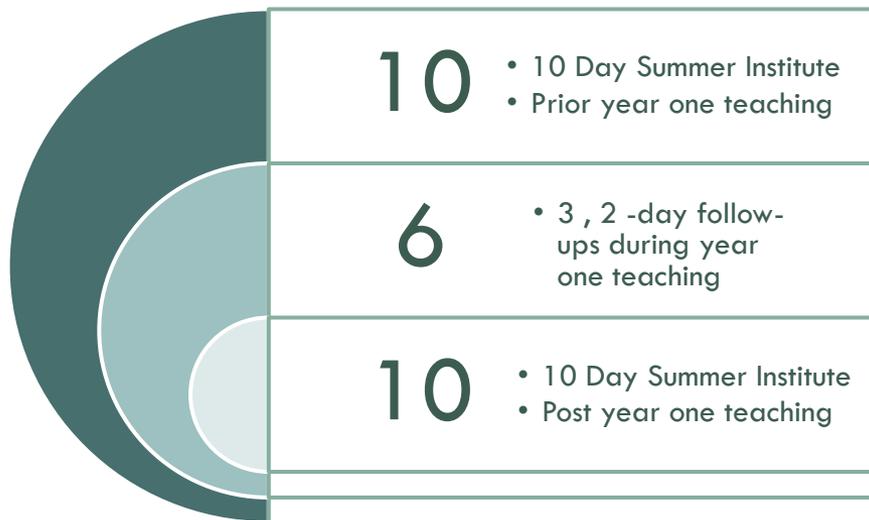
“...so that CTE students are actively engaged in rich, academically rigorous activities in which they develop 21st century skills.”

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 competence, self-efficacy, and retention

Components of the Intervention

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

Evidence of Success



Teachers report a greater sense of confidence and feeling of competence early in their career



Administrators report a marked increase in teacher effectiveness in the classroom



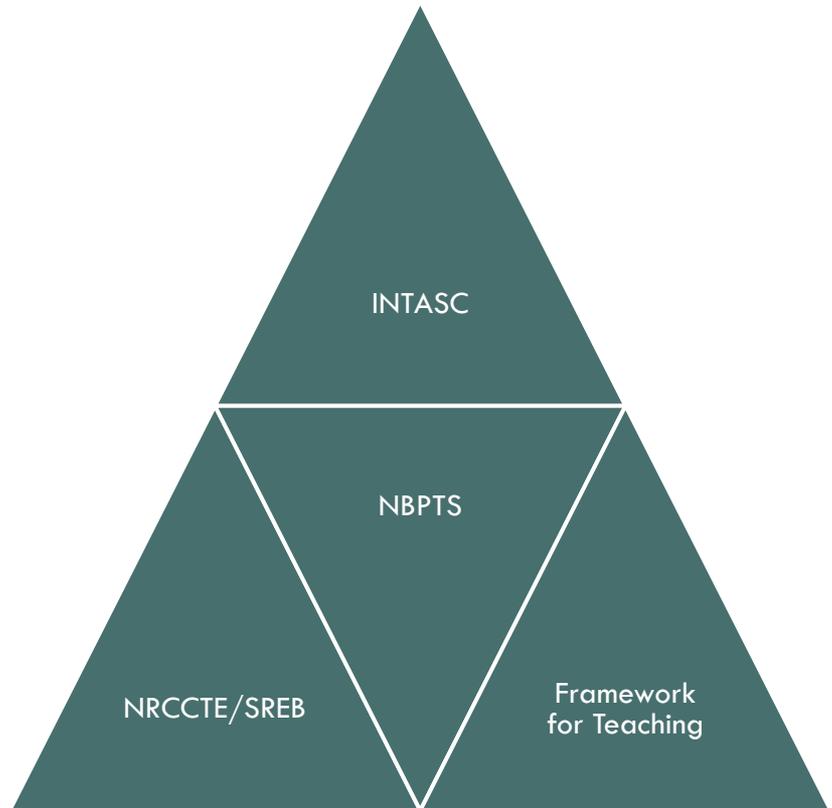
Greater retention rate of new teachers. New teachers advance more quickly toward becoming a master teacher with enthusiasm.



