Year 4 & 5 Research Report—SREB CTE Alternative Certification Teacher Induction Model
Improving the Quality of Career and Technical Alternative Teacher Preparation: An Induction Model of Professional Development and Support

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The U.S. Office of Vocational and Adult Education funded the National Research Center for Career and Technical Education and the Southern Regional Education Board to develop and field-test an induction model designed to provide fast-track preparation for individuals transitioning mid-career from industry to the career/technical education (CTE) classroom.

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Executive Summary

Secondary career and technical education (CTE) is a field in transition. It is moving from a primary focus on preparing students for entry-level employment to preparing them for continuing education and professional development as well as employment. The rapid pace of change in technology and the global economy has created a demand for workers who are able to learn and adapt, and CTE must prepare its students to meet these demands. Greater emphasis is being placed on assessment to improve accountability and to verify that students have acquired the skills to undertake these challenges. These higher expectations come at a time when more students are taking CTE courses and fewer CTE teachers are graduating from undergraduate teacher education programs. The field has responded by recruiting more teachers from business and industry, but those who enter teaching in this way usually have had little pedagogical professional development. Neither these teachers nor many of their colleagues who enter the profession through a traditional teacher education program are prepared to use technical skills to help students gain higher levels of competence.

The National Research Center for Career and Technical Education (NRCCTE) responded to these developments with a number of projects. Two of the projects address professional development models for improving the skills of secondary CTE teachers. The Southern Regional Education Board (SREB) developed and tested an induction model for alternatively certified teachers; that is, those who have not completed a traditional teacher education program.

There is a complexity of challenges concerning the development of CTE teachers. One of the most important challenges is the need to build a high-quality teaching force. The new demands and responsibilities on CTE teachers range from integrating grade-level literacy and numeracy to support increased student achievement to designing intellectually challenging projects and real-world problems that will engage an increasingly diverse population of learners. Alternative routes to CTE teacher licensure, embraced for nearly 100 years as a viable way of transitioning those with highly valued industry experience into the teaching profession, are one strategy for meeting the demand for more and better CTE teachers. Although an increasing percentage of teachers are entering the teaching profession through alternative routes, the requirements for these pathways vary greatly, and a debate continues to rage as to whether alternatively certified teachers are less or equally effective as traditionally prepared teachers in impacting student achievement.

In partnership with the NRCCTE, SREB developed an induction model for new CTE teachers pursuing an alternative route to certification that increases their career commitment, competency and self-efficacy. The model is designed to build the capacity of beginning CTE teachers to offer instruction that is intellectually demanding and standards-focused and thus more likely to improve CTE students' academic achievement. The model also builds CTE teachers' capacity to design instruction that is actively engaging using strategies like project-based learning and cooperative learning. Students who are actively engaged intellectually and emotionally in their high school courses are more likely to stay in school and graduate on time and less likely to need developmental (remedial) courses at the postsecondary level.

The induction model includes 196 hours of professional development delivered through a 10-day summer institute prior to the first year of teaching; three, two-day workshops during the first year; and a second 10-day summer institute at the conclusion of the first year. In addition, the model includes the support of coaching from the professional development instructor, on-site guidance from a mentor and administrator, and participation in an electronic community of practice. An iterative development process is being used to design the model.

This report presents the three phases of Year 3, Year 4 and Year 5 field test findings. In the first phase, the content of the professional development modules was field-tested between June 2009 and February 2010 in a series of four sessions each including three, six-hour days of professional development. Two of the four field test sessions were held in State 1 and two were held in State 2. A total of 46 teachers participated, representing different levels of education, work experience and CTE content areas. The results of field test data were clear as to changes needed in induction model materials to meet the needs of alternative route teachers. Many learning activities were revised to fit the audience in order to provide more time for reflection or to clarify content. Field test participants identified key elements of the modules that they felt would be necessary for new teachers prior to entering the classroom, including: (a) the use of rubrics, (b) formative and summative assessment, (c) how to use a table of specifications to align instructional goals and assessments to technical standards and 21st- century skills, (d) getting to know students, (e) engaging students in developing classroom rules and procedures, and (f) classroom management scenarios. Data suggested that three strategies used by induction model developers were particularly effective in supporting participant learning: (a) use of examples in participants' content areas, (b) use of "floating" one-on-one and small-group coaching during cooperative learning segments, and (c) facilitated small-group discussion in the afternoon or evening to structure reflection.

The results of the induction model's ability to impact teacher commitment, competence and self-efficacy (2010-2011) are also presented in this report as the Year 4 phase 2 findings. During the 2010-2011 school year, the induction model and materials were field-tested with a cohort of new State 1 CTE teachers. State 2 was not able to participate because of a lack of internal financial support. The professional development was conducted by SREB staff. The purpose of the field test was to determine the promise of the model to impact new teacher commitment, competence and commitment to the profession. Overall, teachers participating in the induction model improved their self-efficacy in instruction, classroom management, and student engagement; teachers were positive about their school working environments; teachers reported that the induction model professional development was intensive, time-consuming, helpful and applicable instructionally; teacher commitment to the profession remained steady at 80 percent throughout the school year; 70 percent of the teacher cohort remained in the teaching profession for the 2011–2012 school year; and the induction model showed promise in supporting the broader context of school reform.

The final phase of field-testing, Year 5 (2011-2012) determined if the induction model could be implemented with fidelity by state stakeholders. Two states field-tested the induction model with a cohort of first-year career tech teachers during the 2011-2012 school year. Instructors in both states were trained on the model by the director of the

program, and they were provided with the materials to implement the program in their respective states. Although the two states did not implement the model with complete fidelity, they did achieve successful results. In State 1, 89 percent of participating CTE teachers were returning for their second year of teaching; in State 3, 88 percent of teachers were returning. For State 1, the cohort of participating teachers increased their self-efficacy in instruction, classroom management and student engagement. For State 3, the pre- to post-Teacher Sense of Efficacy Scale scores slightly decreased. Teachers in both state cohorts have made a commitment to remain in the teaching profession for the next five years.

The CTE teacher induction model and findings discussed in this report respond to core needs of the field, but the professional development challenge is far more extensive than these projects alone address beyond the first year of teaching. Secondary CTE serves a large segment of secondary students and must contribute to their academic as well as technical learning. Most CTE teachers will need considerable professional development to broaden their teaching skills and to learn to use data for instructional improvement. The professional development they receive should be directly related to the courses they teach and of sufficient intensity and duration to influence their instruction. In the present economic climate, providing adequate time for effective professional development may be the most difficult challenge of all.

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Chapter 1—Introduction and Statement of the Problem

Increasing secondary enrollment in CTE programs, the declining number and size of traditional CTE teacher preparation programs, and the growing number of teacher retirements have created a concern about the lack of supply of CTE teachers (DeWitt, 2010; NASDCTEc, 2009). To compound this supply challenge, high-quality CTE teaching in the 21st century has placed new demands and responsibilities on CTE teachers, from integrating grade-level literacy and numeracy that will support increased student achievement to designing intellectually challenging projects and real-world problems that will engage an increasingly diverse population of learners. Research is needed to identify the best strategies for bringing teachers into the field, for helping them make a successful transition to teaching, and for encouraging their long-term commitment to the profession.

When new CTE teachers lack crucial skills, they often become so discouraged by the complexity of the work and lack of formal and informal organizational supports that they leave the profession (Hunt & Carroll, 2003; Joerger, 2003). The U.S. Department of Education published a study on teacher attrition and mobility which estimated that 25 percent of all new teachers leave within the first three years (Marvel, Lyter, Peltola, Strizek, & Morton, 2006). The ultimate problem resulting from poorly trained CTE teachers with inadequate school support and subsequent high rates of teacher attrition is that CTE students will not receive engaging and academically rigorous instruction, increasing the probability that they will drop out (Castellano et al., 2003).

Alternative routes to CTE teacher licensure, embraced for nearly 100 years as a viable way of transitioning those with highly valued industry experience into the teaching profession, are one strategy for meeting the demand for more and better CTE teachers. The requirements for these pathways vary greatly (Zirkle, Martin, & McCaslin, 2007), and a debate continues to rage as to whether alternative route teachers are less or equally effective as traditionally prepared teachers in impacting student achievement (Constantine et al., 2009; Darling-Hammond, 2009). For alternatively certified CTE teachers to make a successful transition to teaching and meet the demands of preparing students for further learning and the workplace, sufficient ongoing support is needed. Induction experiences, professional development and support activities designed to help teachers in the first few years of teaching, can provide the additional support that alternatively certified teachers need to meet the challenges of CTE teaching (Joerger & Bremer, 2001; Ruhland & Bremer, 2004).

The Need for Quality CTE Teachers

The current policy context in CTE reflects the belief that increasing teacher quality through effective preparation and professional development is instrumental to improving the academic and technical achievement of CTE students. In 2006, the Perkins IV legislation called for the professional development of CTE teachers to be "high quality, sustained, intensive, and focused on instruction, [increasing teachers'] academic knowledge and understanding of industry standards." This legislation echoed the push for improvement in teacher quality under the federal *No Child Left Behind* (NCLB) mandate, and the recommendations of the National Assessment of Vocational Education that called for better teacher quality in CTE (Cramer,

2004; Silverberg, Warner, Fong, & Goodwin, 2004). State CTE leaders have identified recruiting, training and retaining high-quality CTE teachers as a critical priority to meet the challenge of improved student achievement (*High Schools That Work* Board, 2007), and the Association for Career Technical Education's (ACTE's) Teacher Quality Task Force lists developing stronger induction and mentoring programs among its top priorities (DeWitt, 2010).

Much is required of teachers in meeting the challenge of improving students' technical and academic achievement (Gray & Walter, 2001). Career and technical education leaders have put forth a new mission for the field that includes both college and career readiness (NASCDTEc, 2010). Implementing a CTE curriculum within the concept of career pathways and programs of study requires teachers to have an understanding of career development; to support academic achievement by integrating rigorous, grade-level literacy and numeracy; and to engage all students in learning, including the significant percentage of students in CTE courses who have special learning needs. To fulfill this mission demands an understanding of sophisticated instructional strategies such as cooperative learning and project-based learning.

Unfortunately, many CTE teachers are typically less academically and pedagogically prepared than teachers of other subjects (Cramer, 2004; Gray & Walter, 2001). Alternatively certified CTE teachers are less likely to have a baccalaureate degree and more likely to be farther removed from college (Gray & Walter, 2001). Even if CTE teachers have a postsecondary degree, they often come to teaching straight from the workplace; most have been out of school for a longer period of time than other teacher candidates. Additionally, their postsecondary focus of study may have required fewer academic courses (Cramer, 2004). These circumstances suggest that alternatively certified CTE teachers may lack the skills and confidence to integrate the level of reading, writing, and mathematics that students will need to succeed in school as well as the workplace.

The Challenge of Alternative Routes to Teaching

In the field of education as a whole, there has been an explosion in the number of teachers entering through alternative certification programs. All states now offer alternative routes to certification, although their requirements vary. It is estimated that between 20 percent and 33 percent of all new teachers enter the teaching field through alternative pathways (Feistritzer, 2007; U.S. Department of Education, Office of Postsecondary Education, 2006; Walsh & Jacobs, 2007). Although alternative routes to certification seem to be filling a need that grows out of teacher turnover and resulting teacher shortages (Garcia & Huseman, 2009), there is disagreement about the quality of the preparation and effectiveness of alternatively certified teachers. Programs are criticized for leading to high attrition rates, particularly because teachers have no clinical student teaching experience (Darling-Hammond, Chung, & Frelow, 2002). Another contention is that there can be a negative impact on student achievement if teachers enter the classroom before they are adequately prepared. Recent evidence, however, suggests that there may be little if any difference in the effect that alternatively versus traditionally prepared teachers has on student achievement. A study conducted by Mathematica Policy Research found no difference between the mathematics and reading achievement of elementary school students whose teachers entered the profession through an alternative route and the achievement of students who had traditionally certified teachers (Constantine et al., 2009).

Because industry experience is a valuable qualification for CTE teachers, alternative routes have existed for nearly 100 years in the CTE field, particularly in the areas of trade and industrial education and health occupations. Ruhland and Bremer (2003) found the percentage of alternatively certified CTE teachers to be about 28 percent, but the numbers may be much higher. In a survey of 12,000 CTE teachers at *High Schools That Work* sites in 30 states, 75 percent of teachers reported entering through an alternative route (Bottoms & McNally, 2005). To date, no experimentally designed studies exist comparing traditional versus alternatively certified CTE teachers' impact on students' academic and technical achievement. However, the increased demand for CTE teachers due to higher enrollment, teachers leaving the profession, and the decline in the number and enrollment in traditional teacher preparation programs underscores the need for alternative certification programs as a pathway to CTE teaching (NASDCTEc, 2009), and these programs will likely remain a "prevalent, if not the dominant" route to CTE teaching in this century (Gray & Walter, 2001, p. xiii).

Two challenges must be overcome in ensuring we have quality alternatively certified CTE teachers: the wide variation in the requirements and the inadequate support provided to teachers as they enter the profession through alternative routes. An analysis of existing alternative routes to CTE certification and licensure revealed that requirements for these teaching pathways vary from state to state and even within states (Zirkle et al., 2007) . Of the 105 alternative routes identified, 53 required bachelor's degrees and 32 required completion of an organized teacher preparation program similar to a traditional pathway. Many pathways provide newly hired CTE teachers with provisional certification if they have experience in the career field in which they are to teach (Ruhland & Bremer, 2003; Zirkle et al., 2007). As teachers begin their first year under the provisional certificate, they are required to complete pedagogical course work provided by a university, state agency, or local district over an extended period of time. This route may or may not require a postsecondary degree, depending on whether one was required in the career field. In addition to variations in required work experience, current employment and educational experience, the alternative certification pathways also vary in the requirement of induction or mentor programs. Only 21 of the 105 alternative routes identified required teachers to take part in an induction or mentoring program (Zirkle et al., 2007).

Needs of Teachers Who Enter the Profession through Alternative Routes

As a consequence of entering the field through alternative routes that do not provide traditional pedagogical preparation, teachers may lack the knowledge, skills, and confidence required to plan, deliver, and manage a challenging, engaging and meaningful learning experience for students. In the field of education in general, many alternatively certified teachers, although they tend to have high expectations and strong idealism when they begin teaching, struggle to meet the demands of their jobs (Honawar, 2007). Only half of the alternatively certified teachers surveyed in a study for Public Agenda and the National Comprehensive Center for Teacher Quality said they felt prepared to teach compared to more than 80 percent who had completed a traditional teacher preparation program, and 54 percent reported needing more time working with a classroom teacher during pre-service (Rochkind, Ott, Immerwahl, Doble, & Johnson, 2007). Fewer than half of alternatively certified teachers said they received any training in the summer prior to teaching (Honawar, 2007). Stone (2000, cited in Suell & Piotrowski, 2007)

studied alternatively prepared teachers in California and found that they listed their top needs as curriculum development, followed by classroom resources, teaching strategies, techniques for handling difficult students, and classroom management.

Historically, research studies have pointed toward the unique needs of alternatively certified CTE teachers. Using survey data from a national stratified sample of 352 CTE teachers in 15 states, 43 percent of whom were alternatively certified, Heath-Camp and Camp (1990b) found that CTE teachers entering teaching from business and industry with little pedagogical training seemed to have more problems than CTE teachers who were traditionally certified. Similarly, in a study investigating the nature of teacher concerns and effective induction practices of a group of North Carolina CTE teachers, alternative route CTE teachers were found to have more concerns in general than those entering teaching from a traditional route (Kirby & LeBude, 1998). Many CTE teachers who were alternatively certified knew nothing about their curriculum and needed orientation, help, and time to learn its scope and how to prepare lessons (Heath-Camp & Camp, 1990a). Few new CTE teachers received curriculum guides or even any feedback or evaluation on their work (Camp & Heath-Camp, 1991). Furthermore, beginning CTE teachers entering teaching from business and industry tend to be unfamiliar with lesson planning, CTE student organizations, the administrative red tape of schools, or student misbehavior (Heath-Camp & Camp, 1990b).

More recent research found similarities between the needs of beginning CTE teachers and those of beginning secondary teachers in general, including the development of skills to address classroom management issues, learn instructional methods, motivate students, and manage demands on personal time and resources (Joerger & Bremer, 2001). In addition to these skills, the Joerger and Bremer study outlined specific topics to meet the needs of CTE teachers in the areas of personal management (managing time effectively); pedagogy (designing effective lessons and using alternative teaching methods); students (motivating and disciplining); curriculum (determining scope, sequence, and pace of courses); program (facility management); system (advocating for funding and support); and community (establishing support from parents). Similar to these areas, alternative route CTE teachers surveyed at *High Schools That Work* sites expressed the need for professional development in four instructional categories: planning, instructional methods, assessment and supporting students (Bottoms & McNally, 2005).

Ruhland and Bremer (2004) studied traditionally and alternatively certified CTE teachers' perceptions of their first year of teaching. Traditionally certified teachers were more likely to report they were better prepared in pedagogy; alternatively certified teachers were more likely to report they were better prepared in knowledge of subject matter. The alternatively certified teachers in the study expressed a need for additional ongoing support in two areas of classroom practice: classroom management and working with special needs students. These needs are echoed by online survey data from those who employ CTE teachers at *High Schools That Work* sites (Bottoms & McNally, 2005). Supervisors identified classroom management as the most prevalent major deficiency among CTE teachers employed within the last five years. More than half of the respondents identified teaching strategies as a weakness for new CTE teachers. Forty-three percent of administrators surveyed believed that newly hired CTE teachers lack the skills to address student diversity and special needs.

In summary, CTE teachers who enter through alternative routes are more likely to feel confident about their knowledge of the career field and less likely to feel confident in their ability to teach that knowledge to students. Alternative route CTE teachers' major areas of concern in assuming their teaching responsibilities are classroom management and student motivation, as well as planning instruction for special needs students. These concerns were also echoed by the administrators who supervise them. Research indicates that these teachers also need professional development in planning, instructional methods, assessment, and how to support struggling students. In addition to professional development, CTE teachers who enter through alternative routes require support through feedback about their work, strategies for managing added demands on time and energy, and resources for planning and teaching.

Quality Induction Programs for Alternatively Certified Teachers

In response to the needs of beginning CTE teachers and in recognition of the essential role that alternative certification plays in a field in which recruiting teachers with valuable work experience is key to maintaining and improving the quality of the teaching force, a consistent, high-quality approach to induction programs for alternatively certified teachers is needed. Joerger and Bremer defined induction as "all of the teaching and professional activities and events experienced by beginning teachers from the time they sign their initial teaching contracts until they are fully and successfully acculturated into the profession" (2001, p. v.). Induction programs are designed to improve the transition to teaching, increasing teaching effectiveness and career commitment.

Induction programs typically focus on the basics teachers need to survive their first year of teaching—classroom management, obtaining resources, designing a lesson plan—as well as becoming familiar with the school and learning to be a reflective practitioner. Induction activities include ongoing personal support, assessment and feedback, continuing education and socialization into the profession (Joerger & Bremer, 2001). But typical induction programs assume prior knowledge and classroom experience associated with traditional certification routes, and the processes and jargon used in these programs may not be appropriate for alternatively certified teachers (Szuminski, 2003). Alternatively certified CTE teachers have unique needs that require a unique set of induction strategies.

At beginning of their first year of teaching alternatively certified CTE teachers specifically need:

- a mentor in the same or related instruction area;
- a support group;
- curriculum, resources and tips from previous instructors;
- an orientation to career and technical student organizations;
- more preparation time prior to the beginning of courses; and
- access to a variety of workshops (Joerger & Bremer, 2001).

As part of the first year of teaching, alternatively certified teachers also require continuous orientation that addresses all aspects of teaching, a handbook that includes resources and supplies, and a help hotline that provides solutions and connects them with other new and beginning teachers (Joerger& Bremer, 2001).

Ruhland and Bremer (2004) asked beginning CTE teachers about factors important to them in deciding whether or not to continue in the teaching profession. In this study, traditionally and alternatively prepared teachers were equally likely to remain in the profession, but that likelihood depended most on the degree to which the first year of teaching was a positive experience. Differences between why alternatively and traditionally certified teachers were likely to remain in the profession were found on three factors: sense of accomplishment, availability of a mentoring program, and recognition and support from a supervisor. Ruhland and Bremer concluded that these differences may be due to a lack of self-confidence experienced by alternatively certified teachers in their first year of teaching, indicating a need for additional support.

In a study of the perceptions of alternatively certified CTE teachers toward their mentoring and preparation activities, Briggs and Zirkle (2009) reported that teachers valued a summer workshop experience prior to the first year of teaching and subsequent courses that focused on teacher tasks that included classroom and lab management, instruction and making presentations. Visits from course instructors were also important to the beginning teachers. The study findings outlined teachers' top priorities for mentoring topics, including: planning, time management, student assessment, ways to prevent burnout, classroom management, and working with the political and cultural climates of their schools and districts. Teachers perceived mentoring to be most useful when the assigned mentor was from a similar content area, when duplication of course and employment materials was reduced, when paperwork was reduced and when the mentors met with mentees on a regular basis.

Although the aforementioned research clearly indicated that beginning teachers and CTE teachers specifically expressed a need for better support in the first year of teaching, recent research from a study of comprehensive induction by Glazerman et al. (2008) concluded that mentoring and professional development do not make a significant difference in teaching practice, student outcomes, or career commitment. There is a vast difference in the experiences and knowledge of the beginning teachers who received induction services in the Glazerman study and the CTE teachers for whom the proposed induction model described in this chapter is designed. Over 90 percent of the teachers in the Glazerman induction study were already certified to teach. They majored in education in college and participated in 11 or more weeks of student teaching, primarily at the elementary school level. Furthermore, the Glazerman comprehensive induction study focused on the mentor relationship and helping beginning teachers use evidence from their practice to recognize and implement effective instruction. The proposed model is a coherently integrated combination of professional development and support designed to scaffold CTE teachers' learning and maximize impact on teaching practice. The selection of specific induction activities and the quality of their delivery are essential to the success of induction models. Briggs and Zirkle (2009) highlighted the problem that exists today of poorly designed mentoring and induction programs that lack practical and research-based topics specifically designed for CTE teachers. Further research is needed to inform the field about the specific induction activities that will ultimately result in improved teacher performance and career commitment.

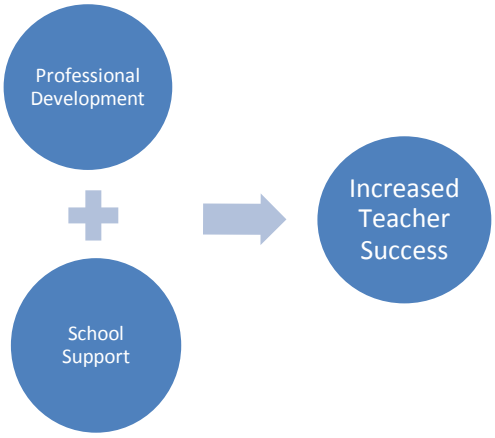
Chapter 2—An Induction Model That Responds to the Problem

The Conceptual Framework

Prior studies have identified factors that contribute to early career teacher attrition. Those factors include: (a) inadequate technical instructional skill (Baldacci, 2006; Lemov, 2010), (b) unsupportive professional cultures (Moore Johnson & The Project for the Next Generation of Teachers, 2006), and (c) low confidence or sense of efficacy (Tschannen-Moran & Woolfolk Hoy, 2001).

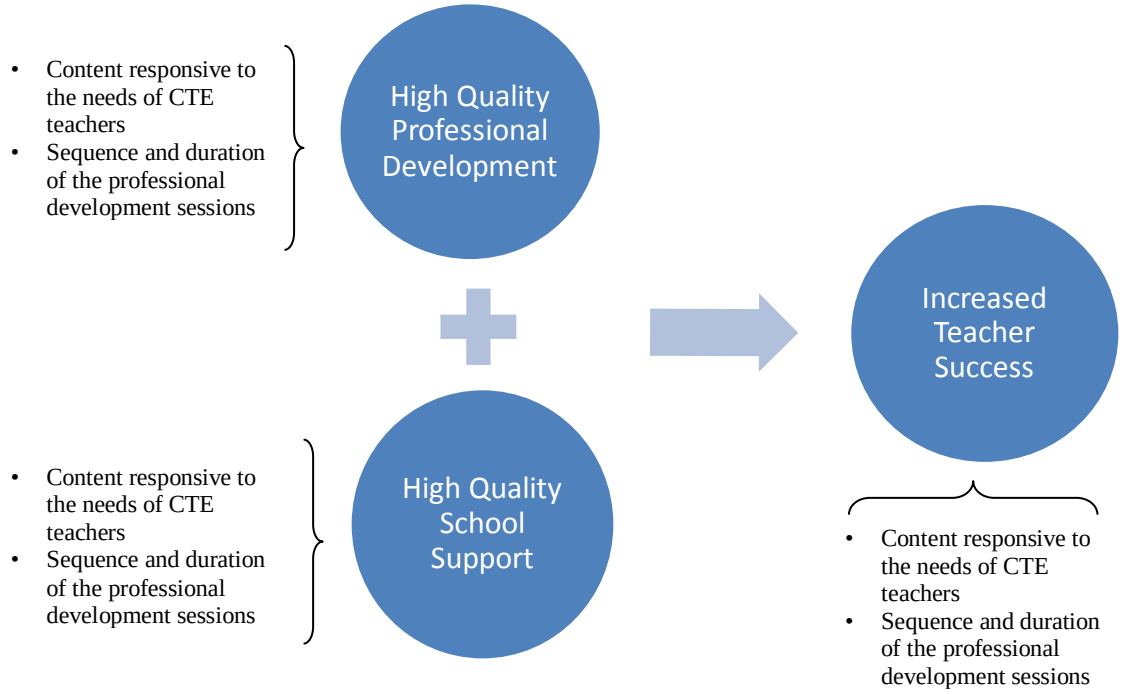
Drawing on prior research in the fields of teacher preparation and induction (Borman & Dowling, 2008; Brill & McCartney, 2008; Heath-Camp & Camp, 1990a; Joerger, 2003), model developers adopted a basic conceptual framework for an induction model aimed to address teacher attrition, shown in Figure 2.1.

Figure 2.1: Basic conceptual framework



Such a model has been implemented before with mixed results (Glazerman et al., 2008). Induction models nearly always provide professional development, although it is often not focused enough on technical pedagogy (Lemov, 2010); some induction models have combined professional development with collegial support through mentors and networking (Glazerman et al., 2008). To differentiate this conceptual framework – and therefore the induction model – from the basic framework, model developers further defined each element in terms of quality and identified assumptions to be tested about each element. As shown in Figure 2.2, it is the co*mbination* of high quality professional development and high quality site-based support by mentors, administrators, and coaches that model developers expect will yield increased levels of career commitment, teacher instructional competence and self-efficacy, and therefore differentiate outcomes from this induction model from those of similar prior efforts.

Figure 2.2: Differentiated conceptual framework



As shown in Figure 2.2, *high quality professional development* is defined as content responsive to the needs of CTE teachers, appropriate sequence and duration of the professional development sessions and a quality of instruction consistent with research on effective adult learning. Specifically, professional development must engage teachers with new content and experiences that include dialog with peers, application of new learning through authentic tasks implemented over time, and reflection on their learning (Mezirow, 1997). *High quality school support* is defined as regular structured weekly interaction between a new teacher and a qualified mentor and separate structured weekly interaction with an administrator; regular interaction with peers; and regular observation and feedback from the professional development instructor. Teacher *instructional competence* is operationally defined as performance in instructional planning, use of instructional strategies, assessment, and classroom management as measured by a validated classroom observation protocol. Teacher *self-efficacy* is defined as the degree to which teachers feel they can influence students and their learning as measured by the Teacher Sense of Efficacy Scale (TSES) developed by Tschannen-Moran and Woolfolk Hoy (2001) and corroborated by teacher interviews and focus groups. It is critical to note that there is an established relationship between career commitment and teacher self-efficacy. Teacher *career commitment* is defined as teacher self-report of intent to remain in the field of teaching for more than three years as measured by an instrument for assessing career commitment. Klassen and Chiu reported in 2010 that teachers with greater classroom stress reported lower self-efficacy and lower job satisfaction, while teachers with greater classroom management self-efficacy or greater instructional strategies self-efficacy had greater job satisfaction. Kitching, Morgan and O'Leary in 2009 found that for early-career teachers, student engagement and student achievement

triggered positive feelings of success while student behavior and home difficulties of students caused dissatisfaction in new teachers.

Professional Development Component

Teacher professional development is among the most comprehensively researched aspects of the schooling enterprise. The proposed induction model draws substantially on this knowledge base. Sparks and Hirsh (1997) reviewed the literature and best practices in professional development and identified the following characteristics of training most likely to lead to changes in on-the-job behavior, such as the training designed for the proposed induction module. Those characteristics:

- focused on individual and organizational development (DuFour, DuFour, & Eaker, 1998; Senge, 1999);
- aligned with school and district strategic plans (Fullan, 2001);
- focused on student needs and learning outcomes (DuFour et al., 1998);
- focused on job-embedment (DuFour et al., 1998);
- facilitated teachers' study of their own teaching and learning rather than placing "experts" in the role of "transmitting" knowledge (Darling-Hammond & Sykes, 1999);
- focused on both content-specific and generic instructional skills (Ball & Cohen, 1999); and
- involved the principal as instructional leader to sustain growth (Fullan, 2001; Senge, 1999; Sergiovanni, 1999).

The interrelationship between training and organizational support is a strong theme and justifies the vital school support aspect of the proposed induction model.

Content of the professional development. The framework and content for the professional development component of the induction model, specifically aimed at increasing new CTE teachers' commitment to the field, instructional competence and self-efficacy was developed in the first year of the program. Four professional development modules were framed around the perceived needs of beginning teachers and the authentic tasks they face during the first year of teaching (Heath-Camp & Camp, 1990a, 1990b; Joerger & Bremer, 2001; Rochkind et al., 2007; Bottoms & McNally, 2005), and standards outlining what both beginning and expert teachers need to know and be able to do (Danielson, 1996; Interstate New Teacher Assessment and Support Consortium [INTASC], 1992; National Board for Professional Teaching Standards [NBPTS], 1997).

The four professional development modules include: (a) instructional planning, (b) instructional strategies, (c) classroom assessment, and (d) classroom management. The framework for these modules is outlined in Table 2.1. These content areas respond directly to the need for new CTE teachers to be better prepared to deliver high quality, engaging instruction that integrates rigorous academic material with CTE content around intellectually demanding projects and activities (Hunt & Carroll, 2003; Joerger, 2003; Joerger & Bremer, 2001; Bottoms & McNally, 2005). Furthermore, a significant component of all four modules focuses on assessing and

addressing the diverse needs of all learners, thereby responding to the need for highly competent CTE teachers able to intellectually, emotionally, socially, and behaviorally engage all "students including special populations" (Perkins IV).

Table 2.1: Framework for Professional Development Modules

Title and Description	Outcomes—Areas of Teacher Instructional Competence
Module 1: Instructional Planning Effective CTE instruction is carefully planned to target the technical, academic, and 21st-century skills within a career pathway that prepare students for both further learning and the workplace.	Create short-term and long-term standards-based instructional plans based on the varying learning needs of students. Specific Areas of Emphasis: • Plan instruction that reflects the new mission of CTE, supporting both college- and career-readiness. • Set instructional goals that incorporate industry standards, 21st- century skills, and grade-level academics (reading, writing, and mathematics). • Make instructional modifications for diverse learning needs. Reflect, both individually and collaboratively, on the effects of instruction and use the reflective process to continually improve instructional practice. Specific Areas of Emphasis: • Reflect individually with guiding questions and the use of a professional portfolio. • Reflect collaboratively through the use of protocols for providing feedback and looking at student work.
Module 2: Instructional Strategies Research-based instructional strategies engage and motivate students and deepen learning.	Use instructional strategies that actively engage students in learning and encourage the development of problem-solving, critical-thinking, and team-work skills. Specific Areas of Emphasis: • Use project-based learning with real-world problems and tasks. • Design intellectually challenging assignments. • Use cooperative learning. • Integrate academic skills, including embedded literacy and numeracy.

Title and Description	Outcomes—Areas of Teacher Instructional Competence
Module 3: Classroom Assessment Assessment provides a clear picture of students' performance in relation to the standards, informing teaching practice and further learning.	Use formal and informal assessment strategies to evaluate student progress toward learning goals, and provide feedback to improve student learning. Specific Areas of Emphasis: • Use formative and summative assessment methods that prepare students for workplace and postsecondary types of assessment (for example, employer and college-readiness exams). • Incorporate student self-assessment, especially through a portfolio of work. • Use rubrics to clearly define assessment criteria. • Create written exams that mirror standardized-assessment-type or employer-type exam questions. • Assess student progress in using reading, writing, and mathematics to solve problems and take action in the field. • Develop a plan for grading and reporting student progress.
Module 4: Classroom Management A well-managed classroom centers on respectful, collaborative relationships that support student learning.	Create a learning environment that encourages student motivation, positive behavior, and collaborative social interaction. Specific Areas of Emphasis: • Establish appropriate rules and routines for the CTE lab. • Create a culturally responsive classroom. • Offer rewards and recognition to encourage effective effort and increase student motivation. • Design extra help to support all students in reaching standards. • Communicate with parents and engage them in supporting students' success.

Concept papers were developed for each module, outlining specific content and the rationale for that content based on literature and best practice. Expert panels reviewed the concept papers, ensuring that the content was comprehensive and appropriate for a teacher induction model. Professional development sessions—detailed through a guide for participants and a guide for instructors—were designed for each module. The instructor guide includes an overview and objectives for units based on topics within the module and learning activities and objectives for each lesson. Presentation slides and suggested artifacts to support the learning activities have also been developed for the instructor. The participant guide includes an overview and objectives for each unit (also printed in the instructor guide), handouts to support the learning activities led by the instructor, planning forms, suggested activities beginning teachers can do with their assigned mentors and building administrators and field activities for implementing and reflecting on the use of the plans developed in the professional development sessions.

Duration and sequence of the professional development. In addition to the content of the modules, the professional development component of the induction model includes a suggested sequence and duration of the professional development sessions to affect the intended outcomes of commitment to the profession, instructional competence and self-efficacy. The sequence of the modules is designed to provide support before, during, and after first-year CTE teachers begin classroom teaching through three phases: (a) 10 days of intensive instruction during the summer prior to the first year of teaching, (b) successive nine-week segments of application and reflection through delivery of instruction in their own classroom, aligned with each quarter of the school year, (c) three, two-day workshops corresponding with each quarter of the school year that focus on refining and deepening understandings, and (d) 10 days of structured reflection, reinforcement and revision in the summer following the first year of teaching.

This sequence responds to the inadequacy of existing models of first-year teacher preparation that fail to provide adequate individualized support to new CTE teachers throughout the first year in the classroom (Alliance for Excellent Education, 2008). Providing such support addresses three problems: early career teacher attrition as a result of a difficult first year (Kapadia, Coca, & Easton, 2007; Smith & Ingersoll, 2004), longer time-to-competency of new teachers (Villar & Strong, 2007), and the varying needs of the widely diverse population of adult learners that are CTE teachers. Ruhland and Bremer (2001) found that CTE teachers' commitment to the field is dependent upon the degree to which the first year experience is positive. In addition, alternatively certified CTE teachers need a continuous orientation that addresses all aspects of teaching (Joerger & Bremer, 2001; Heath-Camp & Camp, 1990a).

The recommended sequence of delivery for the professional development in this induction model begins with a 10-day summer institute prior to the first year of teaching. Alternatively certified CTE teachers value a summer experience prior to beginning their new role (Briggs & Zirkle, 2009) and need more preparation time prior to the start of the school year (Joerger& Bremer, 2001). The first summer session includes the most essential concepts from each topic that the teachers need in the classroom, including curriculum and instructional planning, how to get to know students, and how to set the right tone in the classroom. These topics have immediate relevance and applicability to their first weeks on the job. Teachers plan out the first nine weeks of instruction in some depth and craft a skeletal outline of instruction for the next nine weeks. They also identify a significant, authentic activity, problem or project that would cover at least 10 days of instruction and involve project-based learning. As they plan that project-based unit, they identify the embedded literacy and mathematics skills and look for instructional strategies and methods for enhancing those components. Additionally they learn how to assess students' learning using both paper-and-pencil and performance assessments, focusing on technical skills, literacy and mathematics. All of these instructional design choices are made for the purpose of best preparing teachers for their first days and weeks on the job where they have an opportunity to test their new learning in the authentic environment of their classroom, consistent with research indicating that adults learn best when they can apply and reflect on their learning (Knowles, 1975; Mezirow, 1997). As designed, the summer institute is intense and rigorous. It is understood that this 10-day experience is likely to involve productive struggle for the beginning teachers as they make a transition to a new career role.

Delivery of the professional development. In addition to addressing the content and sequence of professional development, the induction model also outlines, through the instructors' and participants' guides for each module, specific delivery methods that reflect the primary principles of adult learning (Knowles, 1975; Knowles & Associates, 1984) and model instructional practices that teachers will be expected to use in their own classrooms. Instruction will incorporate cooperative learning, as well as project- and problem-based learning (Merrill, 2007; Schmidt, 1993). Cooperative learning provides an opportunity for social interaction and social construction of knowledge and skills among the adult learners. The module instruction is organized around projects that involve the complex tasks of teaching, engaging beginning teachers in problem-solving, decision making, and investigative activities, and providing the opportunity to create realistic products that teachers will actually use in their classrooms (Jones, Rasmussen, & Moffitt, 1997; Thomas, 2000; Thomas, Mergendoller, & Michaelson, 1999). Finally, the professional development instructor models specific instructional strategies CTE teachers can use in their classrooms; new teachers practice using the strategies in front of colleagues and receive feedback on the degree in which they use the strategies effectively.

Support Component

In addition to professional development, the induction model provides beginning CTE teachers with the support of a trained, on-site mentor and administrator, coaching from the professional development instructor, and participation in an ongoing community of practice through electronic conversations and guided reflection.

Mentoring. As a result of their research, Heath-Camp, Camp, Adams-Casmus, Talbert, and Barber (1992) and Joerger and Bremer (2001) recommended a structured mentoring program for providing support and encouragement to participating teachers. In a literature review on beginning teacher induction, Serpell and Bozeman (2000) found that many researchers regard mentoring as the most critical component of induction programs, with teachers regarding it as one of the most helpful parts of induction. The review also pointed out those new teachers who had mentors said they were more prepared and more likely to stay in teaching. Smith and Ingersoll (2004) found that teachers who had mentors in the same subject field and who collaborated with other teachers were more likely to stay in teaching after their first year. Similarly, Ruhland and Bremer found that mentoring is a factor in the likelihood that alternatively certified CTE teachers remain in the profession. Mentoring relieves the isolation many new teachers feel, and it provides them with collaborative problem-solving, emotional support, motivation and encouragement, and information and suggestions (Joerger, 1997). The literature is very clear that mentors themselves must be veteran teachers who are rigorously selected; that there should be administrative support for the mentoring; and that contact between the mentor and the beginning teacher should occur at least weekly, if not daily (Allen, 2003; Burk, Ford, & Mann, 1996; Feiman-Nemser, Carver, Schwille, & Yusko, 1999; Feistritzer & Chester, 2000; Hunt & Carroll, 2003; Villar & Strong, 2007; Yoon, Duncan, Lee, Scarloss, & Shapley, 2007; Zeichner & Schulte, 2001).

In the induction model for CTE teachers, trained mentors address the problem of CTE teacher dissatisfaction with teaching and school culture (Rowley, 1999). Each new CTE teacher

participating in the model has a mentor who is a master teacher at his or her school. All teachers selected as mentors participate in a two-day training session to prepare them to support new CTE teachers. The mentor training focuses on developing skills as mentors of CTE teachers, providing explicit guidance on how to differentiate mentor support to new teachers early in the school year and during subsequent months. The mentors are oriented to the content of the professional development that the beginning teachers receive, establishing common expectations and vocabulary (Briggs & Zirkle, 2009). During the school year, mentors meet with the new teachers for at least 15 to 20 minutes each day for the first month and then for an hour per week during the rest of the school year to discuss critical issues that have arisen. They also participate with their beginning teacher in the electronic communities of practice and monthly webinars.

Coaching. Since alternatively certified CTE teachers value visits from professional development instructors (Briggs & Zirkle, 2009), the induction model includes a coaching component to undergird the mid-year instructional support element. The coaching component of the model recognizes that the problems of practice new teachers encounter are not solved solely through training. Technical assistance and coaching are necessary to help new teachers translate their own learning about how to deliver quality instruction and manage classrooms into effective classroom strategies in practice (Yoon et al., 2007). The instructors from the initial summer workshop also fulfill the role of instructional coaches for new teachers. The instructor acting as coach returns three times during the year before each follow-up workshop to determine how well the new teacher is implementing what he or she is learning and to seek evidence that the practices teachers are learning at each training session are being put into place. The instructor communicates with the mentor and local administrator prior to each school visit to discuss what would be most helpful to the new teacher during the visit.

The instructor, in the role of coach, observes the new CTE teacher's classroom instruction, particularly in view of the four strands from the training, observes any gaps that need to be addressed, and provides a written critique with suggestions on how to continuously improve in each area. The instructor, in his or her role as coach, seeks evidence that the administrator and mentor are supporting the new teacher and gives suggestions for further support. The instructor, as coach, is expected to meet with the new teacher, the mentor, and the administrator to engage in a professional dialogue on the new teacher's successes in the classroom, gaps or challenges in implementing the new knowledge and skills, and necessary adjustments for addressing these gaps. Finally, the instructor, in the role of coach, identifies issues and topics that can be dealt with at the follow-up weekend workshops and determine how the initial training can be improved and modified to better meet the needs of the beginning teachers. All instructors use a common format when they conduct coaching visits and a common rubric to describe their findings on the new teachers' accomplishments, challenges, plans, and the presence and quality of support from the administrators and others.

Communities of practice. Encouraging the development of professional networks and communities of practice responds to two aspects of the problem this proposed induction model is designed to address. The first of these problems is the instructional competence and self-efficacy of teachers. Engagement in communities of practice is known to contribute to meaningful adult learning (Mezirow, 1997), maximizing learning outcomes from the professional development

modules. The second problem the induction model is designed to address is organizational support. Teachers benefit from being able to learn and grow through collaboration in professional learning communities (Ball & Cohen, 1999; Borko, 2004; Stone, Alfeld, & Pearson, 2008). Sharing experiences in a group is also important for adult learning (Knowles & Associates, 1984). New teachers also benefit from a peer support group limited to beginning teachers and including face-to-face and electronic meetings and other mechanisms to discuss common experiences, successes, challenges, solutions, and resources (Heath-Camp et al., 1992; Joerger & Bremer, 2001). Communities of practice create a collegial environment that can meet teachers' needs for encouragement and a sense of belonging, thereby reducing feelings of isolation that may lead new teachers to give up and leave the classroom.

The community of practice is sustained by electronic communication including monthly webinars. During the webinars, teachers and their mentors are invited to share their successes and challenges of practice. With their professional development instructor as the webinar leader, participants discuss how they can incorporate the research-based practices and strategies in their instruction to address challenges. The intent is for new teachers to walk away with a clear idea of how to solve the problems they encounter.

In the proposed induction model, instructors play a key role in building a community of practice around the knowledge and skills participating new teachers are developing. In addition to the workshops and webinars throughout the year, beginning teachers participate in electronic coaching that includes reviewing (on a monthly basis) new teachers' electronic reflective journals. In these journals, new teachers describe what worked each week, what did not work, new insights they gained, where they had difficulties, where they need help, what they plan to do in the following week to try to address issues that have emerged and how they hope to build on their successes for the coming week. At the end of each month, teachers are asked to review their entries and summarize the big ideas learned over the course of the month, deficits they still need to address, and how they plan to address them. These journals add an important reflection for the teachers and a qualitative dimension that will assist the evaluation of the program implementation.

Administrator and school system support. The problems of teacher career commitment, instructional competence and self-efficacy are ultimately owned by school districts and schools. New teachers especially need to feel supported by administrators and colleagues. This includes time allotted for preparation, collaborative planning and peer assistance, and supportive and timely feedback (Hunt & Carroll, 2003; Stigler & Heibert, 1999; Yoon et al., 2007; Yopp & Young, 1999). Indeed, research suggests that the problems of career commitment of CTE teachers are likely the result of school systems (Camp & Heath-Camp, 1991; Ruhland & Bremer, 2004). The induction model requires buy-in and support from district and school leaders (Szuminski, 2003). Such buy-in ensures:

- Teachers' attendance at the training to understand and subsequently implement the practices learned is a priority for the school and district.
- The school in which the teacher works has plans to support implementation of the practices learned.

- The district is committed to supporting teachers as they attend training and return to the school site to apply what they have learned
- Participants in the training know why they are there and understand what they are expected to do to prepare for the training, and know what they must do when they return to their schools.

The administrator support element of the induction model addresses the key aspect of ensuring the success of the participating CTE teachers. The designated administrator supervising the beginning teacher participates in two days of training along with the mentor assigned to the beginning teacher, which includes an overview of the content of the professional development sessions. The supervising administrator is expected to meet with the mentor and the new CTE teacher at least monthly to discuss implementing what the teacher learns in the training. The supervising administrator is also expected to visit the new CTE teacher's classroom weekly for the first month (then monthly) and observe classroom practices, using a checklist targeted around the four strands from the training. The supervising administrator meets with the teacher and the mentor to provide feedback. In addition, the supervising administrator is expected to support the time needed for the new teacher and mentor teacher to meet, and is encouraged to be supportive in an informal way (e.g., when meeting in the hallway, asking how it's going and what support is needed).

School climate, a topic that has been studied for more than a century, is included in the conceptual framework. The conceptual framework supports the notion that placement of new teachers in positive school environments increases teacher retention rates. Recent studies show that a positive school environment is connected to student achievement, school success, violence prevention, healthy development of students and teacher retention (Cohen, McCabe, Mitchell and Pickeral, 2009). Collie, Shapka and Perry found in 2012 that teacher stress related to student behavior and workload impacted the level of job satisfaction. In 2012 Hughes reported that based on teacher survey results, 84 percent of teachers planned to remain in the profession until retirement. These data seemed to show that teacher retention could be increased by reduced workloads, increased salaries and improved parent and teacher participation.

Summary of Assumptions

In an effort to address the unique needs of CTE teachers entering the profession through an alternative route and to meet the demands of CTE teaching in the 21st century, this induction model was designed on a differentiated conceptual framework that high quality professional development combined with high quality school support will result in improved commitment to the teaching profession, competence and self-efficacy. Table 2.2 summarizes the assumptions of the induction model.