Students report higher levels of classroom engagement and measurable achievement increases are noted during testing.

Research-Based Professional Development Content Alignment

- Interstate New Teacher Assessment and Support Consortium Model Standards for Beginning Teachers (1992)
- Framework for Teaching (Danielson, 1996)
- National Board for Professional Teaching Standards for Career/Technical Teachers (1997)



Professional Development Content at a Glance

Instructional Planning:

Create short-term and long-term standards-based instructional plans based on the varying learning needs of students.

Research-Based Instructional Strategies:

Use instructional strategies that actively engage students in learning and encourage the development of problem-solving, critical thinking, and teamwork skills.

Teacher Competence

Classroom Assessment:

Use formal and informal assessment strategies to evaluate student progress toward learning goals and provide feedback to improve student learning.

Classroom Management:

Create a learning environment that encourages student motivation, positive behavior, and collaborative social interaction.

Teacher Reflection: Reflect, both individually and collaboratively, on the effects of instruction and use the reflective process to continually improve instructional practice.

Module Development Process

Concept Paper

- Review of literature with an emphasis on scientifically based research
- Resources that are widely used in the field with good results

Expert Panel Review

- Recommended by state CTE directors
- NBC teachers, administrators, state leaders, postsecondary representatives, and content experts

Draft and Review

- Instructor and participants' guides
- Review by field and staff
- Ready for field testing

Methodology: Iterative Development Process

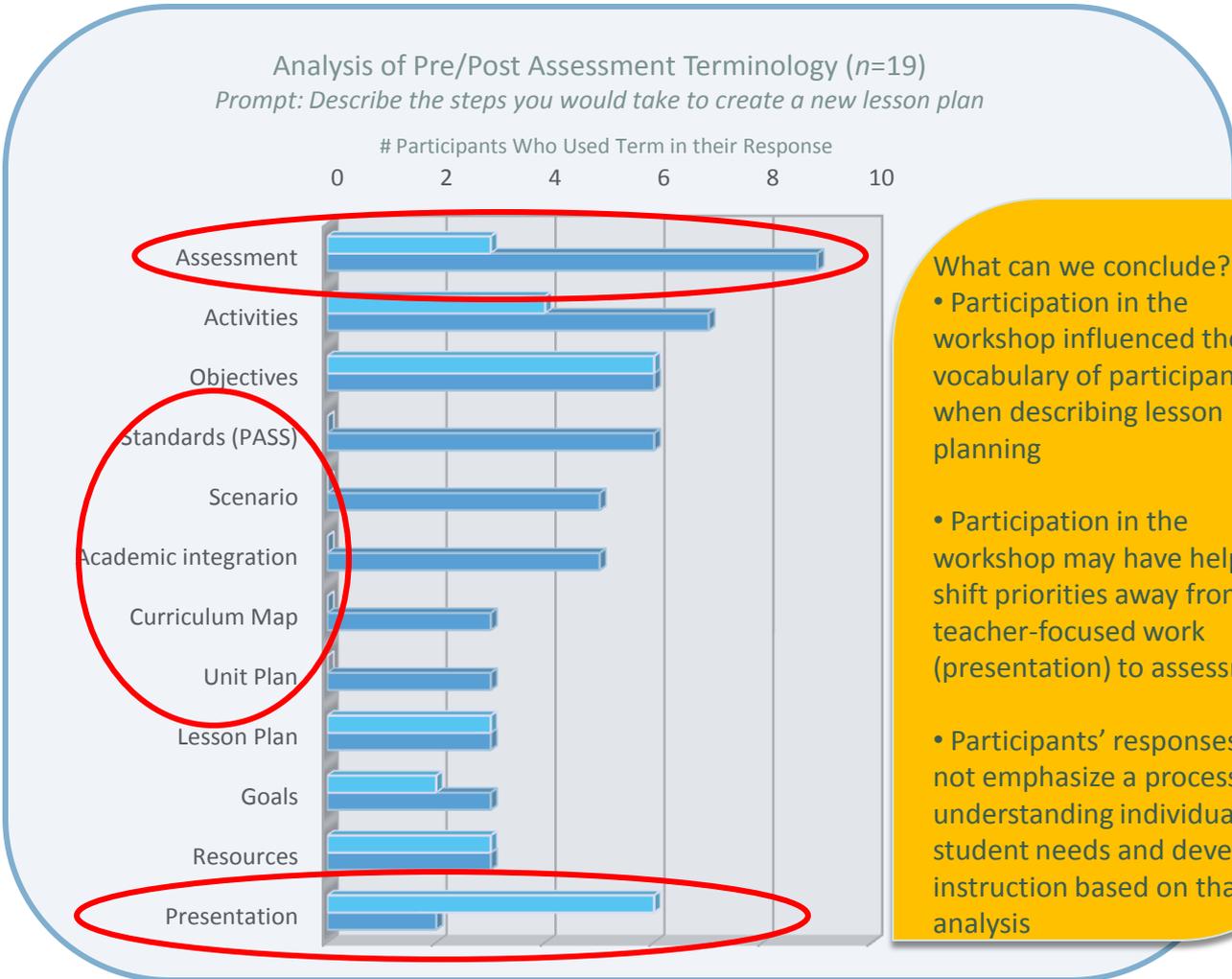
- Design, field test, analyze data, redesign, retest
 - ▣ Inform the development of the model
 - ▣ Assess the feasibility of implementation in authentic settings
 - ▣ Determine the promise of the model in achieving intended outcomes—competency, self-efficacy, and retention