Table 2.2 Underlying Assumptions for Conceptual Framework

Conceptual Framework	Underlying Assumptions to be Tested
Relevant content based on the unique needs of CT teachers entering through an alternative route	• Five major areas of content include: instructional planning, instructional strategies, assessment, classroom management and reflection on practice.
A sequence of professional development sessions including a 10-day summer experience prior to the first year of teaching; quarterly two-day sessions throughout the first year; and a 10-day summer experience after the first year	• An intensive, rigorous summer experience best prepares the teachers for the demands of the first weeks of school. • Productive struggle is a necessary part of making the transition to teaching. • A continuous learning experience throughout the first year enhances reflection and on-the-job learning. • A summer experience after the first year enhances reflection that promotes a well-planned second year.
Quality instructional delivery	• High quality adult learning experiences include dialogue with peers, an opportunity to address the authentic problems of teaching, and reflection on learning. • Modeling, practice and feedback will help teachers develop instructional skills.
The support of a trained, on-site mentor	• Mentors need to follow a structured schedule of regular contact with the mentee that addresses the challenges of the transition to teaching.
The support of a trained administrator	• Administrators need to meet regularly with the beginning teacher as well as observe and provide feedback on instruction.
Coaching from the professional development instructor	• Regular visits from the professional development instructor include classroom observation and feedback, as well as making connections with mentors and administrators.
A community of practice	• Ongoing interaction with colleagues, both face-to-face and electronically, builds a community of support and enhances reflective practice.

Chapter 3—Methodology: Iterative Development Process to Develop the Model

Theoretical Framework for Research Approach

The theoretical framework selected for this study includes generating data to successively develop and revise the induction model. This is a "design research" approach (Middleton, Gorard, Taylor, & Bannan-Ritland, 2008) which allows for iterative development of the model over successive cycles of field-testing. Design research is characterized by a seven-phase cycle of inquiry that Middleton et al. (2008) called the "'complete' design experiment." The aim of the design experiment is to investigate the relationship between the intended function of an intervention, the design or form of the intervention, and the behavior resulting from the intervention. The purpose of the inquiry is not only to generate data that can be used to make revisions to the teacher induction materials and delivery, but to refine the theory of change based on learning that emerges through the cycles of field-testing.

Using this approach ensures that in successive rounds of testing and revision, model developers can explain how the model contributes to outcomes. This is a key departure from traditional approaches using experimental design and is, in part, a response to the guidelines for Institute for Education Sciences (IES) Goal 2 development and innovation projects (Albro, 2010). Independent of Goal 2 guidelines, however, these methods remain the most appropriate for developing a "product" (a finished set of materials that comprise an induction model for new CTE teachers) over the course of several years for which small numbers of teacher participants render an experimental design and/or use of inferential statistical procedures unreliable, inadequately nuanced and poorly aligned to research questions. This research study employs a mixed-methods approach. A mixed-methods approach is most closely associated with qualitative analysis, although quantitative analysis can be a part of the approach. Mixed-methods research is fully integrated into a single analysis or is displayed side by side in sequential order. This approach taps into different domains and facets of knowledge.

To develop this induction model, an iterative cycle of three rounds of design, testing, revision and retesting was used to refine the model and the theory of how the model contributes to intended outcomes. In the first round (phase 1), the relevancy of the content and viability of the instructional delivery methods of the professional development modules were tested on teacher participants in two states (States 1 and 2) through a series of two-day workshops. The methods were qualitative and quantitative and included focus groups, demographic information, the Teacher Sense of Efficacy Scale (TSES), a teacher content knowledge questionnaire, end-of-day evaluation, quick notes and facilitated discussions.

In the second round (phase 2), the full induction model, including both professional development and support components, was tested with one cohort of beginning CTE teachers (State 1). The methodology was mixed—quantitative (pre- and post-surveys, teacher observation checklists) and qualitative methods (focus groups, interviews). A final round of field-testing (phase 3), involved a stakeholder-led implementation of the teacher induction model in two states (State 1 and State 3), with one cohort of new CTE teachers in each state. This phase was also a mixed-methods approach. It was a balance between qualitative (focus groups, interviews) and quantitative (pre- and post-surveys, teacher observation checklists).

Research Questions and Data Collection Methods

The tables below summarize the major research questions for the three phases of field-testing, as well as the data collection methods related to each question.

Table 3.1 Research Questions and Data Collection for the Phases of Field-testing

Phase of Field-testing	**Research Questions**	**Data Collection Methods**
Phase 1: Test of Content Relevance and Instructional Delivery	1. Are professional development materials relevant, useable and clear? If not, why?	• Teacher educator and state partner observations • Teacher focus groups
	2. Is the scope of module content reasonable? If not, why?	• Teacher focus groups • Teacher educator and state partner observations
	3. Is the delivery of professional development consistent with research-based adult learning principles? If not, why?	• Teacher quick card ratings of adult learning quality
	4. Are our assumptions of what constitutes "teacher competence" appropriate for first and second year CTE teachers? If not, why?	• Teacher educator and state partner observations • Teacher Sense of Efficacy Scale (TSES) • Teacher surveys
	5. Do the measures used during the iterative field test generate the information needed to tell us that the model is working as intended?	• Instructor debrief interviews
Phase 2: Test of the Promise of the Model[1]	1. Do induction program completers demonstrate improvement on measures of competence in instructional planning, assessment, instructional strategies and classroom management?	• Participant surveys • Q-sort • Teacher interviews • Teacher focus groups • Instructor debrief interviews • Classroom observations by administrators and professional development instructors
	2. Do induction program completers demonstrate improvement on a pre-post measure of teacher self-efficacy?	• Teacher Sense of Efficacy Scale (TSES)
	3. Do induction program completers demonstrate commitment to remain in the teaching profession?	• Teacher survey of commitment to the field • Teacher interviews

Phase of Field-testing	Research Questions	Data Collection Methods
	4. Do students in classrooms taught by induction model completers report having classroom conditions associated with high quality CTE instruction?	• Student surveys
	5. What school-level factors may mitigate the efficacy of the induction model?	• Pride Surveys administered to teachers in participating teachers' schools or tech centers
Phase 3: Test of the Feasibility of the Model to be Implemented by Stakeholders	1. Do induction program completers demonstrate improvement on a pre-post measure of teacher self-efficacy?	• Teacher Sense of Efficacy Scale (TSES)
	2. Do induction program completers demonstrate commitment to remain in the teaching profession?	• Teacher survey of commitment to the field • Teacher interviews
	3. Is it feasible that this model can be implemented as designed? Are extraordinary resources required (e.g., money, personnel, time, and technology)?	• Feasibility survey for state coordinators • Instructor interviews • Instructor and state coordinator focus group • Teacher focus groups • Classroom observations by administrators and professional development instructors • Mentor logs
	4. Are state partners able to implement the induction model with fidelity? If not, what changes need to be made to the materials? What kinds of support do states need to implement the model with fidelity?	• Instructor interviews • Instructor and state coordinator focus group • Teacher focus groups
	5. Do measures of implementation fidelity capture all key practices necessary to optimally operationalize the model?	• Instructor interviews • Instructor and state coordinator focus group • Teacher focus groups • Mentor logs

[1]Questions for phase 2 originally supported a quasi-experimental research design. Teachers who participated in the CTE teacher induction program were to be compared to new CTE teachers who did not participate in the program. Because of centers and schools in State 1 were unable to participate as control sites, this design was dropped and the research questions were rewritten. (See End of Phase State Coordinator Interview Appendix DD.)

Measures and Methods of Analysis to Determine Fidelity of Implementation

In the second and third phase of the field-testing when the full induction model was being tested, it was important to determine whether or not the model was implemented with fidelity. Table 3.2 illustrates the types of data collected to determine the quality and fidelity of the delivery of the model. The criteria for determining whether the induction model was implemented as intended were:

- All elements of the model were delivered
- The professional development elements of the model were delivered consistently with standards of high quality adult learning. Those standards include:
    - content
    - relevance to adult learners
    - duration and sequence of delivery
    - instructional delivery methods
    - opportunity for adult learners to engage in dialogue and reflection
    - learning through authentic work
    - sufficient time for reflection and deep learning
    - modeling, practice and feedback on CTE instructional strategies
- The administrator support element of the model was delivered through a minimum of one meeting per month and one classroom observation per quarter.
- The mentor support element of the model was delivered through a minimum of one meeting per week for the first two months.
- Coaching visits were performed by the professional development instructor (at least three).
- Regular electronic communication was maintained, such as a website, emails and webinars.

Table 3.2: Data to Determine Quality and Fidelity of the Delivery of the Model

Purpose	**Sources**	**Format**
To assess fidelity of delivered program to planned program	Program instructional staff, state coordinators, teacher, program evaluators	Instructor interviews, informal observations of professional development, teacher and instructor focus groups, feasibility survey
To assess fidelity of delivered program to prepared materials	Program evaluators	Informal observations, teacher focus groups
To assess quality of delivered program	Teachers	Instructor interviews, teacher and instructor focus groups
To assess quality of mentor support	Mentors, Teachers	Log of meetings with mentees
To assess quality of administrator support	Administrators, Teachers	Observations of teachers
To assess quality of coaching support	Instructors, Teachers	Observations of teachers

Purpose	Sources	Format
To assess quality of electronic communication	Program evaluators, Teachers, state coordinators	Informal observations, teacher focus group, feasibility survey

Data to Determine Promise of Intended Outcomes

Another goal of the iterative field tests in phase 2 and phase 3 was to test the promise of the model to produce its intended outcomes: improved commitment to the field, competence and self-efficacy. The purpose of this aspect of the data collection was to produce actionable knowledge used to make improvements to the induction model. Highlights of measures and methods of analysis are organized below the research question for each intended outcome. The phase 2 questions and their corresponding data collection methods are:

1. **Do induction model completers demonstrate improvement on measures of competence in instructional planning, assessment, instructional strategies and classroom management?**

   a) **Danielson's framework observation**. Danielson's (1996) observation protocol was adapted for school administrators and professional development instructors to assess teacher participants' classroom practice. Adaptations reflected the intended outcomes of the professional development modules (instructional planning, instructional strategies, classroom assessment, and classroom management).

   b) **Surveys of students in classrooms taught by participants**. Students of teachers participating in the induction model were surveyed regarding their perceptions of teacher competence as manifested in the classroom. Items from the *High Schools that Work* Assessment and student survey were used to generate a new measure of student perception of teacher practice. Items asked students to report classroom conditions and assignments associated with high quality CTE instruction including that teachers demand students read more, teachers require students to integrate math into their CTE course work, students take more written exams, students keep written portfolios, and students have opportunities to redo work, etc. Surveys were administered to students in the spring.

   Analysis of Data
   This combination of measures is designed to create a corroborated portrait of teacher knowledge and practice. Principal observations of classroom practice provide the primary data source on teacher competence in each of the four professional development content areas. Student surveys provide additional support on teacher competence.

2. **Do induction model completers demonstrate improvement on a pre-post measure of teacher self-efficacy?**

   a) **Teacher Sense of Efficacy Scale (TSES)**. This instrument was developed by Tschannen-Moran & Woolfolk Hoy (2001) and includes three, eight-item subscales: *Efficacy for*

Instructional Strategies; Efficacy for Classroom Management; and *Efficacy for Student Engagement.* In prior studies, reliabilities for the full scale of the TSES ranged from .92 to .95, and .86 to .90 for the subscales (Tschannen-Moran & Woolfolk Hoy, 2007). This instrument was administered to all teacher participants at the beginning or before the first professional development module and again following the end of the second 10-day summer institute.

Analysis of Data

TSES scores were analyzed in SPSS using pre-test, post-test analysis to determine whether teacher participants increased their self-efficacy on each of the three scales. Scoring instructions are outlined in Tschannen-Moran and Woolfolk Hoy (2007) and were followed carefully to arrive at accurate scale and subscale scores.

3. Do induction model completers demonstrate a commitment to remain in the teaching profession?

a) Interviews with teacher participants. Interviews were conducted with teacher participants about their experiences in teaching and about their future career plans.

b) Surveys of teacher participants. Teacher commitment surveys were administered to teacher participants concerning their plans to continue teaching CTE, expected number of years teaching, the strength of a match with their long-term career goals, and their intent to seek alternative employment.

Analysis of Data

These data were analyzed using both quantitative and qualitative methods. Mean average years were calculated. In addition, responses to the open-ended survey question asking for reasons regarding career commitment were using a grounded theory approach (Strauss & Corbin, 1990) to generate themes explaining why CTE teachers plan to leave the profession.

4. Do students in classrooms taught by induction model completers report having classroom conditions associated with high quality CTE instruction?

a) Modified *High Schools That Work* student survey focused only on assessing the CTE classroom instruction. The *High Schools That Work* student survey was modified to include only those questions that pertained to CTE classroom instructional practices.

Analysis of Data

These data were analyzed using quantitative methods in SPSS. Mean averages of the students' responses will be reviewed to provide a snapshot of CTE teachers' instructional practices, their inclusion of core content subjects in career tech classes, and the use of student portfolios in career tech classrooms.

5. What school-level factors may mitigate the efficacy of the induction model? The efficacy of the induction model is predicated on a supportive and collegial environment in the school. The supervising administrator and mentor are key factors in providing

support to the new CTE teacher; however, the prevailing school culture can be equally powerful as a deterrent to reflective practice, teacher-teacher collaboration and a hospitable environment for new teachers.

a) **Working conditions surveys of other teachers in the school to assess climate**. Instruments such as the North Carolina Teacher Working Conditions Survey, the Pride Survey, or the International Survey Associates Teaching Environment Survey are broadly used, reliable, and well-validated measures of school climate including the degree of teacher collaboration, the quality of instructional leadership provided by the principal and decision-making norms. A school climate survey was administered to the faculties in the participating teachers' schools in spring 2011.

Analysis of Data

The research company that developed the working conditions survey will score the surveys. School results from the working conditions survey will be compiled and aggregated to provide an overall picture of the working conditions in the participating teachers' schools.

The phase 3 research questions and their corresponding data collection methods are:

1. Do induction model completers demonstrate improvement on a pre-post measure of teacher self-efficacy?

a) **Teacher Sense of Efficacy Scale (TSES)**. This instrument was developed by Tschannen-Moran & Woolfolk Hoy (2001) and includes three, eight-item subscales: *Efficacy for Instructional Strategies; Efficacy for Classroom Management;* and *Efficacy for Student Engagement.* In prior studies, reliabilities for the full scale of the TSES ranged from .92 to .95, and .86 to .90 for the subscales (Tschannen-Moran & Woolfolk Hoy, 2007). This instrument was administered to all teacher participants at the beginning or before the first professional development module and again following the end of the second 10-day summer institute.

Analysis of Data

TSES scores were analyzed in SPSS using pre-test, post-test analysis to determine whether teacher participants increased their self-efficacy on each of the three scales. Scoring instructions are outlined in Tschannen-Moran and Woolfolk Hoy (2007) and were followed carefully to arrive at accurate scale and subscale scores.

2. Do induction model completers demonstrate a commitment to remain in the teaching profession?

a) **Interviews with teacher participants**. Interviews were conducted with teacher participants with teachers about experiences in teaching and about their future career plans.

b) **Surveys of teacher participants**. Teacher commitment surveys were administered to teacher participants concerning their plans to continue teaching CTE, their expected

number of years teaching, the strength of a match with their long-term career goals, and their intent to seek alternative employment.

Analysis of Data

These data were analyzed using both quantitative and qualitative methods. Mean average years were calculated. In addition, responses to the open-ended survey question asking for reasons regarding career commitment were using a grounded theory approach (Strauss & Corbin, 1990) to generate themes explaining why CTE teachers plan to leave the profession.

3. Is it feasible that this model can be implemented as designed? Are extraordinary resources required?

a) Feasibility Survey. A feasibility survey (multiple choice, short response) was designed for state coordinators to determine their ability to implement program, program guidelines and feedback mechanisms.

b) Focus Group. Focus groups were conducted with state coordinators and instructors. Questions focused on ability to implement the program, program strengths and weaknesses and lessons learned.

c) Interviews. Interviews were conducted with instructors. Questions centered on delivery and content of professional development components, use of modules, pacing, time devoted to modules, etc.

Analysis of Data

The results of the feasibility surveys (total of two) are compared by State 1 and 3 to determine similarities and differences and adherence to the fidelity of the model including the time frame. To analyze the focus group and interview responses, the grounded theory approach (Strauss & Corbin, 1990) was used to determine themes.

4. Are the state partners able to implement the induction model with fidelity?

a) Focus Groups. Focus groups are conducted with state coordinators and instructors. Questions focused on ability to implement the program, program strengths and weaknesses and lessons learned.

b) Administrator Observation Forms. During the initial summer training, school administrators were provided with feedback forms based on the Danielson Framework (described earlier), and they were instructed to observe participating teachers on a regular basis throughout the school year.

c) Instructor (Coach) Feedback Forms. Instructors observed participating teachers on site three times throughout the year.

d) Mentor Logs. During initial summer training, mentors were provided with mentor logs and instructed to list the dates they met with their first-year CTE teachers and to list the topics discussed.

Analysis of Data

To analyze the focus group responses, the grounded theory approach (Strauss & Corbin, 1990) is used to determine themes. To analyze the administrator observation forms and instructor feedback forms, the pre- and post-data are analyzed to determine whether or not teachers show an increase in their performance**.**

5. Do measures of implementation fidelity capture all key practices?

a) Fidelity Framework. This framework is based on the measures of implementation fidelity. These measures of implementation fidelity are found earlier in chapter three of this report.

Analysis of Data

To analyze the fidelity framework, the following data points – content, relevance to adult learners, duration and sequence of delivery, instructional delivery methods, opportunity for adult learners to engage in dialogue and reflection, learning through authentic work, sufficient time for reflection and deep learning, and modeling, practice and feedback on CTE instructional – were analyzed based on the grounded theory approach (Strauss & Corbin, 1990) to determine how well the individual states implemented the program.

Chapter 4—Findings

The findings section of this report includes a summary of the findings of Phase 1, 2, and 3 field tests. They include:

- Phase 1: The Validity of the Induction Model and Changes in the Professional Development Modules Suggested Through the Data — Findings from four field tests conducted to study and refine that induction model between June 2009 and February 2010 with three cohorts of early career CTE teachers in two states
- Phase 2: The Promise of the Model to Impact Commitment to the Profession, Teacher Competence and Self-Efficacy from 2010-2011 — Findings of a field test of a cohort of first year CTE teachers in State 1 who participated in the alternative induction program
- Phase 3: Stakeholder/State Implementation of the Training — Findings focus on State 1 and State 3 participating teacher cohorts implementing the program with fidelity

Phase 1 Field Test: The Relevance and Instructional Delivery of the Induction Model Content (2009–2010)

This field test was comprised of four separate professional development sessions, each lasting three, six-hour days. A total of 46 teachers participated, representing three cohorts in two states. The purpose of the field tests was to determine whether the content, scope and delivery of four professional development modules were appropriate for the intended audience of new CTE teachers.

The research questions were:

1. Are the professional development materials relevant, useable and clear? If not, why?
2. Is the scope of the module content reasonable? If not, why?
3. Is the delivery of the professional development consistent with research-based adult learning principles? If not, why?
4. Are the assumptions of what constitutes teacher competence appropriate for first and second year CTE teachers? If not, why?
5. Do the measures used during the iterative field test generate the information needed to tell us that the model is working as intended?

The teachers who participated in the field tests were almost equally male/female. The majority of participants were white, with 15 percent being American Indian. Thirty-seven percent of the teachers were ages 25-34 and 28 percent of the teachers were ages 35-44. Forty-one percent of the participants had a bachelor's degree. The most highly represented careers were construction (15 percent) and health services (18 percent). (See the Demographic and Background Information Appendix A and Demographics Characteristics of Field Test Participants for Phase 1 Appendix B.)

Analysis of data from each field tests generated myriad findings that model developers used in successive cycles of revision and retesting over the course of the year. Selected findings that emerged in all four workshops during the field tests are reported here.

1. **Are the professional development materials relevant, useable and clear?**
2. **Is the scope of the module content reasonable?**

Field test participants identified key elements of the modules that they felt would be necessary for new teachers prior to entering the classroom, including: (a) the use of rubrics; (b) formative and summative assessment; (c) how to use a table of specifications to align their instructional goals and assessments to technical standards and 21st-century skills; (d) getting to know students; (e) engaging students in developing classroom rules and procedures; and (f) classroom management scenarios. Data suggested that three strategies used by induction model developers were particularly effective in supporting participant learning: (a) use of examples in participants' content areas; (b) use of "floating" one-on-one and small-group coaching during cooperative learning segments; and (c) facilitated small-group discussion in the afternoon or evening to structure reflection.

3. **Is the delivery of the professional development consistent with research-based adult learning principles?**

Data suggested three strategies used by model developers were particularly effective in supporting participant learning: (1) use of examples in participants' content areas; (2) use of "floating" one-on-one and small-group coaching during cooperative learning segments; and (3) facilitated small group discussion in the afternoon or evening to structure reflection. Participants in the first focus group raised model developers' awareness of the importance of linking the content of the modules to specific examples tied to their CTE content areas. (See Focus Group Protocol Form Appendix F.) One participant said, "I need more specific training in the areas I teach," while another participant stated plainly, "I really can't use the material I learned here because it is not connected to my content." Following that feedback, model developers took explicit steps to determine the content areas of participants in advance of subsequent field tests, and put together resource binders with content-specific examples for every teacher's content area. In the focus group for the third field test, participant comments suggested this change was having its intended effect. One participant noted, "You go to other trainings and [what they present] doesn't really apply [to me]. It's overall, generalized teaching strategies. You come here and it's reversed. Here, you sit down and you have people who understand what CTE teaching is…and say, 'This is how you apply this to your classroom.'"

With regard to one-to-one instructor guidance, several data sources suggested that teacher learning was best supported when instructors moved among small groups during cooperative learning segments. (See Daily Instructor Debrief Appendix K.) Participant interviews and focus groups both yielded strong agreement that this was an important aspect of learning for them that helped to "individualize" instruction. (See Teacher Interview Protocol Appendix J.) The quick cards showed spikes in relevance, dialogue and application following segments that included small group-coach interaction. (See Note Card Completed by Teachers Forms Appendix H.)

The evaluators originally attempted to observe research-based adult learning principles using an observation tool. (See Module Observation by Evaluators Appendix G.) However, after attempting to use the form during the first field test, the evaluators realized that what they

observed did not reflect what the teacher participants may have felt about the same situation. Instead the evaluators decided to go to the previously mentioned quick cards to have the teacher participants fill them out throughout the day to gauge how the teachers felt about the previous session focusing on adult learning principles.

Participants in the focus groups noted that the coaches did not need content expertise in their CTE area, but only expert knowledge in the process – whether it was rubrics, or testing or instructional strategies. Finally, observers noted that while the cooperative learning strategies used throughout the modules were consistent with adult learning principles, they were not equally effective for all groups, particularly those that do not receive a visit from an instructor during their small-group discussion.

Finally, facilitated discussion following the formal professional development agenda helped teachers further process their new knowledge. Though participants liked a brisk instructional pace, they indicated in focus groups that having an informal but semi-structured time to debrief, process, and digest what they learned was tremendously beneficial to their learning and to facilitating connections among participants. During the field test, the focus groups performed this debriefing function.

4. Are our assumptions of what constitutes "teacher competence" appropriate for first and second year CTE teachers? If not, why?

Pre- and post-results on the TSES for this group of teachers were positive on a 9-point scale. Teachers scored on average 6.41 on the student engagement pre-assessment. The post-assessment score was 7.3. Their pre-assessment score on instructional strategies was 6.65 and the post-assessment score was 7.58. Their pre-assessment on classroom management was 6.92 and the post-assessment was 7.7. Overall they made almost a one-point gain in each area. Their beginning scores were typical of new teachers; the rise in scores showed teachers who believed they were doing well as teachers. (See Teachers' Sense of Efficacy Scale Appendix C and Teachers' Sense of Efficacy Scale Results Appendix D.)

Two findings emerged primarily from analysis of focus group transcripts regarding the characteristics and primary concerns of the participants in these field tests. The first finding pointed to the level of basic literacy and numeracy skills found within this group of alternatively certified CTE teachers. The second finding, motivating students, emerged without prompting in multiple focus groups, indicating the key challenges and concerns facing these new CTE teachers.

State 1's policy for recruiting alternatively certified CTE teachers introduces virtually no barriers to entry, including no minimum score requirement on tests of basic skills. State 2's does have new CTE teacher entry requirements. Accordingly, participants in the two State 1 field tests demonstrated a wide range of basic literacy and numeracy skills. **Observations by instructors and guest observers suggested that the concepts of integrating academic content such as literacy and numeracy skills were especially challenging for these CTE teachers, some of whom did not have strong mastery of those basic skills themselves. (**See Material Review by Outside Observers form Appendix L.) The participants indicated awareness of this lack of

mastery during focus groups. Referring to the Buck Institute text on project-based learning, one participant said, “There were a lot of large words in there that could have been reworded in another way. I can’t tell you those words because I didn't know the meaning of them. And that went kind of rough. A lot of us are not college people, okay? We worked in the field for 25 to 30 years. I’m just stating that. And some of those larger words probably need to be put in more of layman’s terms.” Other field test groups noted concern regarding the cognitive demand of integrating academic content into CTE instruction as part of the constellation of skills expected of a brand new teacher, noting that teachers are not likely to be receptive to doing this type of instruction until the second half of the first year.

Regardless of their pre-existing levels of basic skills, all field test groups of teacher participants indicated that what is foremost on their minds is how to motivate students and manage their classrooms. One focus group participant said, “My biggest battle right now is keeping the kids interested. We can write rubrics until we’re blue in the face, and write lesson plans, and write long-range plans, and write critical maps and all this stuff. But, for whatever reason, it’s just keeping the kids’ interest and motivation.” The verbatim phrase, “You can lead a horse to water but you can’t make them drink,” came up independently in several focus groups.

5. Do the measures used during the iterative field-test generate the information needed to tell us that the model is working as intended?

Yes, the measures did generate the needed information to tell us the model is working as intended. Selected findings that emerged in all four field tests fell into four categories: characteristics and needs of participants, strategies that enhanced participant learning, planning logistics and content of professional learning, and methodological findings. (See Pre-and Post-Assessment Tool for Content Knowledge forms for all field test Appendix E.)

Two findings emerged regarding the characteristics and primary concerns of the participants in these field tests. The first finding spoke to the low level of literacy and numeracy skills found within this group of CTE teachers. The second finding, motivating students, emerged in several focus groups, pointing to the key challenges and concerns CTE teachers have in engaging and motivating students.

Feedback from teachers and state agency administrators underscored how important it was to select optimal days and times for three, two-day follow-up sessions during the 2010-2011 school year. Some dates had to be avoided as professional development days.

Across all four field tests, teachers identified elements of the modules that they felt would be necessary for new teachers prior to entering the classroom. Those elements were sections on: (a) the use of rubrics; (b) formative and summative assessment; (c) how to use the table of specifications to align their instructional goals and assessments to technical standards and 21st-century skills; (d) getting to know students; (e) engaging students in developing classroom rules and procedures; and (f) the twelve classroom management scenarios.

The expert panel reviewed the model’s design and instrumentation twice during the first year of field-testing. Recommendations from the panelists focused on enhancing the qualitative

methodologies to generate more descriptive data, including adding interviews of individual participants and adding detailed questions to protocols for observers and instructors regarding their observations of participant learning.

Panelists also questioned the use of teacher retention as a measure of the program's impact given the influence of the current economic climate and the short time frame for the project. In lieu of retention data, panelists recommended the use of measures of career commitment as a more accurate proxy for the outcome the program aims to achieve, and it further suggested adding a school climate measure to the evaluation design to account for other more powerful influences on teacher attrition.

Phase 2 Field Test: The Promise of the Model to Impact Commitment to the Profession, Teacher Competence and Self-Efficacy (2010–2011)

The second phase of the iterative development methodology was a field test of the full induction model to determine whether the model showed promise toward the intended outcomes. One cohort of beginning CTE teachers in State 1 was recruited to be a part of the field test based on recommendations by their local administrators. There were 10 teachers in this cohort.

The research questions were:

1. Do induction program completers demonstrate improvement on measures of competence in assessment, classroom management, instructional planning and instructional strategies?
2. Do induction program completers demonstrate improvement on a pre-post measure of teacher self-efficacy?
3. Do induction program completers demonstrate commitment to remain in the teaching profession?
4. Do students in classrooms taught by induction program completers report having classroom conditions associated with high quality CTE instruction?
5. What school-level factors may mitigate the efficacy of the induction model?

The cohort in State 1 showed a more ethnically diverse group of teachers (60 percent white, 20 percent American Indian, 10 percent Asian) in comparison to all State 1 teachers as a whole; it's an older group of new teachers (40 percent were ages 35-44) because they were career changers, and 50 percent of participating teachers had at least an undergraduate degree. (See Demographic Characteristics Appendix M.)

The cohort participated in the full induction model, beginning with a 10-day summer institute and continuing with three, two-day sessions throughout the school year. In the second summer, another 10-day institute concluded the program. The mentors and administrators for these teachers participated in a two-day training session and followed a schedule of meetings and activities with the beginning teachers throughout the year. The professional development instructor made three classroom visits to each participant and provided feedback on their teaching. The beginning teachers had access to a program website and were invited to participate in monthly webinars as part of an ongoing community of practice.

The first part of the report on phase 2 findings is devoted to a profile of a successful CTE professional development participant, who represents a composite of teachers who remained in the program, and it profiles an unsuccessful participant, who represents a composite of those teachers who withdrew from the program. The profiles are followed by findings grouped by the themes that emerged from the data: CTE professional development, commitment to the teaching profession, school culture, and curriculum and instruction. The information contained in the two teacher profiles is not representative of any one teacher who participated in the CTE professional development induction model. Rather the profiles reflect a combination of participant data collected. The sources of data include results from an initial and a concluding focus group with teacher participants, a pre- and post-self-efficacy scale for teacher participants, pre- and post-teacher commitment surveys, a pre- and post-Q-Sort activity where teacher participants indicate strengths and weaknesses of the CTE professional development, teacher participant interviews,

mentor surveys, administrators' classroom observations, pride surveys, student surveys and instructors' observations.

Teacher Profile: Teresa—Successful CTE Teacher Completer

Teresa's Introduction

Teresa had been a cosmetologist at a local styling salon in a mid-size city for 25 years. She enjoyed her work, but she realized she would have to find a job that was less physically demanding. Teresa had never thought of becoming a teacher until a friend suggested it. She always had a good rapport with children; had an associate arts degree in cosmetology; and knew her career inside and out. Teresa contacted her local district about job opportunities. She discovered that there was a cosmetology teacher opening at the tech center in an adjoining county. The tech center offered classes for both high school students and adults. Based on her good references and academic and work records, Teresa was offered the cosmetology teaching job at the career tech center.

Her center director knew about the CTE teacher professional development induction model for alternative career tech teacher certification and recommended that Teresa take part in this 14-month professional development opportunity. Teresa was unclear about what she was getting in to, but she thought she would give the professional development a try. She was concerned that the professional development stretched from an initial two-week summer professional development to professional development during the school year to a concluding two-week professional development the next summer. Teresa thought the time commitment was a bit extensive. Her biggest worries, however, were setting up her classroom and disciplining her students.

Teresa's School—Themes of School Culture and School Leadership

Teresa was employed to work at a technical center in a mid-size city. The state-of-the-art facility served both high school and community college students. The center director has been at the helm for five years and was recognized for being a strong administrator who was highly organized, a disciplinarian and treated teachers fairly. The center program was well organized, and the majority of educators at the center were veteran teachers. Center students regularly won state and regional awards (in several career pathways), and school pride was evident among the students and teachers.

Summer 2010 Professional Development—Themes of Training Rigor, Teacher Participant Collegiality, Teacher Participant Commitment to the Profession

Teresa and nine other career tech teachers met in the central part of the state for the initial two-week CTE professional development in July 2010. Because Teresa was several hours from home, she elected to stay at local university housing at no charge. This allowed Teresa to concentrate on the professional development and get to know the other teacher participants. She was the only cosmetology teacher at the professional development. Other career tech teachers represented the building trades, business technology and culinary arts.

Teresa and other teachers participated in some assessments for evaluation purposes. One was the Teacher Sense of Efficacy Scale (TSES) and another was the Teacher Commitment to the

Profession survey. There were three components to the TSES. On a 9-point scale, Teresa's pre-assessment scores were 5.4 on efficacy in classroom management; 6.2 on efficacy in student engagement, and 5.8 on efficacy in instructional strategies. These scores were at the average range in comparison to other teacher participants in the cohort. On her teacher commitment survey, she reported that she planned to teach at her current school in the immediate future; teaching had not been a long-term career goal; and she strongly agreed that she planned to teach for at least five years.

There were four professional development strands—instructional planning, instructional strategies, classroom discipline and classroom assessment. Interfaced with these strands was teaching the standards, literacy, and numeracy in CTE classes. These strands were integrated throughout the initial two-week professional development. The intensive professional development was designed to be practical, rigorous and "on time" for new teachers. There were instructional strategies, hands-on activities (such as creating a first-day lesson plan, and developing a syllabus), role playing exercises, delivery of the content, opportunities for participants to "teach back" what they had learned and lots of interactions among participants. What teachers learned and developed during the summer professional development prepared them to teach effectively during their first year of teaching.

By the third day of training Teresa was overwhelmed and exhausted. The many acronyms and educational terms presented were all new to her, and some of the activities were complicated. The days were long and filled with new ideas. She began to wonder if she had made a mistake by entering the teaching profession and participating in the training. The height of her frustration was day four of the training when the instructor asked teacher participants to develop curriculum maps for the entire school year. Teresa struggled with the assignment. It seemed like too mammoth a task to undertake in a couple of days, and the integration of the curriculum with the assessment and upcoming activities was daunting. The instructor had presented how to plan a curriculum—deciding which units to teach; determining how long the units would be; and outlining the major learning outcomes, activities, and corresponding assessments. The teachers were expected to develop their own curriculum map for the year and then share it with the group. The instructor coached Teresa on how to proceed. She received advice from some of other teacher participants as well. She felt calmer the second week of training. The vocabulary was beginning to make some sense to her, and the instructional strategies seemed practical and motivating. She also enjoyed the other teacher participants in her cohort. The teachers were friendly, willing to share instructional strategies and non-judgmental. Because of the training, Teresa had daily lessons planned for the first quarter of the school year, which reassured her.

Teresa commented at the conclusion of the training that information she picked up over the past two weeks had been very helpful. She found the classroom management techniques to be the most practical, along with the ways to infuse literacy and numeracy into her lessons. Teresa mentioned that the pacing for the training was a bit off—too much time spent on some strategies and not enough on others. She did request that some activities be geared to teachers' career focus. Teresa did feel fairly confident that she had acquired some tools to start the school year off on the right track.

She was assigned a mentor at her center who was an accomplished and experienced educator in business technology. The plan was for the mentor and Teresa to meet at least once a week. The mentor planned to observe Teresa and provide feedback on a monthly basis. Her tech director also had specific times scheduled when she would observe and meet with Teresa throughout the school year. The SREB CTE instructor set up a schedule to observe Teresa and provide feedback on a quarterly basis. Teresa's mentor, instructor and administrator followed through and observed and offered feedback on a regular basis to Teresa during the school year.

Mid-Year: January 2011—Themes of Student Achievement, Student Behavior, CTE Teacher Expertise

Teresa came home exhausted the first three months of the school year and began to wonder if teaching was more physically demanding than working in a styling salon. She was amazed at some of the problems her students brought to school such as lack of food, abusive parents and serious health issues. In addition, the school and CTE program paperwork was overwhelming. Surprising to Teresa, however, was the fact that she did not have any serious student discipline problems. Most student issues were related to their tardiness and absences. Teresa sincerely cared about her students, and held them to high academic, technical and career standards. She planned each lesson thoroughly, used the curriculum map she had developed, and presented the students with clear expectations regarding academics and behavior. Some of her lessons had not been particularly successful and her students had scored poorly on some tests, but the feedback she had gotten from her mentor, SREB coach, and center director indicated she was at a satisfactory level with her instruction. She was more successful in integrating literacy into her instruction than numeracy. Teresa really felt like her greatest weaknesses were having disengaging lessons from time to time and using inappropriate assessment techniques. Teresa felt like she was still too dependent on lecturing, and the assessment tools she was using did not seem to get at students' actual strengths and weaknesses. Her observations from her director, coach and mentor supported her concerns.

Teresa completed the school year successfully, although she did have several students drop out of her CTE program because of chronic absenteeism. Her director remarked that Teresa was much better prepared than other first-year teachers she had employed in past years. In fact, several veteran teachers asked Teresa to share some of her literacy strategies with them. Teresa's classroom management skills were solid and she was able to cover the curriculum by the conclusion of the school year. Student assessments showed that a majority of students had completed the CTE program at least at an adequate level. Teresa sat down with her mentor and director to outline goals for her second year of teaching.

Conclusion: Summer 2011—Themes of Teacher Expertise, Teacher Commitment to the Profession, Training Rigor

Teresa's return to summer training affirmed that she had made a good decision to enter the teaching profession. On the teacher self-efficacy survey, she increased by at least one point in the all three areas—classroom management (6.5), student engagement (7.3), and instruction (6.9). These scores are above average in comparison to other teachers in the group. Once again Teresa found summer training to be rigorous and exhausting, using up every brain cell she had. This

time, however, she knew what to expect. She reconfirmed her commitment to teaching on the post-teacher commitment survey. During training the professional development numeracy sessions made more sense to her. There was a review of many of the instructional strategies previously taught at training and the introduction of several new ones. The teach backs were helpful and Teresa was ready to move forward to her second year of teaching.

Teacher Profile: Thomas—Unsuccessful CTE Teacher Completer

Thomas' Introduction

Thomas had never thought about becoming a teacher, but the economy was tight and he needed a job. He had lots of experience as a restaurant chef and had jumped from restaurant to restaurant in several cities around the state over the past 10 years. Thomas thought his best bet was to try his hand as a culinary science teacher at a local high school. He was a smart and creative guy and thought he had his cooking skills down. Thomas also had completed a couple of years of community college course work. He figured he could cut it as a teacher. Once he was hired at a high school located in a small town, Thomas' high school principal strongly suggested that he participate in the CTE new teacher induction training. The principal was concerned about Thomas's lack of experience in education. Thomas agreed, but he did not like the two-week time period devoted to the summer training. The training cut into his summer work and family activities.

Thomas' School: Themes of Culture and School Leadership

The high school where Thomas was hired to teach had a satisfactory reputation. There was little turnover among staff members, and the principal had been in place for 10 years. The previous culinary arts teacher had not run a good CTE program, and he finally chose to retire. Faculty members at the high school were not collegial, and school pride was minimal. Minor student discipline problems at the high school were ongoing and never seemed to be resolved.

Summer 2010: Themes of Training Rigor, Teacher Participant Collegiality, Teacher Participant Commitment to the Profession

Because Thomas lived close to the center where the summer training was held, and he had family responsibilities at night, he drove back and forth each day. This cut him off from building relationships with the other teachers and affected his level of engagement with the training. There were some assessments for evaluation purposes that Thomas and other teachers took part in at the beginning of the training. One was the TSES and the other was the teacher commitment to the profession survey. There were three components to the TSES: On a 10-point scale, Thomas' assessment scores during the first summer training were 4.2 on efficacy in classroom management; 5.4 on efficacy on student engagement, and 5.6 on efficacy on instructional strategies. These scores were below average in comparison to other teachers in the group and low in comparison to other studies of new teacher TSES results. On his teacher commitment survey, Thomas reported that he did not plan to teach at his current school for more than two years; teaching had not been a long-term career goal; and he disagreed that he planned to teach for at least five years.

Thomas found the summer training to be unbearably long, and he missed three of the ten days due to household chores and family obligations. When he was at the training, he barely participated in the activities and the quality of his work was less than adequate. The terminology was new to him as well as all the educational acronyms. He thought the training really did not apply to culinary arts and the units of study he would be teaching. Instructors also noted a lack of effort on Thomas' part. Like the other new teachers taking part in the training, he struggled with the curriculum map but managed to cobble a plan together for the upcoming school year. He completely disregarded the sessions on literacy and numeracy because he did not view himself as a reading or math teacher. Cooking was his thing. Thomas did enjoy the teach-backs and was quite skillful at providing helpful feedback to others. He was assigned a mentor from another tech center who would work with him on a regular basis throughout the school year. The SREB coach and the high school principal also planned regular meetings and feedback with Thomas.

Mid-year: January 2011— Themes of Student Achievement, Student Behavior, CTE Teacher Expertise

Thomas' classroom was located in an isolated building on the fringe of the high school campus. He did not like the culinary curriculum the previous instructor had developed because it was too complicated to follow. Thomas scrapped it and instead developed his own course of study. This meant his curriculum map and other related classroom products he had created during summer training were no longer relevant. He was not able to put together a culinary CTE program of study because of a lack of time and effort on his part. In addition, there was limited kitchen equipment in his classroom. His lessons were scattered and planned on the fly. There was no organization or scaffolding, and he had students watch and critique cooking shows or had them look at cookbooks and answer questions about the recipes. Students picked up on Thomas' lack of planning and organization and were disruptive in class. Many times a school administrator had to be called in to Thomas' classes because the students were out of control. His principal provided him with some techniques for getting his students under control, but Thomas only half-heartedly tried some of them. Thomas blamed the unacceptable student behavior on others. He said that most of his students did not want to work in a culinary field; he felt the school counselor put some students in his classes because they needed an extra credit. Thomas also had trouble making it to school on time. He usually arrived late to his first-period class because he had dropped off his daughters at school. His mentor did not fulfill his obligations; he was rarely in Thomas' classroom and provided no feedback or support. Thomas was the only teacher in his building so he felt isolated from the other teachers. Thomas' principal at one time had perceived Thomas as a smart, knowledgeable, talented chef and promising teacher. Over time, however, the principal began to view him as a problematic instructor who could not control his class, had an attitude problem, could not follow the curriculum and honor established work hours. Thomas' classroom observation ratings went down rather than up as the school year progressed. When the SREB coach visited the classroom, it was chaotic and Thomas ignored any suggestions made by the coach. As the school year continued, Thomas put less and less effort into his teaching. He did not make it to all the CTE training sessions during the school year. When he did show up, he did not turn in assignments or actively participate in sessions. Thomas' students did very poorly on their end-of-the-year assessments. Both Thomas' principal and Thomas agreed that teaching was not a good fit for Thomas and his contract was not renewed for the following school year.

Conclusion: Summer 2011—Themes of Teacher Competency, Teacher Commitment to the Profession, Training Rigor

Thomas' OSTES post-scores remained flat—efficacy of classroom management (4.3), student engagement (5.3) and instructional strategies (5.6). These scores reflect earlier OSTES research studies of teachers who completed the survey and had low job satisfaction. On the Teacher Career Commitment survey Thomas stated that he did not want to remain in the teaching profession. Thomas dropped in on summer training when he could, mentioning frequently the ways his high school had not supported his quest to become a teacher. Thomas developed lackluster work products during the two weeks. He ultimately decided the best bet for his future was returning to restaurant work, perhaps in a state that was more economically on the upswing.

Phase 2 Findings

1. Do induction completers demonstrate improvement on measures of competence in assessment, classroom management, instructional planning and instructional strategies?

Eight CTE teachers from State 1 took part in a late afternoon hour-long focus group. (See Focus Group Protocol Appendix Q.) Teachers were in the midst of completing their initial two-week training. Five CTE teachers participated in a late afternoon hour-long post-focus group during the final week of training. Teacher participation in the focus groups was voluntary. Teachers not participating had family or professional commitments. In both instances, teachers were asked questions about the training regarding its content, effectiveness, pacing, vocabulary, assignments, activities, relevancy and impact. Teachers also responded to questions about the overall induction model. Responses to focus group questions were analyzed using an open coding and sorting process (Miles & Huberman, 1994) to identify common themes across respondents.

Teachers were asked specific questions about the induction model professional development that they participated in from summer 2010 to summer 2011. New teachers found the initial 2010 summer professional development overwhelming; it was planned to be this way by developers. During the summer of 2010, the teacher vocabulary acquisition was problematic. Teachers described it as "complicated information." Teachers did not know the acronyms and other educational terms that were being presented by trainers. The terms did not begin to start making sense to teachers until the final days of initial training. In 2011, the vocabulary was not a problem for participants. During the summers of 2010 and 2011, participants felt overwhelmed with information during the two-week time period. This was particularly true in 2010. Participants also were confused by the sequencing of topics in 2010. They did not realize that the four instructional modules of instructional planning, instructional strategies, classroom management, and assessment were linked together. They thought a new topic was presented every day of the training. During the summer of 2011, they responded that the sequencing of topics was appropriate.

In 2010 and 2011, teachers remarked that the pace of instruction was an issue at times—sometimes too fast and other times too slow—racing through such topics as student writing and

then stalling on the lesson unit planning. During both summer sessions participants found some topics redundant. In 2010 and 2011, participants said that there needed to be more individualization of instruction based on their specific career pathway. Several teachers remarked in 2010 and 2011 that there was a big difference between being a CTE teacher in a comprehensive high school and a technical center (for example, length of classes, type of instruction, format of curriculum, number of different classes taught) and that the training needed to reflect those differences.

In 2010 and 2011, teachers valued the collegiality, opinions, and feedback from their fellow teachers. In 2010, teachers had some concerns about the usefulness of products they were developing. In 2011, they felt differently. Teachers liked that the training was product-based (lesson plans and units of study) and that the materials they developed could immediately be used in their classrooms. Teachers stated in 2010 and 2011 that there were a variety of new ideas contained in the training. Highlights included the writing strategies, literacy and math across the content areas and opportunities to refine and improve upon their work. One educator remarked, "I would have been lost without the CTE training this year. It was my base of support." This statement supports the conceptual framework that includes high quality professional development (Mezirow, 1997).

In 2011, participants provided concluding statements about their CTE training experiences. All the teachers agreed that participating in the professional development had made them better teachers, and they would participate in the professional development again. They encouraged trainers to continually revise the professional development modules to reflect emerging trends and resources and to level the complexity of the professional development materials. In some cases, training topic instruction was highly complex and at other times too simple. Finally, for the induction model to be completely successful, participants said that it required the true integration of CTE partnerships across the state.

Teacher participants in 2011 said that they had learned many things over the past year, including:

- "I could become a successful teacher."
- "I am resilient."
- "Innovative teaching techniques equal effective teaching."

Teacher participants created various types of authentic work products (discipline plan, rubrics and lesson plans) throughout the year-long professional development period. They were asked in 2011 if they would feel comfortable sharing these products with others. "I have shared my materials with other teachers at the center," remarked one teacher. "Because of my emphasis on numeracy throughout my plans, one teacher thought I was an Algebra teacher." Participants said that they now had an in-depth understanding of teaching that they really should not have for being just first-year teachers. One teacher-participant noted, "I went beyond just surviving the first year." He said that colleagues at his center were jealous that they did not get to participate in the CTE professional development because of its focus on innovative teaching strategies.