Data Sources

Data Collection Method	Measures
Pre-Test	<ul style="list-style-type: none">•Teacher Self-Efficacy Scale•Open-Response: “Describe how you...”
Workshop Observation	<ul style="list-style-type: none">•Observers Log•Reflection Cards by Participants
Individual Interviews	<ul style="list-style-type: none">•Participants•Daily Instructor Debrief•Observers
Focus Groups	<ul style="list-style-type: none">•Following Each Workshop
Post-Test	<ul style="list-style-type: none">•Teacher Self-Efficacy Scale•Post-Test Open Response: “Describe how you...”•Post Workshop Evaluation
Artifact Review	<ul style="list-style-type: none">•Unit Plans•Lesson Plans•Assessment Plans

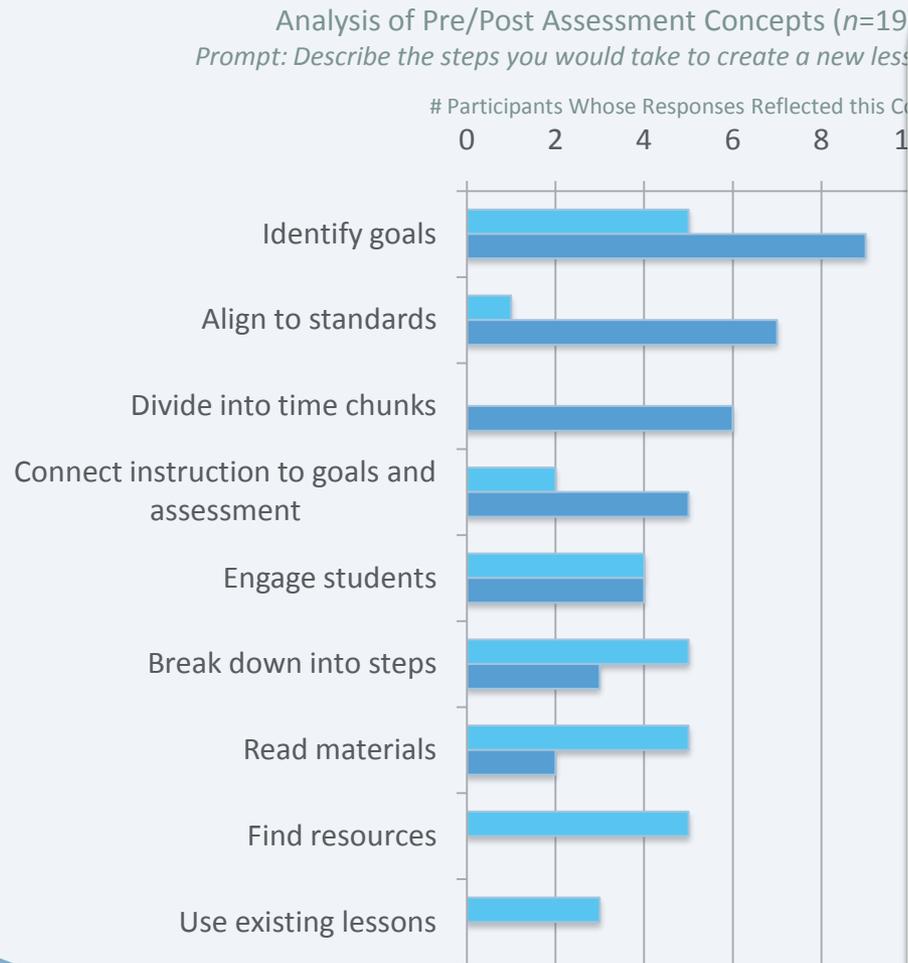
Analyzing Data: Teacher Competence



What can we conclude?

- Participation in the workshop influenced the vocabulary of participants when describing lesson planning
- Participation in the workshop may have helped shift priorities away from teacher-focused work (presentation) to assessment.
- Participants' responses did not emphasize a process of understanding individual student needs and developing instruction based on that analysis

Analyzing Data: Teacher Competence



What can we conclude?

- Participation in the workshop focused participants on the importance of instructional goals instead of finding resources, reading materials, or using existing lessons
- Participation in the workshop introduced the concept of planning instruction in chunks of time.
- Participation in the workshop increased some participants' awareness of the need to connect instruction to goals and assessment
- The concept of engaging students or assessing their needs did not emerge more strongly after the workshop

Analyzing Data: Teacher Competence

Analysis of Group-Developed Unit Plan Artifacts Produced During Workshop

What can we conclude?

- There was alignment between workshop instruction, in-class work, and the unit plan rubric on scenario development
- There was inadequate coverage during the workshop of the concept of cohesiveness as captured in the unit plan rubric

Rubric Criteria (Out of Possible 4)				Overall Mean
Standards Focus	Scenario	Assessment	Cohesiveness	
2	3	2.5	1	2.125
3	3	2.5	3	2.875
2.5	2.75	2	1.5	2.187
2	4	3.5	2	2.875
2.375	3.187	2.625	1.875	2.515