One teacher participant remarked that during his first year of teaching he did not use lesson plans, and his students could get him off topic easily. He participated in the CTE professional

development during his second year of teaching. In his classroom this year he stayed on topic, incorporated numeracy and literacy and used classroom management skills he had learned in the training. This upset his students who complained that they had enrolled in the class to fix air conditioners, not do math and reading. The teacher reminded the students that math and reading were related to heating, ventilation and air conditioning (HVAC) installation and repair. One teacher-participant stated, “This program raises the bar for CTE teachers.”

The Q-Sort was administered individually to teachers at the conclusion of summer professional development in 2010 and 2011 to determine their viewpoints on summer professional development. (See the Q-Sort Protocol Appendix R and Results Appendix S.) All 10 teachers took the Q-Sort in the summer of 2010; however, only seven teachers took park in the Q-Sort the second time. The results for each Q-Sort statement related to professional development were sorted in four different ratings: disagree, neutral, agree and split. If the majority of the participants gave the statement a negative value, then the statement was given a rating of disagree. If the majority of the participants assigned a positive value to the statement, then the statement was given an agree rating. If most of the statements were given a value of 0 with a few values of -1 or 1, the statement was given a neutral rating. If some of the participants assigned positive values while others assigned negative values, such as half of the group agreeing strongly (+3) with the statement and the other half disagreeing strongly (-3), the statement was rated split.

Participants were given index cards with 32 statements that describe aspects of the training. The participants then were asked to assign a value to the statements, using one of seven possible values— -3, -2, -1, 0, 1, 2, 3—to indicate their level of agreement with the statement. Participants were told to use a negative value to indicate disagreement (with -3 indicating strong disagreement) and to use a positive value to indicate agreement (with 3 indicating strong agreement). A value of 0 indicated that the participant did not feel strong agreement or disagreement with the statement. The participant also may have given a 0 if he or she had not experienced a situation similar to the statement.

The Q-Sort was intended to determine how the participants viewed the training. The results showed how the participants viewed the five themes embedded in the 32 Q-Sort statements. Q-Sort Results Appendix S shows the changes in the group’s opinions from the beginning of the year to the end of the year. Less than half of the statements saw shifts in the group consensus. When comparing the pre- and post- results, teachers were positive about the professional development and their jobs as teachers. Teachers agreed that they could improve students’ reading ability, but they disagreed that academics should be taken care of by other teachers or the sending school. They agreed that they learned something from the other teachers at the professional development, and they were split as a group as to whether they had classroom management down pat. They agreed they knew the material they were supposed to be teaching, and that you can’t motivate some students. They agreed that they had the opportunity to take what they learned [from the professional development sessions], apply it to their content area, share that idea and get feedback.

Instructors kept notes about the changes they made to the professional development materials. (See Daily Instructor Debrief Appendix U.) The changes fell into one of the following categories: a re-explanation/reinforcement of a concept or strategy, taking out a portion of the

training, individualizing a training section for a particular career pathway and their plans for the future. Specifically the results showed that participants were pleased with the professional development they received with a few exceptions. These exceptions included not using examples from various career pathways, not always understanding the professional development vocabulary and not believing that all students can be motivated.

Teacher participants were individually interviewed at the start of the induction model and at the mid-year point in the intervention in January 2011. (See Teacher Interview Protocol Appendix T.) They were asked questions about their career aspirations, the training, their school settings, classroom experiences and level of support from mentors and principals. Responses to teacher interview questions were analyzed using an open coding and sorting process (Miles & Huberman, 1994) to identify common themes across respondents. Themes that emerged from their responses included the impact of the teaching environment, changes in teaching, classroom discipline, and level of support from other educators, caliber of students, quality professional development, feeling overwhelmed, view of students, and integration of literacy.

Mentors and administrators were trained on the purposes and implementation of the CTE Induction Program and their roles in supporting the participating teachers. To ensure the effectiveness of the mentor and administrator training, they were asked to participate in a short pre-/post survey on what their roles would include. (See Mentor and Administrator Survey Appendix V.) School administrators were trained to use a CTE teacher observation checklist adapted from the Danielson Framework (1996). (See Observation Checklist for Administrators and Instructors Appendix W.) Administrators were asked to observe CTE teachers on a regular basis, complete the observation checklist, and provide regular feedback to teachers. All but one teacher's ratings remained the same or increased throughout the school year. What was significant about using the observation checklist was that it influenced administrators to observe new teachers' classrooms and provide feedback. Mentors were provided a log to keep track of their interactions with the teacher participants and the mentors submitted the log back to SREB at the end of the year. (See Mentor Log form Appendix AA and Mentor Log Results Appendix BB.)

Instructors visited, observed, and offered feedback in beginning CTE teachers' classrooms on a regular basis throughout the school year. (See End of the Phase Instructor Interview Appendix CC.)

The results for the most part were promising. Teachers reported that the CTE teacher induction model professional development was intensive, time-consuming, helpful and applicable, and instructionally based on focus groups' observations and interviews. The classroom observation results of 90 percent of the participating teachers increased or remained constant beyond the basic level throughout the school year. All the teacher participants found the CTE training to be extremely helpful and of high quality, but overwhelming and strenuous. Several of the participants mentioned that they realized they could not teach the way they were taught and embraced the new instructional strategies that were introduced to them. One teacher noted, "My mind has been like a sponge." Another stated, "My teaching has changed." The majority of teachers reported that they had positive support and feedback from their mentors and principals. Several teachers did report they were working in negative work environments with little or no

support from mentors and principals. Their negatives also included working in isolation, not having the technology to support the career pathway and/or a lack of teacher collegiality in the school. (The teachers with the negative work environments wanted to leave the profession.) For those struggling as teachers, classroom discipline was also an issue—either being too strict with students or having classes that were out of control. Several teachers stated that students were dumped into their CTE programs and did not have the interest *or* the skills to successfully complete the required work. One teacher individualized her instruction for students who did not have the necessary skills for that career pathway. A third of the teachers reported that they were overwhelmed with school work that included school clubs, competitions, assessments, forms and/or student testing. How teachers viewed students varied widely—from teachers feeling like students were being coddled and nurtured by other educators to a CTE teacher noting that, "My classroom is a friendly place." Another teacher said, "This [my classroom] is the place for them [students]." A final teacher mentioned, "Keep it [my classroom] fun and keep it real." Several teachers mentioned that they had integrated literacy strategies into their classrooms with beneficial results. Teachers reported the CTE electronic networking was not successful. The electronic network was unwieldy to use; they did not have time to participate; it was not a priority to use it.

2. Do induction program completers demonstrate improvement on pre-post measure of teacher self-efficacy?

To determine the level of teacher confidence in their student engagement, instructional strategies and classroom management practices, the 10 CTE teachers completed the long form of the Sense of Teacher Efficacy Scale at the first summer professional development, and seven of those 10 teachers were administered the long form assessment at the second summer professional development institute. The TSES was analyzed using two data points on a 9-point scale – a pre-data point at the beginning of the study and a post-data point at the end of the study. The TSES data was compared using the means of subscale results for the entire group at each data point.

Participating teachers' averaged 6.8, 6.65, and 6.8 in student engagement, instructional strategies, and classroom management respectively, and on the post-assessment the scores were 7.57, 7.84, and 7.88. With student engagement there was a .77 increase, with instructional strategies there was a 1.19 gain, and with classroom management there was a 1.08 increase. It is critical to note that the greatest increase was in instructional strategies, and the lowest was in student engagement.

Instructional strategies are a critical component of the professional development and it would follow that teacher gains would be the greatest in this area. Student engagement is a more complex skill and more difficult to master, so a lower teacher score in this area is not surprising.

Overall, teachers participating in the SREB CTE training improved their self-efficacy in instruction, classroom management, and student engagement based on pre- and post-measures on the TSES. This increase supports participating teachers remaining in the profession.

3. Do induction completers demonstrate commitment to remain in the teaching profession?

The teacher commitment survey was a pre/post measure to determine participating teachers' future career plans and how long they planned to teach. (See Career Commitment Question Appendix O and Results Appendix P.)

The teacher commitment survey was an instrument created by SREB designed to provide feedback on the participants' level of commitment to the teaching profession, and it was based on five questions. With the two beginning and ending data points, the data was reviewed to see whether the participants' level of commitment changed and whether the results from the first summer institute could reflect the teachers' attitude throughout the first year.

Of the ten CTE teachers in the training cohort, seven had a commitment to the teaching profession that was sustained throughout the school year. All but one of these seven had seen teaching as a career goal, and of these seven, all plan to stay in teaching for at least five years. Of the three who did not possess a commitment, one left the profession mid-year 2010–2011; one left at the conclusion of the first year; and one left the teaching profession the fall semester 2011.

Teacher commitment to the profession remained steady at 70% throughout the school year based on pre- and post-measures of the teacher commitment survey. Ultimately these seven teachers remained in the teaching profession for a second year.

4. Do students in classrooms taught by induction model completers report having classroom conditions associated with high quality CTE instruction?

A modified *High Schools That Work* student survey was administered in the spring of 2011 to participating teachers' students who were at least 18 years old. (See Student Survey Appendix Y.) There were 67 student surveys returned from seven of the schools. The purpose of the survey was to provide a snapshot of CTE teachers' instructional practices, their inclusion of core content subjects in career tech classes and the use of student portfolios in career tech classrooms.

The data were analyzed by reviewing the mean results of the entire population and if possible, comparing teacher results. (See Student Survey Results Appendix Z.) The activities reported occurring on a weekly basis in career tech classrooms were nothing surprising, except for debating and discussing what had been read with other students. For the highest percentages of teacher practices in CTE classrooms, it was significant that 85 percent of students said their instructors helped them understand the connection between what they were studying and why it was important—definitely an important finding as it is related to relevance. Another noteworthy finding was that 61 percent of students said their instructors took into consideration the way they learned best. This was an example of student-centered learning. For the inclusion of core content subjects, it was surprising that mathematics was rated so low at 37 percent. This may indicate that participating CTE teachers felt ill-equipped to teach math. For students' portfolios, perhaps the only thing out of the ordinary were the low percentages on formal evaluations of my work experiences (44 percent) and charts and graphs representing what I prepared (41 percent).

Students whose teachers were in the induction model reported that over 50 percent of teachers included reading in their instruction; 71 percent used student portfolios; and 75 percent applied academic knowledge to career tech education based on student surveys.

5. What school-level factors may mitigate the efficacy on the induction model?

One of the research questions for phase 2 had to do with the school-level factors that could mitigate the efficacy of the CTE teacher induction model. School climate was one of the factors that was investigated, and the Pride Survey was used to determine the climate of participating teachers' schools. The Pride Survey provided information on how a school was managed, what was important and how staff and students were treated. It was administered to all teachers in nine of the 10 high schools or tech centers of participating teachers in the spring of 2011. The tenth high school did not participate because the CTE teacher at that school had resigned at the conclusion of the first semester. Of the nine schools, teacher surveys from two of the schools could not be scored because there were too few surveys submitted. The survey results were aggregated. There were 136 teacher respondents total.

Overall the Pride Survey teacher results reflected the positive climate at the school. (See Pride Surveys: Facts about Participating High Schools and Tech Centers Appendix X.) This is one indication that CTE teachers were probably in good school situations. The majority of survey participants were white and female. Surprisingly, the majority of teachers responding did not grow up in the community where they were now teaching. Teacher respondents in the CTE schools represented a majority of professionals who were happy in their profession and plan to stay at their current schools for the next five years. They worked in schools where school pride was evident and there was respect among colleagues. These teachers' principals took care of school discipline problems effectively.

The survey results did imply that these schools were traditional in their approach to instruction and student learning. These schools did not appear innovative or dynamic, nor did there appear to be a push to have all students working to their full potential. Other negative results were: (a) Teachers' instructional time was not being protected by administrators: (b) the school lacked a strong mentoring program for new teachers; (c) there was some student apathy and (d) there was not enough professional development on how to instruct English-language learners. Generally these results reflected that when participating new teachers were in schools with a primarily positive climate, it increased their chances of staying in the profession.

Phase 3 Field Test: Stakeholder/State Implementation of the Training (2011-2012)

Two states (State 1 and State 3) participated in the state implementation of the teacher induction model in phase 3 (2011-2012). A cohort of new CTE teachers from each state took part in the program.

For phase 3, the questions used in phase 2—concerning the promise of the model to impact teacher commitment to the profession, competence and self-efficacy—were tested again as research questions 1 and 2. Research questions 1 and 2 determined the level of fidelity by focusing on the participating teachers. The remaining research questions center on the state's ability to implement the model with fidelity.

The research questions were:

1. Do induction program completers demonstrate improvement on a pre- and post-measure of teacher self-efficacy?
2. Do induction program completers demonstrate commitment to remain in the teaching profession?
3. Is it feasible that this model can be implemented as designed?
4. Are the state partners able to implement the induction model with fidelity?
5. Do measures of implementation fidelity capture all key practices?

The demographics of State 1 and State 3 cohort participants vary. State 1's cohort of teachers is younger than State 3's, more highly educated and more ethnically diverse. (See Demographic Characteristics of Stakeholder/State Cohort Appendix EE.)

State 1's population of nine teachers is composed of more female teachers (67 percent) than male teachers (33 percent). The majority of the teachers in State 1 are between the ages of 35-44 (67 percent). There is diversity in the ethnicity (78 percent white, 22 percent American Indian), and the education level of teacher participants in State 1 ranges from a high school graduate to beyond a bachelor's degree.

State 3's population of 16 teachers is composed of more males (63 percent) than female teachers (38 percent). The teacher cohort population in State 3 is 100 percent white and 50 percent of the teachers in State 3 are between the ages of 45-54. In addition, most teacher participants in State 3 have only a high school education plus professional training (51 percent).

Phase 3 Findings

1. Do program completers demonstrate improvement on a pre- and post-measure of teacher self-efficacy?

Nine participating teachers from State 1 averaged 5.95, 6.03, and 6.03 in student engagement, instructional strategies and classroom management respectively, and on the post-assessment the scores were 7.30, 7.30 and 7.86 on a 9-point scale. (See Teacher Sense of Efficacy Results for State 1 Appendix FF.) With student engagement, there was a 1.35 increase; with instructional strategies there was a 1.27 gain; and with classroom management there was a 1.83 increase. It is critical to note that the greatest increase was in classroom management, and the lowest was in

instructional strategies. All three areas increased by over 1 point; these are healthy gains in these areas for new teachers. Note that the majority of teachers in this cohort were female and in the 35 to 44 age range. It appears that they had a realistic notion of what they would encounter in the classroom. Their relative youth as career tech teachers also worked in their favor in managing the students. These results are similar to the results of State 1's phase 2 results.

Fourteen participating teachers' pre-assessment scores from State 3 averaged 7.22, 7.49 and 7.50 in student engagement, instructional strategies, and classroom management respectively, and on the post-assessment the scores were 6.99, 7.11 and 7.61. (See Teachers' Sense of Efficacy Results for State 3 Appendix GG.) When examining past research on new teacher self-efficacy results, these pre-test scores were very high. On the post-test with student engagement there was a 0.23 decrease; with instructional strategies there was a 0.38 decrease; and with classroom management there was a 0.11 increase. Note that the only increase was in classroom management, with student engagement and instructional strategies both decreasing.

These results are not similar to the cohort results of State 1's results for phase 2 and phase 3. State 3 had a decrease in teachers' self-efficacy in student engagement and instructional strategies. One reason could be that since the pre-results for State 3 were similar to the post-results for State 1, State 3's teachers came in with an inflated degree of self-efficacy in these areas, but the reality of teaching caused them to more realistically rate their levels of self-efficacy after the conclusion of the school year. Note that the majority of teachers in State 3 were males, while in State 1 the majority of teachers were females. Entering the program, females might have had a more realistic view of teaching than males. There was an older group of teachers in State 3 (majority 45-54 years old) in comparison to State 1 (majority 35-44 years old). The older teachers in State 3 might have had a more difficult time motivating and engaging students than they first imagined. Finally the instructors from State 3 were very good about observing in new teachers' classrooms and providing specific and helpful feedback. This valuable feedback might have given State 3 teachers a more realistic picture of what was expected and changed their perception about the effectiveness of their teaching.

When the results for State 1 and State 3 are combined, the results show gains. (See Teachers' Sense of Efficacy Scale Results for Both States Appendix HH.) Participating teachers from both states averaged 6.75, 7.19 and 6.88 in student engagement, instructional strategies and classroom management respectively, and on the post-assessment the scores were 7.06, 7.25, and 7.63 on a nine-point scale. With student engagement there was a .31 increase; with instructional strategies there was a 0.06 gain; and with classroom management there was a 0.75 increase. The combined gains for both states still show an increase, which means the decreases by State 3 were not enough to outweigh the increases of State 1. Both states were able to achieve results, but State 1 held to the fidelity of the program to a greater degree than State 3. These results could reflect how well the program was implemented.

Interestingly, the TSES mean score for experienced teachers in previous studies was at seven on a nine-point scale. Studies that focused on the self-efficacy of beginning teachers revealed that their mean score was lower than experienced teachers, but above the midpoint of 4.5. This suggests that new teachers with low self-efficacy scores increased their self-efficacy or left the field of teaching within the first couple of years (Tschannen-Moran & McMaster, 2009).

State 1 teachers participating in the induction model improved their self-efficacy in instruction, classroom management, and student engagement based on pre- and post-measures of the Teacher Sense of Efficacy Scale. State 3 teachers slightly decreased in these areas, except for a small increase in classroom management. State 1 teachers were primarily female and younger, and appeared to have a realistic idea of their own self-efficacy both pre- and post-survey. State 3 teachers who were primarily male and older might have had a self-inflated view of what it takes to be a good teacher, had high pre-scores on self-efficacy that decreased on post-scores. In focus groups conducted throughout the school year, several of the males mentioned that they were not worried about classroom management, but instruction instead. Several females said for them it was just the opposite. They knew how to teach their career area but controlling their students worried them.

2. Do induction program completers demonstrate the commitment to remain in the teaching profession?

Of the nine teachers in the training cohort, all had a commitment to the CTE teacher induction model and stayed with the year-long program. (See Teacher Commitment Questions Appendix II and Teacher Career Commitment Results for State 1 Appendix JJ.) Five teachers saw teaching as a long-term career goal after completing the program and all participating teachers planned to stay in teaching for at least five years. Teacher A had originally hoped to not be teaching next year, but by the summer of 2012 wanted to teach the next year. Teacher D may have misread the question since she stated teaching is a long-term career goal, yet on another question she answered she did not want to be teaching next year. Only one teacher believed teaching did not match a personal need for her. Teacher H decided not to return to teaching for the next year due to an immediate need to return to a previous job for more pay. The teacher cohort from State 1 overall had a high commitment to the teaching profession. This positively impacted their commitment to attending the professional development sessions and their performance in the classroom.

Of the 16 CTE teachers in the cohort, 15 teachers made an original commitment to the teaching profession, and 14 teachers had a commitment to the alternatively certified teacher induction model offered by continuing to attend the program. (See Teacher Career Commitment Results for State 3 Appendix KK.) One teacher returned to a previous job in November 2011; one teacher remained in teaching but quit the professional development program in January 2012 because of being overcommitted with professional responsibilities. Only six teachers saw teaching as a long-term career goal after completing the program; however all fourteen teachers planned to stay in teaching for at least five years. Similar to the State 1 cohort, only one teacher believed teaching did not match a personal need. This cohort overall had a high commitment to the teaching profession, and this was reflected in their commitment to attending the professional development sessions and their positive performance in the classroom.

Teachers in both states made a 100 percent commitment to remain in the profession for five years based on pre- and post-measures of the teacher commitment survey. Only one teacher from State 1 and one teacher from State 3 stated that teaching did not fit with their professional plans.

Eighty-nine percent of State 1 teachers planned to return for a second year of teaching; eighty-eight percent of State 3 teachers planned to return.

3. Is it feasible that this model can be implemented as designed?

Yes, but modifications are needed. State coordinators of the induction model in the two states were critical to its success. Among their many responsibilities, coordinators were expected to help publicize the program, recruit new CTE teachers, coordinate decision-making and communicate the guidelines of the induction program to the public. The following state coordinator feasibility survey results support the degree of program fidelity found in States 1 and 3. (See the Feasibility Survey Appendix QQ Feasibility Survey Results Appendix RR.)

The feasibility nine-question survey was a simple instrument created for the study to provide feedback on how each state coordinator implemented the program. State coordinators checked statements that accurately represented what had taken place with program implementation in their state. They also had the opportunity to add additional statements. The feasibility survey was administered to the two state directors at the conclusion of the induction model implementation in summer 2012. This is a summary of their responses:

- State 1 and State 3 varied on new teacher selection criteria. These criteria are often determined by states.
- Administrator and mentor requirements were the same for both states.
- Instructor selection was similar for both states.
- State 1 presented the CTE professional development materials as designed, and State 3 initially substituted materials. By the conclusion of the school year, State 3 was following the materials.
- State 1 attempted to implement webinars and State 3 did not.
- Obtaining teacher participant feedback about the professional development sessions was similar for both states.
- The professional development issues differed in State 1 (training, scheduling concerns) and State 3 (teacher attendance, changing professional development materials).
- The states made decisions about professional development implementation differently (group decision vs. individual decision).
- The states saw program success similarly.

In summary, State 3 had more stringent entrance requirements for new CTE teachers (without a bachelor's degree) than State 1 did. State 3 required at least six years of experience in an endorsement area or one or more industry credentials/certifications, a high school diploma, completion of 24 college credits with at least a "B" grade within three years, taking the Praxis I exam during the first year and passing it with a DOE-designated score within three years, receiving an overall pass on the Level I Educator Portfolio, and completing 24 additional college credits. State 1 required, for non-bachelor degree holders, professional experience or credentials, provisional certification, certification exams or competency exams and pursuit of a degree in career and technical education.

Principals in State 1 had two choices about where they sent their new CTE teachers for professional development. State 3 had one new teacher program induction choice, and the

coordinator also included two second year teachers in the professional development. For State 3, this had an impact on the type of teacher participants in the program because it included all new CTE teachers in the state. The professional development issues varied between the two states. State 1 had difficulties scheduling the professional development sessions throughout the year because of competing local school activities. State 3 had trouble with participant attendance from time to time but initially adapted the professional development materials. Another critical point was that State1 and State 3 made program decisions (use of professional development materials, scheduling professional development sessions) differently. This impacted the degree of program fidelity. State 1 made program decisions as a group, and that appeared to increase fidelity and unity. State 3 decisions were usually made by an individual, and that had the potential to create dissent and decrease fidelity.

As in Year 4, school administrators were trained to use a CTE teacher observation checklist adapted from the Danielson Framework (1996). This training took place in State 1 and State 3. Principals and directors were asked to observe teachers on a regular basis, complete the observation checklist and provide regular feedback to teachers. State 3's principals/directors were already using the Danielson Framework; this additional tool assisted the principals/directors in determining teacher success.

Six of the nine administrator/principals in State 1 completed and submitted observation checklists at least once. Four of the six who provided a checklist provided more than one checklist, so less than half of the principal/directors provided researchers with more than one observation. Of these four observations, two of State 1 teachers had large increases in their ratings while the other two had a single increase in their ratings.

Eleven of the 16 administrator/principals in State 3 provided an observation checklist. When program evaluators wanted the second checklist, two teachers had already dropped out of the program. Of those 14 principal/directors who could have provided more than one checklist, seven did so. The director of the teacher who dropped out of the program (but was still teaching) was willing to provide additional completed checklists if needed. Of these seven teachers, four had large increases in most areas; one teacher increased in more areas than she decreased; and the other two teachers had more decreases in their checklist than increases. The teacher checklists were valuable because they determined if administrators were in new teachers' classrooms observing. Once again, administrators need to know what to look for when observing teachers and how to provide constructive feedback.