Analyzing Data: Self-Efficacy

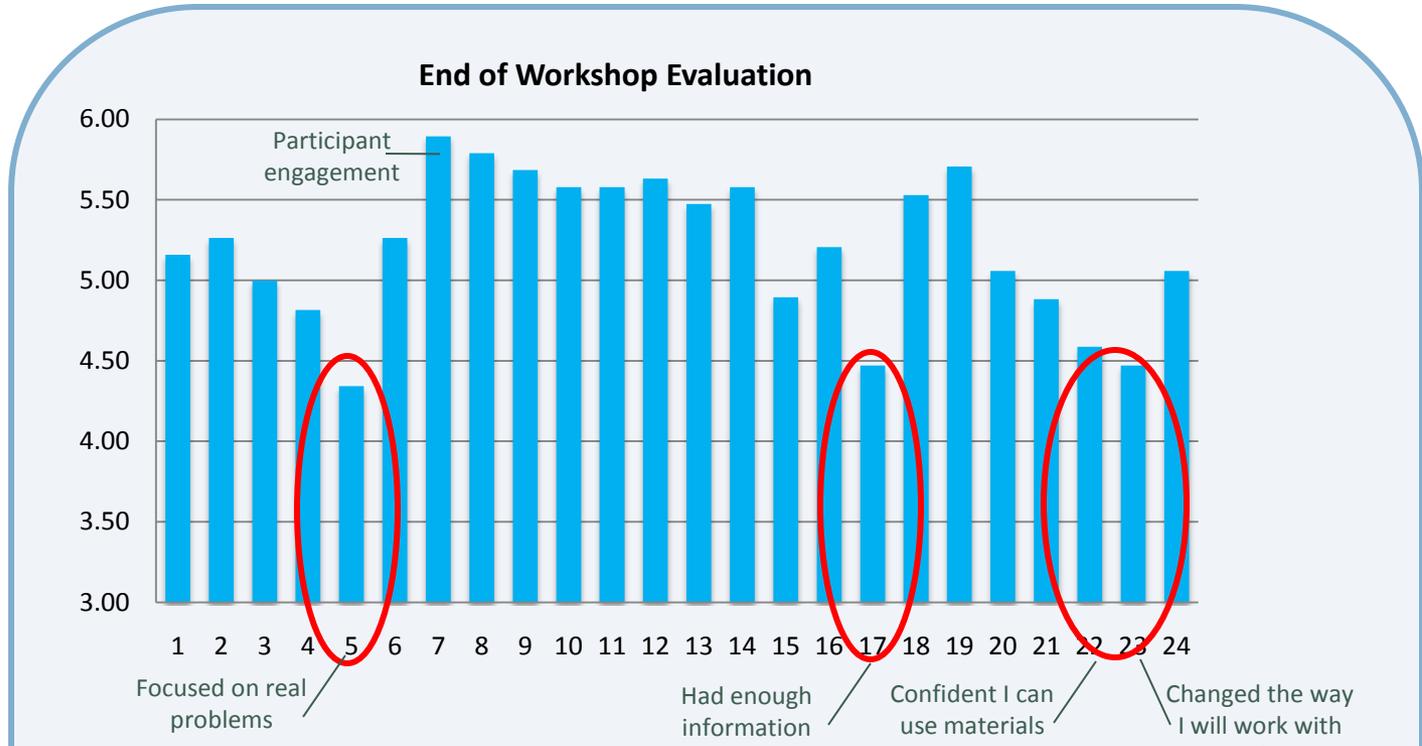
Analysis of Pre/Post Teacher Self-Efficacy Sub-Scales ($n = 10$)
Paired Samples t-test



What can we conclude?

- Participants felt more confidence and belief in their ability to deliver instruction and manage the classroom immediately following the workshop than they did prior to workshop
- Participants' confidence in their ability to engage students was not as strong as their confidence in the other two sub-scales

Analyzing Data: Engagement



What can we conclude?

- Participants enjoyed the workshop and were highly engaged as adult learners
- In combination with interviews, there was a strong suggestion to customize content to the specific content areas. This could be done by providing example lesson/unit plans for each content area and by bringing in experienced teachers from those content areas to coach
- Participants do not expect much support or collegial interaction at their schools

Recommendations—Instructional Planning Module

- Simplify content into three strands: content; student needs; planning tools
- Deepen module focus on centrality of student needs, characteristics, aspirations, and program of study
- Focus academic integration around a few key literacy and numeracy indicators and provide content-specific examples
- Integrate 21st Century Skills and All Aspects of an Industry throughout all modules
- Increase reflection and micro-teaching opportunities

Recommendations—Instructional Strategies

Module

Specific Recommendations for this Module

- Connect strategies to instructional goals
- Add content on asking questions
- Refine use of project-based learning resources

Recommendations for the Model as a Whole

- Frame around a single project or unit
- Develop glossary of terms
- Build in consultation with literacy and numeracy experts
- Structure the feedback sessions
- Provide a binder of examples

Additional Topics for Improvement



- Data-driven decision making in career-technical education
- Professional learning related to use of technical skills assessment data
- Studied in Year II survey research

Some Findings

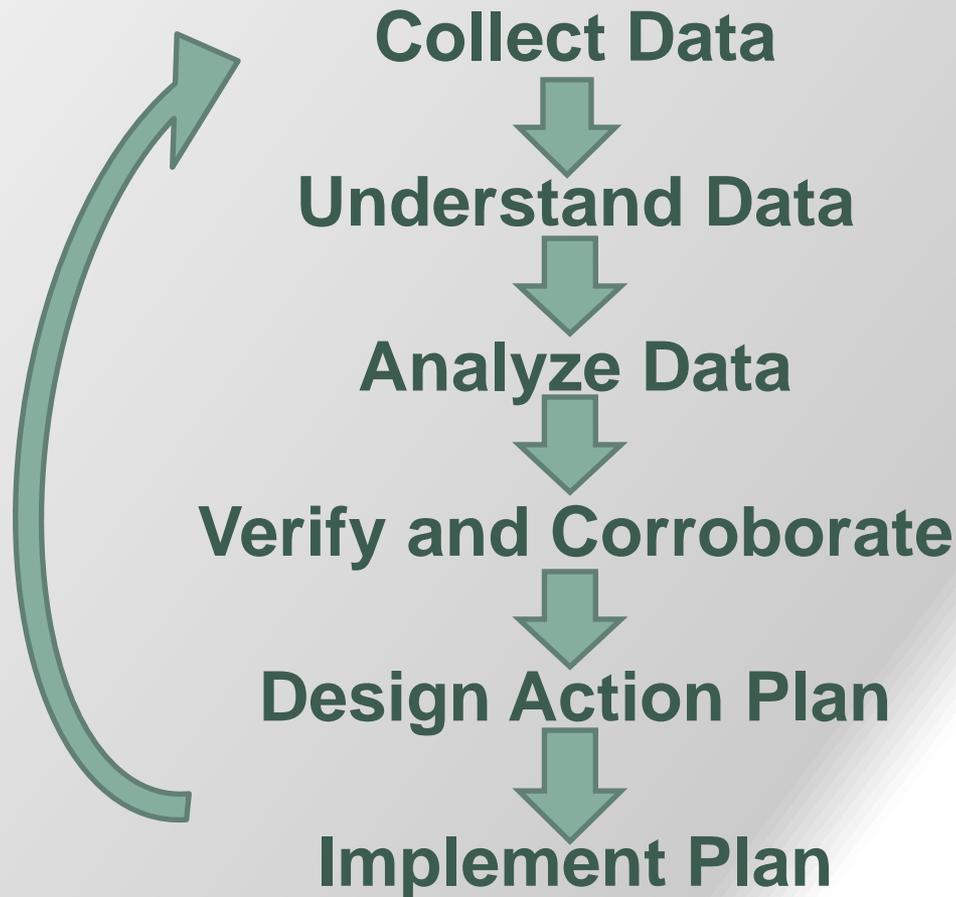
- Respondents indicated large majority use end-of-program tests
- About 1/3 have not received any PD on data use
- Respondents felt training with follow-up was needed
- Data interpretation high on the needed skill list
- Peer interaction desired in delivery of PD
- Case studies show positive gains

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

Instructional Improvement Model for Use of Assessment Data



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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

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Your questions?

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

Sandy.Pritz@nocti.org

or

Heather.Sass@sreb.org

www.sreb.org

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