Teacher participants' mentors in States 1 and 3 were asked at the beginning of the year (fall 2011) to keep a log of their interactions with their mentee. The mentors were reminded twice that SREB would be collecting their log at the end of the school year; however, no confirmation was required by the mentors in whether they were keeping up with the log or not. A tool was provided at the beginning of the year in Microsoft Word that the mentors could use if they wanted.

Six of the nine mentors in State 1 provided mentor logs at the end of the year. Of these six, three of the mentors provided over 80 hours of mentoring with the highest being 108 hours over the year. Two mentors provided around 50 hours of mentoring throughout the year, and the last

mentor stated their mentee stopped needing assistance after the winter break. The final results were that five of the six mentors provided about 50 or more hours of mentoring throughout the school year.

State 1 paid its mentors for their service. Payment for mentor service almost ensures that mentors will meet with their designated teachers. State 3's mentor program was developed by the district or school. In some cases participating teachers were paid, depending on the district in which they worked. Payment of mentors could positively impact mentors working with teachers. Of the 16 teachers who started in the program, one of the teachers never had a mentor, and one of the participating teacher's mentor was an instructor for the program. Of the 14 mentors who could have provided a log, only two mentors provided a log at the end of the year. One of the mentors provided 40 hours of mentoring over the course of the school year, and the other mentor provided only 21 hours over the school year. Once again the mentor logs were valuable because they showed whether mentors were meeting with new teachers. The quality and helpfulness of the mentor feedback provided to teachers was unknown.

As in Year 4, professional development instructors used the CTE teacher observation checklist when they observed the teachers during their school visits. The instructors were asked to submit their observation checklists to program evaluators.

The instructors for State 1 provided two sets of observation checklists for six of nine teachers who finished the program. Of those six teachers, four had gains in most areas, one teacher had gains in some areas, and one teacher had as many increases as decreases from the two observation points. One of the teachers did not have two observations because she was not in class on the second observation due to the class participating in state contests. The remaining two teachers did not have their observations submitted to the program evaluators.

State 3 instructors provided two sets of observation checklists for eleven of the 14 teachers who finished the program. One instructor did not provide a checklist for the three teachers she coached, but visited the classrooms, conducted the observations and provided written comments. Of the eleven teachers who had both checklists, eight showed gains in most areas. One teacher showed no gains and another teacher's increases were equal to the decreases. Only one teacher showed decreases; however, these decreases were from "Distinguished" in instruction to "Proficient". It is a possible that the initial observation had inflated results, which meant the teacher would have had minimal increases in their observation checklist. Instructors in State 3 fulfilled their coaching responsibilities during phase 3.

Instructors also provided information about what they planned to teach for their part of the summer professional development session and the strengths and weaknesses of the session. (See Planned Action Interview Appendix LL and Instructor Dailey Interview Appendix MM.) These were collected several times during the summer professional development session.

States being able to implement the CTE new teacher induction model with fidelity is the heart of the research evaluation during phase 3. The fidelity framework represents the implementation of the CTE professional development program for States 1 and 3. (See Fidelity Framework Appendix SS.) The fidelity framework includes program planning; delivering the

professional development model; administrator, mentor and coaching support; and electronic facilitated discussion components. Themes related to these components that emerged from interviews, focus groups and surveys are used as framework subheadings with supporting commentary.

Both State 1 and State 3 were able to implement the CTE professional development model within the proposed time frame of 14 months. Both states conducted its initial intensive two-week summer institute in 2011, offered professional development throughout the 2011-2012 school year (a fall, winter and spring weekend for State 1 and one Saturday a month for State 3), and held summer institute 2 for two weeks in 2012. The model was implemented as designed except: (1) State 3 was adapting the CTE curriculum instead of adopting it; (2) some instructors in State 1 did not carry out their teacher observation responsibilities; (3) some administrators and mentors in both states did not carry out their assigned roles; and (4) both states failed to use webinars. Based on the results of State 1 and State 3, this program can be implemented as designed with a few modifications. These modifications include substituting webinars with face-to-face meetings, and holding professional development on weekdays rather than on weekends. What should not be changed is using all four modules as designed at the summer and weekend professional development sessions, mentoring new teachers, providing strong support from well-trained principals and veteran teachers who can conduct the observations to determine if instruction is intellectually demanding and if students are motivated and engaged.

4. Are state partners able to implement the model with fidelity?

States 1 and 3 did not implement the model with complete fidelity, but they did achieve positive results by producing successful first-year CTE teachers who will be returning to the classroom for a second year of teaching. In some situations, the lack of fidelity was beyond the control of the states. In both states administrators and mentors did not always follow the guidelines of the program, including observing new CTE teachers and providing support. Both states were not able to conduct the webinars because of transmittal problems or lack of platforms. Initially State 3 did not follow the curriculum. This was primarily due to the first trained instructor quitting and the state director having to hire instructors at the last minute who did not attend the initial instructors' training. This problem was resolved when the newly hired instructors were able to attend instructor training in spring 2012. In order to get highly positive results, state coordinators and instructors must use in the modules as instructed from start to the finish. Mentors and administrators must participate in professional development that provides explicit coaching techniques for mentors and explains what administrators should specifically look for in CTE classrooms (like student engagement and integration of core content areas in instruction).

It is clear that the career/technical education organizational structure of a state and the state's culture influence the implementation of a program (or programs). This was certainly the case for this study. Whether a state is highly centralized or decentralized educationally, unionized or non-unionized, rural or urban, and economically stable or unstable can impact the feasibility results. In states where there is a more top-down approach to program implementation and a more unified leadership structure, it is going to be more feasible to implement the teacher induction professional development program because everyone is operating from the same set of guidelines with one leader. States with decentralized state career tech programs are going to have a more

difficult time getting all the schools and tech center representatives to meet and work together. There are components of the teacher induction model implementation that state directors had little control over. They included the principal and mentor component and the technology support. State coordinators could not mandate that principals and mentors fulfill their responsibilities. State coordinators were not in a position to fix faulty technology. In addition, the State 3 state coordinator could not control the original instructor quitting the program after having received the CTE training.

5. Do measures of implementation fidelity capture all the key practices?

Yes, the measures of implementation fidelity do capture all the key practices. There are six measures of implementation fidelity. They include: (1) All elements of the model are delivered; (2) the professional development elements of the model are delivered consistently with standards of high quality adult learning; (3) the administrator support element is delivered through at least one meeting a month and one classroom observation per quarter; (4) the mentor support is delivered through one meeting a week for the first two months; (5) at least three instructor coaching visits take place at the school site; and (6) regular electronic communication with teacher participants is maintained.

This is supported by States 1 and 3 holding all required professional development sessions and holding them for the correct periods of time based on emails, program schedules, instructor and administrator observations and mentor logs. In some cases, participating teachers in both states did not receive all the visits and corresponding feedback from mentors, instructors and/or administrators.

The quality of instructor delivery varied from satisfactory to excellent in State 1 and in State 3 based on teacher focus groups. (See Teacher Focus Group Appendix NN.) There were sessions for administrators and mentors in State 1 and in State 3 on how to observe and support new CTE teachers. Some mentors and administrators did not fulfill their commitments. Instructors were required to observe teachers in their school setting and provide feedback. Some instructors were unable to get in the required number of visits. State coordinators participated in professional development on how to set up electronic communities. Both states struggled with this feature of the program.

Participant responsiveness to the professional development as a whole in both states was high based on instructor interviews, instructor debriefs and instructor focus groups. (See End of Event Appendix OO and Instructor Focus Group PP.) Teachers remained engaged in professional development instruction for most of the time and listened attentively, participated in discussion and took part in individual and small-group work.

Chapter 5—Lessons for the Field

The CTE teacher induction program includes an intensive professional development component that has classroom assessment, classroom management, instructional planning and instructional strategies modules. The other primary component of the program is structured and has regular support and feedback for new CTE teachers from instructors, mentors and school administrators.

Summary of Assumptions, Findings and Proposed Additions

After three, year-long phases of field-testing, preliminary findings emerged related to the assumptions being tested about the conceptual framework. Plus, new additions to the conceptual framework were proposed. These preliminary findings and proposed additions are summarized in the table 5.1.

Table 5.1: Findings for the Conceptual Framework's Assumptions with Underlying Assumptions and Additions to the Conceptual Framework

Conceptual Framework	Underlying Assumptions to be Tested	Findings
Relevant content based on the unique needs of CTE teachers entering through an alternative route	• Five major areas of content include: instructional planning, instructional strategies, assessment, classroom management, and reflection on practice.	• The content of the modules is relevant and meets the needs of CTE teachers. Data from each round of field tests were used to revise the modules according to CTE teachers and instructors' recommendations.
A sequence of professional development sessions including a 10-day summer experience prior to the first year of teaching; quarterly two-day sessions throughout the first year; and a 10-day summer experience after the first year	• An intensive, rigorous summer experience best prepares the teachers for the demands of the first weeks of school. • Productive struggle is a necessary part of making the transition to teaching. • A continuous learning experience throughout the first year enhances reflection and on-the-job learning. • A summer experience after the first year enhances reflection that promotes a well-planned second year.	• The intensive summer experience put teachers through a "productive struggle" in which they needed support and coaching from the instructor, but as the year progressed, teachers expressed how valuable the initial intensive summer was to their competence as a teacher. • Continuous learning experiences established a sense of community as a cohort and helped teachers learn how to reflect on their instruction, provide face-to-face feedback to others, and continuously improve. • The summer experience after the first year provided a culminating, reflective experience, an opportunity to deepen understanding, and to apply what was learned to start planning for the next whole school year.

Quality instructional delivery	• High quality adult learning experiences include dialogue with peers, an opportunity to address the authentic problems of teaching, and reflection on learning. • Modeling, practice and feedback will help teachers develop instructional skills.	• Teachers experienced the kinds of strategies that they were expected to use in their own classrooms. • Teach-backs, when implemented, were helpful in preparing teachers for the real classroom.
The support of a trained, on-site mentor	• Mentors need to follow a structured schedule of regular contact with the mentee that addresses the challenges of the transition to teaching.	• Teachers **who had** regular contact with their mentors experienced a greater sense of support and felt a part of the school. These experiences led to teachers remaining in the teaching profession.
The support of a trained administrator	• Administrators need to meet regularly with the beginning teacher as well as observe and provide feedback on instruction.	• Teachers **who had** regular contact with their administrators experienced a greater sense of support and felt a part of the school. These experiences let to teachers remaining in the teaching profession. Some teachers were elevated to leadership roles in their school improvement efforts.
Coaching from the professional development instructor	• Regular visits from the professional development instructor include classroom observation and feedback, as well as making connections with mentors and administrators.	• Teachers valued the constructive and specific feedback they received on instructor coaching visits. • Instructors felt the visits allowed them to better plan the follow-up professional development experiences.
A community of practice	• Ongoing interaction with colleagues, both face-to-face and electronically, builds a community of support and enhances reflective practice.	• Teachers felt a strong sense of community with the colleagues in their cohort based on the face-to-face professional development sessions throughout the year.
Proposed New Additions to Conceptual Framework	• **New Assumption to be Tested**	• **Results**
Screening of prospective CTE teachers for minimum qualifications	• Prospective teachers should pass a basic exam in literacy and mathematics to be admitted into the CTE induction program. Teachers should also possess good communication skills. These skills support effective classroom teaching.	• Teachers who lacked these skills experienced greater difficulty with the professional development content and the expected level of teaching competence during the field tests.
Certification requirements	• The CTE teacher certification process should be accelerated and teachers should participate in "just-in-time" professional development. CTE teachers only have several years to successfully complete all certification requirements.	• For State 1, field test 1, 70 percent of teachers successfully completed the program; for State 1, field test 2, 100 percent of teachers successfully completed the program; for State 3, field test 1, 88 percent of teachers successfully completed the program.

Hiring deadlines	• New CTE teachers should be hired by July 1 so they can participate in intensive professional development and be in their classrooms for planning purposes before school starts. New CTE teachers should be hired in time to participate in intensive summer professional development and conduct classroom planning before the new school year begins.	• Teachers in State 1 were all hired before July 1 and were able to participate in the professional development. Several teachers in State 3 were hired after July 1 and were not able to take part in the professional development. These teachers had to wait an additional year to take part in the training.
Additional professional development in embedded mathematics	• New CTE teachers need to have a strong foundation in mathematics to be effective 21st-century CTE teachers. Fifty hours of math instruction should be added to the CTE teacher induction program.	• Many participating teachers in State 1 and 3 struggled with the current math professional development component.
Role, expectations and mission of CTE teachers	• The role, expectations and mission of CTE teachers must be updated to meet the needs of the 21st century. Twenty-first century CTE teachers have a dual role—to successfully advance readiness for college and careers and to teach a blended academic curriculum.	• Participating teachers in State 1 and 3 responded well to the professional development and most were able to complete the program successfully.

Discussion

The research findings in Table 5.1 support the research base presented in chapter two. This base includes the need for quality professional development for teachers (Sparks & Hirsh, 1997); the benefit of professional development being framed around the needs of new teachers, and the authentic tasks they face during the first year of teaching (Heath-Camp & Camp, 1990a, 1990b; Joerger & Bremer, 2001; Rochkind et al., 2007; Bottoms & McNally, 2005); and the need for new teachers to have a continuous orientation that addresses all aspects of teaching (Joerger & Bremer, 2001; Heath-Camp & Camp, 1990a).

It was evident from three rounds of field-testing that the content of the modules was relevant and met the needs of new CTE teachers. The initial summer institute put teachers through productive struggle that aided in their competence as teachers; each teacher cohort became face-to-face community learners who supported reflection on instruction, feedback and continuous learning; strategies were taught that participating teachers were expected to use in their own classrooms; and participating teachers valued the constructive feedback and support they received from mentors, administrators and coaches. As one new teacher stated about the entire training, “As time has gone on [the training] has made sense.”

The CTE teacher induction model has held up solidly during field-testing, and it has benefited from an iterative development research model in which improvements were identified and applied in subsequence iterations of testing. The model provides participating teachers with the strategies, experiences, information and support they needed to become successful teachers. It is the most comprehensive and successful model available today for strengthening the CTE teacher

induction experience. Field-testing showed that this model produces successful teachers who make a commitment to remain in the profession.

That said, there are new conceptual framework pieces that need to be added and assumptions tested. States 1 and 3 did not require entrance exams for prospective CTE teachers, and several participating teachers struggled because of weak academic or communication skills. Higher standards in the selection of CTE teachers must be in place in order for new CTE teachers to have successful professional development and teaching experiences. Prospective CTE teachers should be required to take an exam that demonstrates they have at least the literacy and math skills of a high school graduate. Based on our research, if teachers don't have these skills they won't be successful in the classroom. One CTE teacher dropped out of the program because of feeling overwhelmed by everything she was expected to learn. Some teachers exhibited math phobia and struggled to overcome their dislike of mathematics. CTE teachers should have a baseline of mathematics and literacy knowledge and an understanding of what it means to be an effective 21st-century career and technical high school teacher.

New CTE teachers must be better prepared, and there has to be intensive "just-in-time" preparation for them before they enter the classroom. Such teachers need to know how to motivate and engage students. They need to know how to teach technical skills and integrate the core content areas of literacy, math and science into their classroom instruction. Teachers need to know how to assist students in finding their niche both academically and professionally. Twenty-first century CTE teachers must be able advance students' readiness for college and careers and teach a blended academic program. These are the overall goals of the new CTE teacher induction program.

Because of the critical need for new CTE teachers to participate in initial and intensive "just-in-time" summer professional development before they enter the classroom for the first time, new CTE teachers must be hired by July 1. If they are hired after July 1, it is likely they won't be able to participate in the intensive professional development and will miss learning the skills and strategies needed to be effective during their first year of teaching. In fact this is what happened in State 3. Several teachers were hired after the July 1 date and had to wait an entire year to participate in the professional development program. In addition, it is critical that these teachers are paid for participating in the two-week professional development sessions. This professional development is part of their work, and they should be compensated for it.

Based on the content knowledge and instructional performance of former CTE teacher participants in States 1 and 3, math is an area of weakness for many. Several teachers admitted that their math instruction had been weak in high school or that they disliked math because they did not understand it. In order to be effective 21st-century CTE teachers, CTE teachers need the knowledge and the ability to integrate higher level mathematical concepts and strategies into their classroom instruction.

State Scale-Up

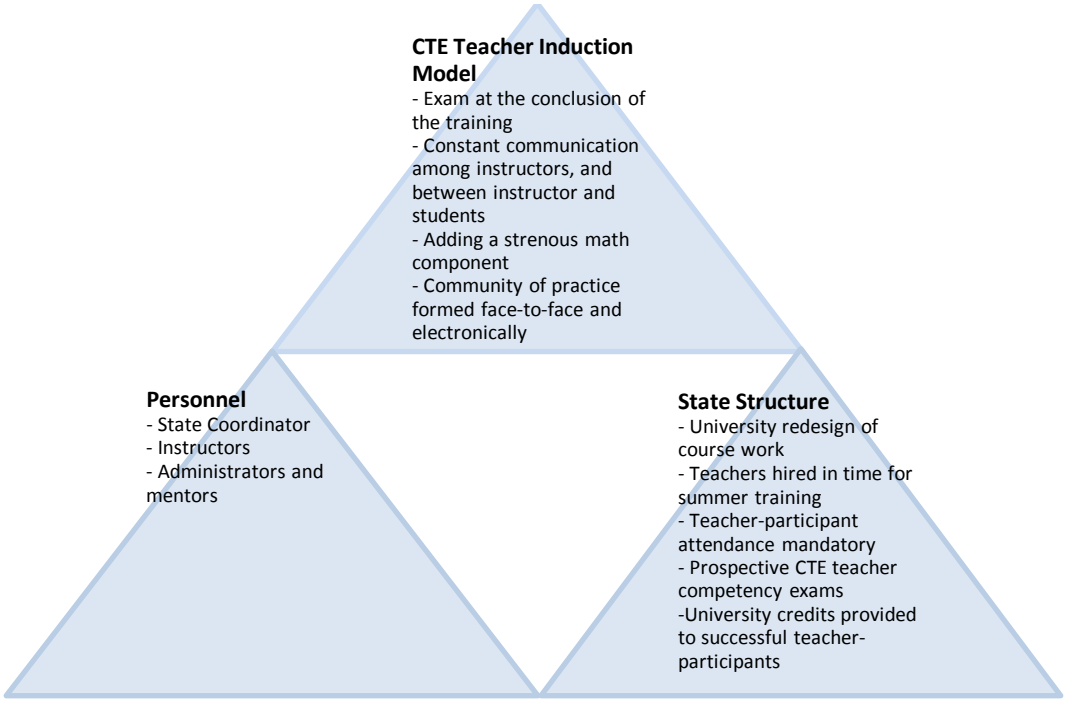
Scaling up the CTE teacher induction model should be a goal for states. This model is a new approach for effectively preparing new CTE teachers that includes new ways of doing things. For example, new CTE teachers who had participated in the professional development said:

- "We liked that the CTE professional development was product-based and we could immediately use the materials we developed in our classrooms."
- "Writing strategies, literacy and math across the curriculum and opportunities to refine and improve our work [during the professional development sessions] were key."
- "I would have been lost without the CTE training this year. It was my base of support."
- "Innovative teaching techniques equal effective teaching."

The CTE teacher induction program is not just the inclusion of updated professional development materials, but it is a comprehensive and intensive approach for preparing new teachers for the 21st-century classroom.

There are three complimentary components to the state scale-up of the CTE teacher induction model. They include personnel guidelines, state structure guidelines and CTE teacher induction model guidelines.

Figure 5.1: The CTE Teacher Induction Model's Scale-Up Components



The program **personnel** who must be in place for the scale-up include: (1) a designated state coordinator, (2) instructors for the professional development component of the model, and (3) mentors and school administrators who provide the support to the participating teachers at the school sites. For the model to be successful, a state coordinator who is capable of handing multiple responsibilities associated with the professional development component of the model must be selected. Specifically the coordinator is responsible for (1) selecting and ensuring that the instructors are trained for the intensive alternative induction program; (2) serving as liaison with universities and the state agency; (3) communicating with the sending principals/directors

about their responsibilities associated with the program; (4) locating the professional development training sites, scheduling and communicating the professional development session locations; (5) providing information about the intensive professional development program to participating teachers; and (6) following the state requirements for certification of new CTE teachers. State coordinators must have a strong understanding of the program and should attend most, if not all, the professional development sessions. The instructors selected to teach in the professional development component must have deep background knowledge of CTE, be exemplary classroom teachers, and must have fully taken part in the CTE teacher induction instructor training before providing professional development to others. The teachers selected to serve as mentors must be exemplary CTE teachers, have taken part in the two-day mentor training and agree to fulfill all the mentor responsibilities. One participant stated, "The mentor relationship is critical. I am always asking my mentor questions." School administrators must agree to fulfill all the school leader's responsibilities associated with the program and participate in the two-day training.

State structures need to be in place to support the success of the CTE teacher induction model. A redesign of university requirements that mesh with the four professional development modules that are offered to new CTE teachers will need to occur. The state should mandate entrance competency exams for prospective CTE teachers that include technical, math, science and literacy components. New CTE teachers must be hired before summer 1 training begins, preferably by July 1 so they can fully take part in the professional development the first summer. The state and districts must require participating teachers to participate in **all** professional development sessions. Teachers who successfully complete the CTE new teacher induction program should be awarded course credits at no cost to them.

The **CTE teacher induction model** requires the addition of a rigorous math component and a comprehensive exam covering the components of the professional development at the conclusion of the 14-month program. It is also critical that program instructors stay in frequent communication with each other, that instructors provide specific and accurate feedback to participating teachers and that participating teachers form a community of practice both face-to-face and electronically. The communication between coach/instructor and teacher and among the teachers is valuable. As one participant stated, "To be able to come back once a month [for professional development] and meet with everybody, to learn new things, helps us grow as teachers."

Research Study Results

The conclusion of this research report is devoted to revisiting the key findings from each phase. The results from phase 1 included the field test of the professional development modules. Many learning activities were revised to provide more time for reflection or to clarify content.

The results of to the induction model's ability to impact commitment to the profession, teacher competence and self-efficacy were reported in the phase 2 findings. Overall teachers participating in the induction model improved their self-efficacy in instruction, classroom management and student engagement. Teachers were positive about their school working environments. Teachers reported that the induction model professional development was

intensive, time-consuming, helpful and applicable instructionally. Teacher commitment to the profession remained steady at 80 percent throughout the school year; and 70 percent of the teacher cohort remained in the teaching profession for the next (2011–2012) school year. These findings supported the strength and intent of the CTE new teacher induction model.

The phase 3 results determined if the induction model could be implemented with fidelity by state stakeholders. Although the two states did not or could not implement the model with complete fidelity, they did achieve successful results. In State 1, 89 percent of the participating CTE teachers were returning for their second year of teaching; in State 3, 88 percent of teachers were returning. New teachers in both state cohorts have made a commitment to remain in the teaching profession for the next five years. These findings support states being able to implement the model with medium to high fidelity.

The findings from phases 1, 2 and 3 offer a research foundation of a new CTE teacher induction model using an iterative development approach (goal 2 study) that is now ready for research at an experimental level and that includes a treatment and a control group of teachers. This CTE teacher induction model is also ready for national dissemination.

References

Albro, E. (2010, April). *Institute of Education Sciences grant writing workshop for development innovation projects.*

Allen, M. (2003). *Eight questions on teacher preparation: What does the research say?* (TQ-03-01W). Denver, CO: Education Commission of the States

Alliance for Excellent Education. (2008, February). *What keeps good teachers in the classroom? Understanding and reducing teacher turnover* [Issue Brief]. Washington, DC: Author.

American Federation of Teachers. (2000). *Building a profession: Strengthening teacher preparation and induction.* Report of the K-16 Teacher Education Task Force. Washington, DC: Author.

Baldacci, L. (2006). Why teachers leave. *American Educator*, 30*(2), 8-12.*

Ball, D. L., & Cohen, D. K. (1999). Developing practice, developing practitioners: Toward a practice-based theory of professional education. In L. Darling-Hammond & G. Sykes (Eds.), *Teaching as the learning profession* (pp. 3–31). San Francisco, CA: Jossey-Bass.

Bandura, A. (1997). *Self-efficacy: The exercise of control*. New York, NY: Freeman.

Borko, H. (2004). Professional development and teacher learning: Mapping the terrain. *Educational Researcher, 11*(33), 3-15.

Borman, G. D., & Dowling, N. M. (2008). Teacher attrition and retention: A meta-analytic and narrative review of the research. *Review of Educational Research, 78*, 367-409.

Bottoms, G., & McNally, K. (2005). *Actions states can take to place a highly qualified career/technical teacher in every classroom.* Atlanta, GA: Southern Regional Education Board/*High Schools That Work*.

Briggs, J.E., & Zirkle, C. (2009). Perceptions of alternative-licensed career and technical education teachers about teacher mentoring and teacher retention. Conference proceedings, Association for Career and Technical Education Research. November 19, 2009, Charlotte, NC. Retrieved March 25, 2010 from http://www.publiciastate.edu/~laanan/actermain/confproceedings.shtml

Brill, S., & McCartney, A. (2008). Stopping the revolving door: Increasing teacher retention. *Politics & Policy*, 36(5), 750-774.

Burk, J., Ford, M. B., & Mann, G. (1996, February). *Reconceptualizing student teaching: A STEP forward*. Paper presented at the 1996 Annual Meeting of the American Association of Colleges for Teacher Education, Chicago, IL.

Camp, W. G., & Heath-Camp, B. (1991). *On becoming a teacher: "They just gave me a key and said, `Good luck.'"* Berkeley, CA: National Center for Research in Vocational Education, University of California at Berkeley.

Carl D. Perkins Career and Technical Education Improvement Act of 2006. Pub L. No. 109-270. (2006).

Castellano, M., Stringfield, S. C., Stone III, J. R., &Wayman, J. C. (2003). Early measures of student progress in schools with CTE-enhanced whole-school reform: math course-taking patterns and student progress to graduation. St. Paul, MN: National Research Center for Career and Technical Education, University of Minnesota.

Cohen, J., McCabe, L, Mitchell, N. & Pickeral, T. (2009). School climate: Research, policy, practice, and teacher education. *Teachers College Record, 111*(1), 180-213.

Collie, R., Shapka, J., & Perry, N. (2012, July 12). School climate and social-emotional learning: Predicting teacher stress, job satisfaction, and teaching efficacy. *Journal of Educational Psychology*,

Constantine, J., Player, D., Silva, T., Hallgren, K., Grider, M., & Deke, J. (2009). *An evaluation of teachers trained through different routes to certification, final report* (NCEE 2009-4043). Washington, DC: National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education.

Cramer, K. (2004). *The vocational teacher pipeline: How academically well-prepared is the next generation of vocational teachers?* Washington, DC: U.S. Department of Education.

Danielson, C. (1996). *Enhancing professional practice: A framework for teaching*. Alexandria, VA: Association for Supervision and Curriculum Development.

Darling-Hammond, L. (2009, March). *Educational opportunity and alternative certification: New evidence and new questions*, Policy Brief No. 1 . Stanford, CA: Stanford Center for Opportunity Policy in Education.

Darling-Hammond, L., Chung, R., & Frelow, F. (2002). Variation in teacher preparation: How well do different pathways prepare teachers to teach? *Journal of Teacher Education, 53* (4), 286-302.

Darling-Hammond, L.,& Sykes, G. (Eds.) (1999). *Teaching as the learning profession: Handbook of policy and practice*. San Francisco, CA: Jossey-Bass.

DeWitt, S. (2010, January). Addressing teacher retention and quality. *Techniques, 85* (1), 13.

DuFour, R., Dufour, R., & Eaker, R. (1998). *Professional learning communities at work: Best practices for enhancing student achievement*. Bloomington, IN: Solution-Tree.

Feiman-Nemser, S., Carver, C., Schwille, S., & Yusko, B. (1999). Beyond support: Taking new teachers seriously as learners. In M. Scherer (Ed.), *A better beginning: Supporting and mentoring new teachers, 3-12*. Alexandria, VA: Association for Supervision and Curriculum Development.

Feistritzer, C. E. (2007). *Alternative teacher certification: A state-by-state analysis 2007*. Washington, DC: National Center for Education Information.

Feistritzer, C. E., & Chester, D. (2000). *Alternative teacher certification*. Washington, D.C: National Center for Education Information.

Fullan, M. (2001). *Leading in a culture of change*. San Francisco, CA: Jossey-Bass.

Garcia, R., &Huseman, J. (2009, September). *Alternative certification programs: Meeting the demand for effective teachers*, Brief Analysis No. 675.Washington, D.C.: National Center for Policy Analysis.

Garet, M. S., Porter, A. C., Desimone, L., Birman, B. F., & Yoon, K. S. (2001). What makes professional development effective? Results from a national sample of teachers. *American Educational Research Journal, 38*, 915-945.

Glazerman, S., Dolfin, S., Bleeker, M., Johnson, A., Isenberg, E., Lugo-Gil, J., Grider, M., Britton, E., and Ali, M. (2008). *Impacts of comprehensive teacher induction: Results from the first year of a randomized controlled study*. Washington, DC: U.S. Department of Education and Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance.

Gray, K. C., & Walter, R A. (2001). *Reforming career and technical education teacher licensure and preparation*. Columbus, OH: National Dissemination Center for Career and Technical Education (NDCTE), The Ohio State University.

Heath-Camp, B., & Camp, W. G. (1990a). What new teachers need to succeed. *Vocational Education Journal, 65*(4), 22-24.

Heath-Camp, B., & Camp, W. G. (1990b). Induction experiences and needs of beginning vocational teachers without teacher education backgrounds. *Occupational Education Forum, 19*(1), 6-16.

Heath-Camp, B., & Camp, W. G. (1992). Assistance needed and received by beginning vocational teachers. *Journal of Vocational Education Research, 17(1),* 35-52.

Heath-Camp, B., Camp, W. G., Adams-Casmus, E., Talbert, B. A., & Barber, J. D. (1992). *On becoming a teacher: An examination of the induction of beginning vocational teachers in American public schools* (NCRVE Publication No. MDS – 161). Berkeley, CA: National Center for Research in Vocational Education.

High Schools That Work Board. (2007). Minutes for April 2007 board meeting. Atlanta, GA: SREB.

Honawar, V. (2007a, December 12). Ed. schools beef up classroom-management training. *Education Week, 27*(19), 8.

Honawar, V. (2007b, December 19). Reports renew debate over alternative preparation. *Education Week, 27*(16), 11.

Hughes, G. (2012). Teacher retention: Teacher characteristics, school characteristics, organizational characteristics, and teacher efficacy. *The Journal of Educational Research, 104*(4), 245-255.

Hunt, J. B., & Carroll, T. G. (2003). *No dream denied. A report of the National Commission on Teaching and America's Future.* Washington, DC: National Commission on Teaching and America's Future.

Interstate New Teacher Assessment and Support Consortium. (1992). *Model standards for beginning teachers*. Washington, DC: Council of Chief State School Officers.

Joerger, R. M. (1997). Mentoring in agricultural education. *The Agricultural Education Magazine, 69,* 4-5.

Joerger, R. M. (2003). Comparison of the impact of teaching events upon the experience of entry-level agricultural education teachers. *Journal of Career and Technical Education, 20*(1), 51-68.

Joerger, R. M., & Bremer, C. D. (2001). *Teacher induction programs: A strategy for improving the professional experience of beginning career and technical education teachers.* St. Paul: National Research Center for Career and Technical Education, University of Minnesota. (National Dissemination Center for Career and Technical Education Research Report No. RR1009).

Jones, B. F., Rasmussen, C. M., & Moffitt, M. C. (1997). *Real-life problem solving.: A collaborative approach to interdisciplinary learning.* Washington, DC: American Psychological Association.

Jorissen, K. (2003). Successful career transitions: Lessons from urban alternative route teachers who stayed. *The High School Journal, 86,* 41-51.

Kapadia, K., Coca, V., & Easton, J. Q. (2007). *Keeping new teachers: A first look at the influences of induction in the Chicago Public Schools.* Chicago, IL: Consortium on Chicago School Research, University of Chicago.

Kirby, B. M., & LeBude, A. V. (1998). Induction strategies that work: Keeping agricultural, health, and biotechnology career development beginning teachers in the classroom. *Journal of Vocational and Technical Education, 15*(1), 17-27.

Kitching, K., Morgan, M., & O'Leary, M. (2009, February 9). It is the little things: Exploring the importance of commonplace events for early-career teachers' motivation. *Teachers and Teaching: Theory and Practice. (15)*1, 43-58.

Klassen, R. & Chiu, M. (2010, August). Effects on teachers' self-efficacy and job satisfaction: Teacher gender, years of experience, and job stress. *Journal of Educational Psychology, 102*(3), 741-756.

Knowles, M. S. (1975). *Self-directed learning.* New York, NY: Association Press.

Knowles, M., and Associates. (1984). *Andragogy in action: Applying modern principles of adult education.* San Francisco, CA: Jossey Bass.

Kruse, S., Seashore Louis, K., & Bryk, A. (1994, Spring). Building professional community in schools. *Issues in Restructuring Schools, 6.* Madison, WI: Center for School Organization and Restructuring.

Lemov, D. (2010). *Teach like a champion: 49 techniques that put students on the path to college.* San Francisco: Jossey Bass.

Marvel, J., Lyter, D., Peltola, P., Strizek, G., & Morton, B. (2006). *Teacher Attrition and Mobility: Results from the 2004-05 Teacher Follow-up Survey* (NCES 2007-307). U.S. Department of Education, National Center for Education Statistics. Washington, DC: U.S. Government Printing Office.

Merrill, M. D. (2007). A task-centered instructional strategy. Journal of Research on Technology in Education, *40*(1), 33-50.

Mezirow, J. (1997). Transformative learning: Theory to practice. In P. Cranton (Ed.), *Transformative learning in action: Insights from practice: New directions for adult and continuing education* (pp. 5-12). San Francisco, CA: Jossey-Bass.

Middleton, J., Gorard, S., Taylor, C., & Bannan-Ritland, B. (2008). The "Complete" design experiment: From soup to nuts. In A. E. Kelly, R.A. Lesh, & J.Y. Baek (Eds.), *Handbook of design research methods in education: Innovations in science, technology, engineering, and mathematics learning and teaching* (pp. 21-46). New York: Routledge.

Miles, M., & Huberman, A. (1994). *Qualitative data analysis: An expanded sourcebook.* Thousand Oaks, CA: Sage.

Moore and Johnson and The Project for the Next Century of Teachers.(2006). Why new teachers stay. *American Educator, 30*(2), 9-19.

National Association of State Directors of Career and Technical Education Consortium (NASDCTEc). (2009). *Teacher shortage undermines CTE.* Silver Spring, MD: Author.

National Association of State Directors of Career and Technical Education Consortium (NASDCTEc). *Reflect, transform, lead: A new vision for career technical education* (2010). Silver Spring, MD: Author.

National Board for Professional Teaching Standards. (1997). *Career Technical Education Standards.* Arlington, VA: Author.

Rochkind, J., Ott, A., Immerwahr, J., Doble, J., & Johnson, J. (2007). *Lessons learned: New teachers talk about their jobs, challenges, and long-range plans.* National Center for Teacher Quality and Public Agenda.

Rowley, J. B. (1999). Supporting new teachers. *Educational Leadership, 56*(8), 20-22.

Ruhland, S. K., & Bremer, C. D. (2003). *Alternative teacher certification procedures and professional development opportunities for career and technical education teachers.* St. Paul, MN: National Research Center for Career and Technical Education, University of Minnesota.

Ruhland, S., & Bremer, C. (2004). Perceptions of traditionally and alternatively certified career and technical education teachers [Electronic version]. *Journal of Vocational Education Research, 28* (3).

Schmidt, H. G. (1993). Foundations of problem-based learning: Some explanatory notes. *Medical Education,27,* 422-432

Senge, P. (1999). *The dance of change: The challenges to sustaining momentum in learning organizations*. New York, NY: Doubleday/Currency.

Sergiovanni, T. (1999). *Building community in schools.* San Francisco, CA: Jossey-Bass.

Serpell, Z., & Bozeman, L. (2000). *Beginning teacher induction: A report on beginning teacher effectiveness and retention.* Washington, DC: American Association of Colleges for Teacher Education.

Silverberg, M., Warner, E., Fong, M., & Goodwin, D. (2004). *National Assessment of Vocational Education: Final report to Congress.* Washington, DC: U.S. Department of Education.

Smith, T. M., & Ingersoll, R. M. (2004). What are the effects of induction and mentoring on beginning teacher turnover? *American Educational Research Journal, 41*(3),681-714.

Sparks, D., &Hirsh, S. (1997). *A new vision for staff development*. Alexandria, VA: Association for Supervision and Curriculum Development.

Stigler, J. W., & Hiebert, J. (1999). *The teaching gap: Best ideas from the world's teachers for improving education in the classroom*. New York, NY: Free Press.

Stone III, J. R., Alfeld, C., & Pearson, D. (2008). Rigor and relevance: Enhancing high school students' math skills through career and technical education. *American Educational Research Journal, 45*, 767-795.

Stone, M. (2000). Are we adequately preparing teachers for California's class-size reduction. In J. Mclntyre & D. Byrd (Eds.), *Research on effective models for teacher education* (pp. 203-217). Thousand Oaks, CA: Corwin.

Strauss, A. & Corbin, J. (1990). *The basics of qualitative research.* Newbury Park, CA: Sage.

Suell, J. L., & Piotrowski, C. (2007). Alternative teacher education programs: A review of the literature and outcome studies. *Journal of Instructional Psychology, 34(1),* 54-58.

Szuminski, K. (2003). Teacher development in CTE. In brief: Fast facts for policy and practice. Columbus: National Dissemination Center for Career and Technical Education, The Ohio State University. (National Dissemination Center for Career and Technical Education Research Report No. NDCCTE-21).

Thomas, J. W. (2000). *A review of research on project-based learning.* San Raphael, CA: The Autodexk Foundation.

Thomas, J. W., Mergendoller, J. R., & Michaelson, A. (1999). *Project-based learning: A handbook for middle and high school teachers.* Novato, CA: Buck Institute for Education.

Tschannen-Moran, M., & Woolfolk Hoy, A. (2007). The differential antecedents of self-efficacy beliefs of novice and experienced teachers. *Teaching and Teacher Education, 23,* 944-956.

Tschannen-Moran, M., Hoy, A. W., & Hoy, W. K. (1998). Teacher efficacy: its meaning and measure. *Review of Educational Research, 68,* 202-248.

Tschannen-Moran, M., & Woolfolk Hoy, A. (2001). Teacher efficacy: Capturing an elusive concept. *Teaching and Teacher Education, 17*, 783-805.

Tschannen-Moran, M. & McMaster, P. (2009, December). Sources of sef-efficacy: Four professional development formats and their relationship to self-efficacy and implementation of a new teaching strategy. *The Elementary School Journal, (110)*2,

U.S. Department of Education, Office of Postsecondary Education. (2006). *The secretary's fifth annual report on teacher quality: A highly qualified teacher in every classroom.* Washington, DC: Author.

Villar, A., & Strong, M. (2007). Is mentoring worth the money? A benefit-cost analysis and five-year rate of return of a comprehensive mentoring program for beginning teachers. *ERS Spectrum: Journal of Research and Information, 25*(3), 1-17.

Woolfolk Hoy, A. (2000, April). *Changes in teacher efficacy during the early years of teaching.* Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.

Walsh, K., & Jacobs, S. (2007). *Alternative certification isn't alternative.* Washington, DC: Thomas B. Fordham Institute and National Council on Teacher Quality.

Webb, N., Alt, M., Ely, R., & Vesperman, B. (2005). Web alignment tool. Wisconsin Center of Educational Research. University of Wisconsin-Madison. Retrieved from http://dese.mo.gov/divimprove/sia/msip/DOK_Chart.pdf

Yoon, K. S., Duncan, T., Lee, S. W.Y., Scarloss, B., & Shapley, K. (2007). *Reviewing the evidence on how teacher professional development affects student achievement* (Issues and Answers Report, REL 2007–No. 033). Washington, DC: U.S. Department of Education, Institute of Education Sciences, National Center for Education Evaluation and Regional Assistance, Regional Educational Laboratory Southwest. Retrieved from http://www.eric.ed.gov/ERICWebPortal/contentdelivery/servlet/ERICServlet?accno=ED498548.

Yopp, R. H., & Young, B. L. (1999). A model for beginning teacher support and assessment. *Action in Teacher Education, 21*(1), 24-36.

Zawojewski, J., Chamberlin, M., Hjalmarson, M., & Lewis, C. (2008). Developing design studies in mathematics education professional development: Studying teachers' interpretive systems. In A. E. Kelly, R.A. Lesh, & J.Y. Baek (Eds.), *Handbook of design research methods in education: Innovations in science, technology, engineering, and mathematics learning and teaching* (pp. 219-245). New York: Routledge.

Zeichner, K. M., & Schulte, A. K. (2001). What we know and don't know from peer-reviewed research about alternative teacher certification programs. *Journal of Teacher Education, 52*, 266-282.

Zirkle, C. J., Martin, L., & McCaslin, N. L. (2007). *Study of state certification/licensure requirements for secondary career and technical education teachers.* St. Paul, MN: National Research Center for Career and Technical Education, University of Minnesota.

Appendices

Appendix A
Phase 1 – Phase 2 – Phase 3
Demographic and Background Information

All information collected on this form and during the training is collected for the purpose of – and will only be used – to make improvements to the design and delivery of the induction program. You may choose not to participate at any time without consequence. We hope, however, that you will participate so that future teachers can benefit from your insights, reactions, and suggestions. If you have any questions or comments, please contact Leslie Hazle Bussey (leslie.bussey@sreb.org) or John Uhn (john.uhn@sreb.org).

Contact Information

Name _____

School or District _____

Mailing Address _____

_____

City/Town _____

State _____

ZIP Code _____

Email Address _____

Phone Number _____

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Your Education and Work Experiences

4. What was the last year during which you were enrolled in formal coursework (for example, in a university or training center)?

   Years _____

5. How many school years have you been a teacher?

   Years _____

   Months _____

6. Please select the career cluster that most closely represents the field in which you last worked.

   - ☐ Agriculture and Natural Resources
   - ☐ Construction
   - ☐ Manufacturing
   - ☐ Transportation, Distribution and Logistics Services
   - ☐ Information Technology Services
   - ☐ Wholesale/Retail Sales and Services
   - ☐ Financial Services
   - ☐ Hospitality and Tourism
   - ☐ Business and Administrative Services
   - ☐ Health Services
   - ☐ Human Services
   - ☐ Arts, Audio, Video Technology and Communications Services
   - ☐ Legal and Protective Services
   - ☐ Scientific Research, Engineering and Technical Services
   - ☐ Education and Training Services
   - ☐ Public Administration/Government Services

7. How many years did you work in this cluster?

   ☐ Years

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8. Please select the career cluster that most closely represents the courses you are currently teaching.
   - ☐ Agriculture and Natural Resources
   - ☐ Construction
   - ☐ Manufacturing
   - ☐ Transportation, Distribution and Logistics Services
   - ☐ Information Technology Services
   - ☐ Wholesale/Retail Sales and Services
   - ☐ Financial Services
   - ☐ Hospitality and Tourism
   - ☐ Business and Administrative Services
   - ☐ Health Services
   - ☐ Human Services
   - ☐ Arts, Audio, Video Technology and Communications Services
   - ☐ Legal and Protective Services
   - ☐ Scientific Research, Engineering and Technical Services
   - ☐ Education and Training Services
   - ☐ Public Administration/Government Services

9. Indicator the type of school setting in which you currently work?
   - ☐ Technology Center
   - ☐ Common Education/Comprehensive High School
   - ☐ Vocational High School
   - ☐ Other

10. Do you have an industry certification in the career cluster you are currently teaching?
    - ☐ Yes
    - ☐ No

11. How many total years do you expect to continue teaching in a career/technical classroom?

    Number of Years _____

12. Do you have interest in pursuing a leadership position at your school?
    - ☐ Yes
    - ☐ No

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Demographic Information

All information collected is collected for the purpose of – and will only be used – to make improvements to the design and delivery of the induction program. You may choose not to participate at any time without consequence. We hope, however, that you will participate so that future teachers can benefit from your insights, reactions, and suggestions.

If you have any questions or comments, please contact Leslie Hazle Bussey (leslie.bussey@sreb.org) or John Uhn (john.uhn@sreb.org).

1. What is your gender?
   - ☐ Male
   - ☐ Female

2. Which race/ethnicity best describes you? (Select all that apply)
   - ☐ American Indian or Alaskan Native
   - ☐ Asian
   - ☐ Black or African-American
   - ☐ Hispanic or Latino
   - ☐ Native Hawaiian or other Pacific Islander
   - ☐ White

3. What is your age range?
   - ☐ less than 25 years old
   - ☐ 25 – 34 years old
   - ☐ 35 – 44 years old
   - ☐ 45 – 54 years old
   - ☐ 55 – 64 years old
   - ☐ older than 64 years old

4. Which levels of education did you complete? (Select all that apply)
   - ☐ Graduated high school or earned a GED.
   - ☐ Professional training (such as apprenticeship, on the job training for twelve months or more, and postsecondary vocational awards such as certifications and licenses).
   - ☐ Completed an associate's degree.
   - ☐ Completed a bachelor's degree.
   - ☐ Completed education beyond a bachelor's degree.
   - ☐ Other

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Appendix B
Phase 1
Demographic Characteristics of Field Test Participants

Characteristic	**N**
Gender	
Male	24
Female	22
Ethnicity[1]	
White	35
American Indian	7
African-American	5
Hispanic	1
Age	
Younger than 25	2
25–34	17
35–44	13
45–54	10
55–64	4
Highest Level of Education	
High School only	1
High School with professional training[2]	13
Associate's Degree	5
Bachelor's Degree	19
Beyond Bachelor's Degree	8
Subject Area	
Agriculture and Natural Resources	3
Arts, Audio, Video Technology, and Communication Services	4
Construction	7
Education and Training Services	2
Health Services	9
Hospitality and Tourism	2
Human Services	5
Information Technology Services	5
Legal and Protective Services	1
Manufacturing	3
Transportation, Distribution, and Logistics Services	3
Scientific Research, Engineering, and Technical Services	1

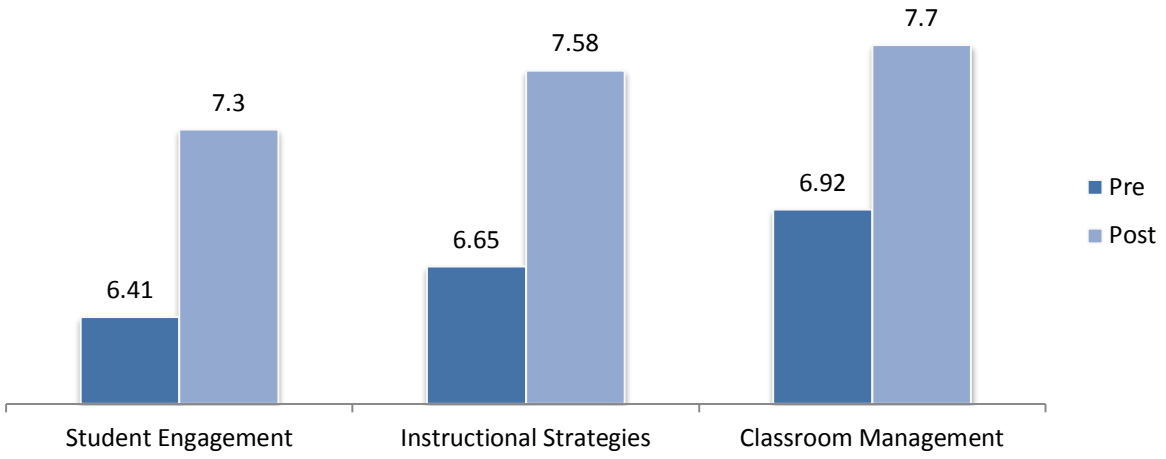
[1] Some participants self-identified more than one ethnic category
[2] Professional training was defined as an apprenticeship, on the job training for twelve months or more, and postsecondary vocational awards such as certifications and licenses.

Appendix C
Phase 1 – Phase 2 – Phase 3
Teachers' Sense of Efficacy Scale

Teachers' Sense of Efficacy Scale[1] (long form)

Teacher Beliefs Directions: This questionnaire is designed to help us gain a better understanding of the kinds of things that create difficulties for teachers in their school activities. Please indicate your opinion about each of the statements below. Your answers are confidential.	How much can you do? Nothing		Very Little		Some Influence		Quite A Bit		A Great Deal
1. How much can you do to get through to the most difficult students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
2. How much can you do to help your students think critically?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
3. How much can you do to control disruptive behavior in the classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
4. How much can you do to motivate students who show low interest in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
5. To what extent can you make your expectations clear about student behavior?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
6. How much can you do to get students to believe they can do well in school work?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
7. How well can you respond to difficult questions from your students ?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
8. How well can you establish routines to keep activities running smoothly?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
9. How much can you do to help your students value learning?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
10. How much can you gauge student comprehension of what you have taught?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
11. To what extent can you craft good questions for your students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
12. How much can you do to foster student creativity?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
13. How much can you do to get children to follow classroom rules?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
14. How much can you do to improve the understanding of a student who is failing?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
15. How much can you do to calm a student who is disruptive or noisy?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
16. How well can you establish a classroom management system with each group of students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
17. How much can you do to adjust your lessons to the proper level for individual students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
18. How much can you use a variety of assessment strategies?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
19. How well can you keep a few problem students form ruining an entire lesson?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
20. To what extent can you provide an alternative explanation or example when students are confused?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
21. How well can you respond to defiant students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
22. How much can you assist families in helping their children do well in school?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
23. How well can you implement alternative strategies in your classroom?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
24. How well can you provide appropriate challenges for very capable students?	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)

Appendix D
Phase 1
Teachers' Sense of Efficacy Scale Results



Appendix E
Phase 1
Field Test 1 – Field Test 2 – Field Test 3 & 4
Pre- and Post-Assessment Tool for Content Knowledge

Becoming a Career/Technical Teacher

Directions: Please answer all questions to the best of your ability.

1. Why did you want to become a teacher?

2. Did the availability of an accelerated path to teacher certification encourage you to pursue teaching?
   - ☐ Yes
   - ☐ No

3. What is the primary reason you are participating in this training? (Select only one.)
   - ☐ To connect with other new CTE teachers
   - ☐ To comply with administrator's request
   - ☐ To improve my ability to prepare lessons and manage classroom behavior
   - ☐ Other

4. What do you hope to get out of this training?

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Phase 1
Field Test 1
Pre- and Post-Assessment Tool for Content Knowledge: Instructional Planning

5. Describe the steps you would take to create a new lesson plan.

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Phase 1
Field Test 2
Pre- and Post-Assessment Tool for Content Knowledge: Instructional Strategies

Instructional Strategies

Directions: Please answer all questions to the best of your ability.

1. Describe ways that teachers can actively engage students in learning.

2. Name three things you would look for in a classroom to tell you that high quality CTE instruction is going on.
   1.
   2.
   3.

3. What do you see or hear that tells you students are using higher order thinking skills?

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Phase 1
Field Test 3
Pre- and Post-Assessment Tool for Content Knowledge: Classroom Assessment

CTE Field Test 3 Pre Test

5. Assessment Strategies

***1. What purposes can student assessment serve in the classroom? (Why do you use student assessment?)**

***2. What tools can you use to find out what your students know and can do? (How can you assess student learning?)**

***3. How do you go about assigning students a course grade?**

Page 6

CTE Field Test 3 Post Test

3. Assessment Strategies

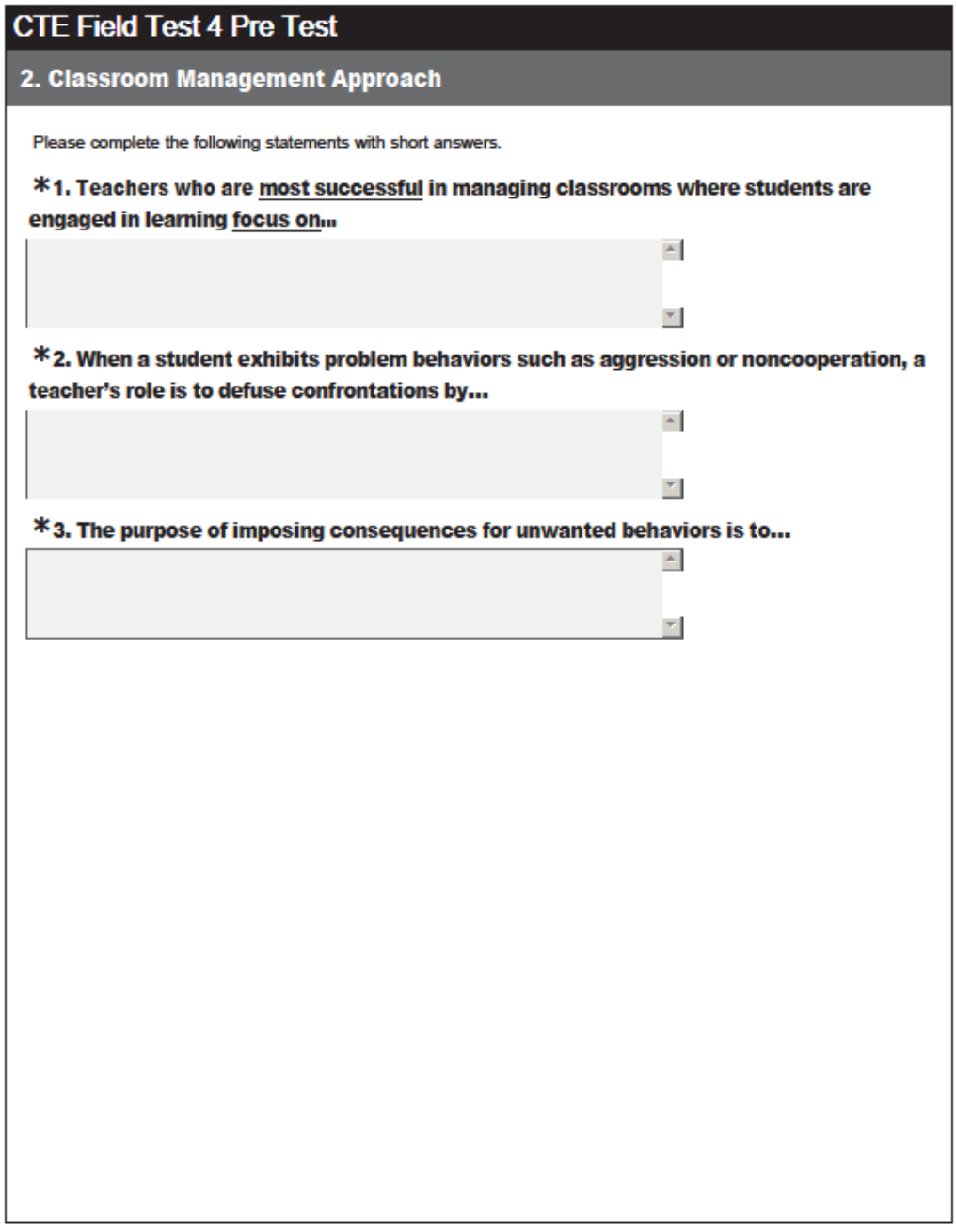
*1. What purposes can student assessment serve in the classroom? (Why do you use student assessment?)

*2. Identify three types of tools you can use to find out what your students know and can do.

1.
2.
3.

*3. How do you go about assigning students a course grade?

Phase 1
Field Test 4
Pre- and Post-Assessment Tool for Content Knowledge: Classroom Management



CTE Field Test 4 Pre Test

2. Classroom Management Approach

Please complete the following statements with short answers.

*1. Teachers who are most successful in managing classrooms where students are engaged in learning focus on...

*2. When a student exhibits problem behaviors such as aggression or noncooperation, a teacher's role is to defuse confrontations by...

*3. The purpose of imposing consequences for unwanted behaviors is to...

Page 2

CTE Field Test 4 Pre Test

3. Specific Classroom Management Strategies

Please answer each question in as much detail as you can.

***1. What strategies are effective in getting to know students?**

***2. What strategies are effective in creating an organized and motivating classroom space?**

***3. What strategies are effective in establishing rules and procedures for a classroom?**

CTE Field Test 4 Pre Test

3. Specific Classroom Management Strategies

Please answer each question in as much detail as you can.

***1. What strategies are effective in getting to know students?**

***2. What strategies are effective in creating an organized and motivating classroom space?**

***3. What strategies are effective in establishing rules and procedures for a classroom?**

Appendix F
Phase 1
Focus Group Protocol

Focus Group Protocol

Session:	Date:
Number of Participants:	Facilitator:
Subgroup:	Assistant:
Site:	

Part 1 Greeting and Researcher Introduction

- Purpose: Welcome participants and express appreciation
- Discuss
  - Introductions and role at SREB
  - Purpose of today's focus group

Part 2 Utilities and Expectations

- Purpose: Establish the parameters for the discussion
- Discuss
  - **IRB**
  - Confidentiality
  - Voluntary (participation and input)
  - We will be recording these sessions **[Make sure recorder is on!]**
  - No wrong answer
  - Talk to each other, not researchers
  - Negative and positive results are welcome and desired
  - Feel free to speak openly even if your opinions differ
  - Not about building consensus
  - Teachers should feel free to speak openly about a related topic
  - Personal experiences or known experiences are beneficial

Part 3 Participant Introductions and Icebreakers

- Purpose: Establish a comfortable environment
- Round Robin icebreaker question: What is the first word that comes to mind when someone asks you how your first year as a CTE teacher is going?

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Part 4 Focus Group Questions

1. Now turning your thoughts to the training you've been attending, what would you say about this training to a friend in 5-8 words?

2. Let's talk about some specific characteristics of this training. Please use your red, yellow, or green cards to indicate whether you thought each aspect was right on (green); just OK (yellow); or needs major revision (red):
   - Vocabulary used by the instructor or in materials
   - Clarity of the message communicated by instructor or in materials
   - Sequence of topics
   - Pace of instruction
   - Quality of examples given
   - Differentiation/accommodation of your individual needs

   [Using your recording sheet, go back one by one, and follow up with those that answered yellow or red, e.g. For those of you that showed a yellow or red card on vocabulary, tell me how you would like to modify the materials or instruction to make it more appropriate for you]

3. Let's take 2-3 minutes to talk about the next question in pairs [*break them up*] and then I want each of you to report out.

   What did you hope to get out of this training that was not addressed so far?

4. We will use your red, yellow, and green cards again for this question. We would like to know whether you will use the materials or new assessment strategies learned from this training when you return to your classroom? Green indicates you definitely will; yellow indicates you might; and red indicates you definitely will not.

   Hold up your green card if you think you **will definitely** use the materials/assessment strategies from this training. [*Record*]

   Hold up your yellow card if you think you **might** use the materials/ assessment strategies from this training. [*Record*]

   Hold up your red card if you think you **definitely will not** use the materials/ assessment strategies from this training. [*Record*]

   [*Now go through each of the following one by one*].

   - Greens: What aspects of this training are you planning to use in your classroom? How do you plan on using the assessment strategies learned in your classroom assignments?
   - Yellows: What might help make the materials/ assessment strategies from this training more useful to your classroom?
   - Reds: Tell me about why the materials/ assessment strategies from this training will not be useful in your classroom

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5. Now we're going to walk through today's agenda section by section. [*Go through each bullet, one by one.*] Ask participants: Think back to the part of the day when we were talking about (bullet from list below). Look at your learning log and try to tell me what was going on in your head at that point.

   - What were you reactions
     - to what you were hearing?
     - to what your peers were saying?
     - to how the instructional experience was designed for you?

   Even if it seems obvious, say it out loud. Let us in on your thinking, whether it be good, bad, neutral, or totally unrelated.

Day 1

- The Role of the Teacher in Assessing Student Progress
- Formative and Summative Assessments
- Characteristics of Quality Assessments
- Developing a System of Assessments for a Unit of Study
- Feedback Session

Day 2

- Reflections on the Previous Day
- Developing Rubrics
- Developing Pencil-and-Paper Tests
- Test Items that Embed Academics
- Building a Test for a CTE Unit of Study
- Feedback Session

6. Thinking back at the past two days, pick a point that you felt most helped you learn something valuable and new. Tell me about when that was.
   - Follow up: What do you think was most helpful to you about how the training was designed around that point? [*Wait before offering specifics]*
   - Content? Activities? Conversation with your peers?

7. Finally, of all the things we've discussed tonight, what do you feel is the most important message you would like to convey to the developers of this training program?

Part 5 Conclude

- Thank participants
- Assure participants we will use the feedback they shared to improve the induction model
- Provide email addresses in case participants wish to follow up

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Appendix G
Phase 1
Field Test 1
Module Observation by Evaluators

Snapshot Observation Form

Session: **Date:**

Location: **Observer:**

	In Session?	Participation Engagement	Cooperative Learning	Large Group Discussion	Problem-Based Learning	Comments
8:00 AM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
8:20 AM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
8:40 AM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
9:00 AM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
9:20 AM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
9:40 AM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
10:00 AM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
10:20 AM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
10:40 AM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
11:00 AM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
11:20 AM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
11:40 AM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
12:00 PM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
12:20 PM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
12:40 PM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
1:00 PM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
1:20 PM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
1:40 PM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
2:00 PM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
2:20 PM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
2:40 PM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
3:00 PM	Y N	1 2 3	1 2 3	1 2 3	1 2 3	
1	No activity	2	Moderate level of activity	3	High level of activity	

Hourly Observation Form

Session: **Date:**

Location: **Observer:**

	Adequate Time	Depth of Dialogue	Level of Rigor	Comments
9:00 AM	Y N	1 2 3	1 2 3	
10:00 AM	Y N	1 2 3	1 2 3	
11:00 AM	Y N	1 2 3	1 2 3	
12:00 PM	Y N	1 2 3	1 2 3	
1:00 PM	Y N	1 2 3	1 2 3	
2:00 PM	Y N	1 2 3	1 2 3	
3:00 PM	Y N	1 2 3	1 2 3	

Appendix H
Phase 1
Field Test 2 – Field Test 3 – Field Test 4
Note Cards Completed by Teachers

Field Test 2

Circle date 10/14 10/15 10/16	**Enter time and circle am or pm** _____:_____ am pm						**Code**
Please think about the segment that just ended and rate your agreement with the following statements:							
	Strongly Disagree					Strongly Agree	
1. What I just learned about high quality CTE instruction applies to my current class of students	1	2	3	4	5	6	NA
2. Having dialog with others enhanced my understanding of high quality CTE instruction	1	2	3	4	5	6	NA
3. Opportunities to develop or deliver instruction sharpened my skills in creating high quality learning experiences for my students	1	2	3	4	5	6	NA
4. The amount of **time** devoted to this segment was just right	1	2	3	4	5	6	NA

Please attend to each item thoughtfully and honestly. Take your time.

Field Test 3

Circle date 12/3 12/4 12/5	**Enter time and circle am or pm** _____:_____ am pm						**Code**
Please think about the segment that just ended and rate your agreement with the following statements:							
	Disagree					Agree	
1. What I just learned about classroom assessment **applies** to my current class of students	1	2	3	4	5	6	NA
2. Having **dialog** with others enhanced my understanding of classroom assessment	1	2	3	4	5	6	NA
3. Opportunities to **create or deliver** assessments sharpened my skills	1	2	3	4	5	6	NA
4. The amount of **time** devoted to this segment was just right	1	2	3	4	5	6	NA

Please attend to each item thoughtfully and honestly. Take your time.

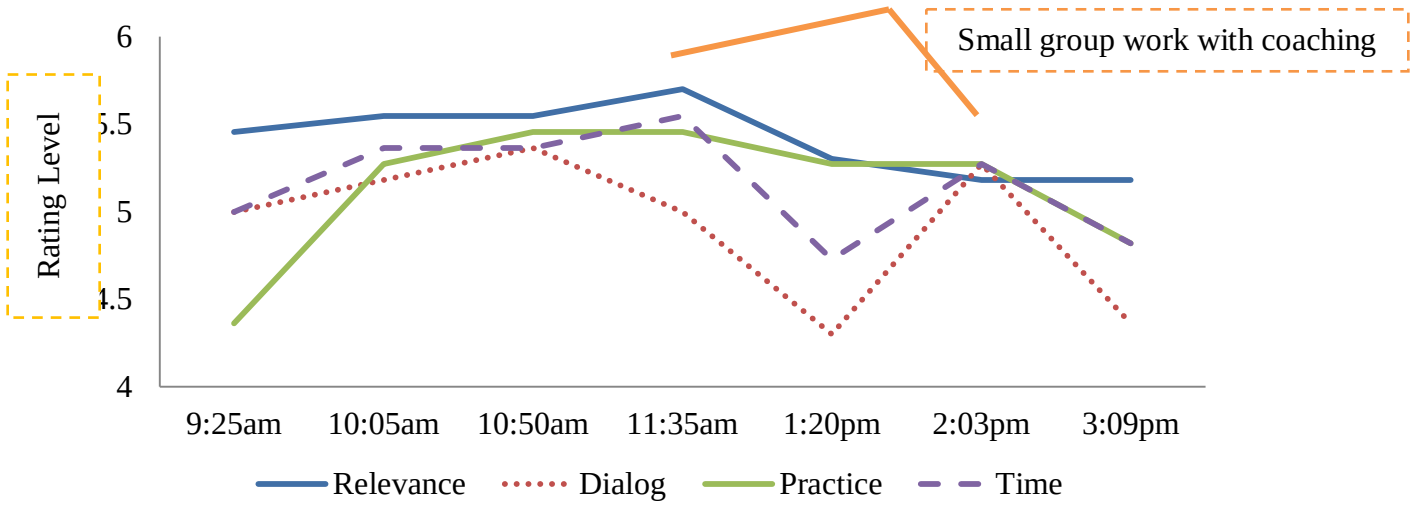
Circle date 2/25 2/26 2/27	**Enter time and circle am or pm** _____:_____ am pm	**Code**

Please think about the segment that just ended and rate your agreement with the following statements:

	Agree					**Disagree**	
1. What I just learned about classroom management **applies** to my current class of students	**6**	**5**	**4**	**3**	**2**	**1**	**NA**
2. Having **dialog** with others enhanced my understanding of classroom management	**6**	**5**	**4**	**3**	**2**	**1**	**NA**
3. Opportunities to **create** classroom management plans or **practice** classroom management strategies sharpened my skill	**6**	**5**	**4**	**3**	**2**	**1**	**NA**
4. The amount of **time** devoted to this segment was just right	**6**	**5**	**4**	**3**	**2**	**1**	**NA**

Please attend to each item thoughtfully and honestly. Take your time.

Appendix I
Phase 1
Quick Card Ratings of Adult Learning Quality from a Day



Appendix J
Phase 1
Field Test 3 – Field Test 4
Teacher Interview Protocol

Participant Interview

Session:	Date:
Participant:	Interviewer:

Objective 1: Use formative and summative assessment methods that prepare students for workplace and post-secondary types of assessment (for example, employer and college-readiness exams)

Talk to me a little bit about how you would use formative and summative assessment methods in your classroom.

How do you use assessment to prepare your students for employer or college-readiness exams?

Before this training, how competent would you say you were in using formative and summative assessment to prepare students for employer or college-readiness exams?

Objective 2: Incorporate student self assessment, especially through a portfolio of work

Talk to me a little bit about how you would incorporate student self assessment in your classroom.

What role do you see portfolios playing in your course?

Before this training, how competent would you say you were in using student self assessment and portfolios?

Objective 3: Use rubrics to clearly define assessment criteria

What purpose do rubrics play in your classroom?

How well do you feel you can use rubrics in your classroom on Monday to define assessment criteria?

Before this training, how competent would you say you were in using rubrics to define assessment criteria?

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Objective 4: Create written exams that mirror standardized-assessment-type or employer-exam-type questions.

How competent do you feel you are in creating written exams that mirror standardized or employer exam tests?

Before this training, how competent would you say you were in using rubrics to define assessment criteria?

Objective 5: Assess student progress in reading, writing, and mathematics to solve problems and take action in the field

What do you feel you do well in your classroom to assess student progress in reading, writing and math?

Before this training, how competent would you say you were in assessing student progress in reading, writing and math?

Objective 6: Develop a plan for grading and reporting student progress

What is your plan for grading and report your students' progress?

How competent do you feel you were before this training in developing a plan for grading and reporting student progress?

Overall, what do you feel you learned during this training session?

If you could customize this training, what would you do to make it really relevant and right for you?

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Appendix K
Phase 1
Daily Instructor Debrief

Post Module Training Review with Instructor

Day:

Instructor:

How closely would you say today's training met with your expectations and plans?
1 (Not at all) 5 (Exactly)

What did you do that deviated from what you planned?

What did you see, hear or learn to determine that a change was needed?

How did you change the planned activity?

How did the change work out?

What would you do differently next time?

What materials can/should be developed to support this adaptation?

Is this adaptation likely to be something a future instructor will need to make?

Should the module be changed, or should this adaptation be added as an option?

What would you like to change about the module materials based on your experience today?

What aspects of today were most successful? Why do you think so?

Appendix L
Phase 1
Material Review by Outside Observers

Day 1: Instructions

For today, we ask that you carefully read through the binder materials and texts provided for all three days.

Consider the materials using these criteria:

1. Are the materials relevant to new CTE teachers?

2. Are the materials, in their current form, usable by new CTE teachers?

3. Are the materials, in their current form, usable by CTE teacher educators?

4. Are the materials written and designed in a way that is clear and understandable to new CTE teachers?

5. Are the assumptions implied by the materials about what constitutes teacher competence appropriate for first year CTE teachers?

Space is provided on the next five pages for you to capture these reflections. Please submit your completed forms at the end of the day to John Uhn.

Day 1: Reviewing Module Materials

Unit 1

Criterion	Low					High
Materials are relevant to new CTE teachers	1	2	3	4	5	6
Materials are usable by new CTE teachers	1	2	3	4	5	6
Materials are usable by CTE teacher educators	1	2	3	4	5	6
Materials are written and designed in a way that is clear and understandable to new CTE teachers	1	2	3	4	5	6
Assumptions about teacher competence are appropriate	1	2	3	4	5	6

What are your overarching impressions of this section of the materials? Please be candid and thorough.

What assumptions do these materials make about new CTE teacher competence?

Appendix M

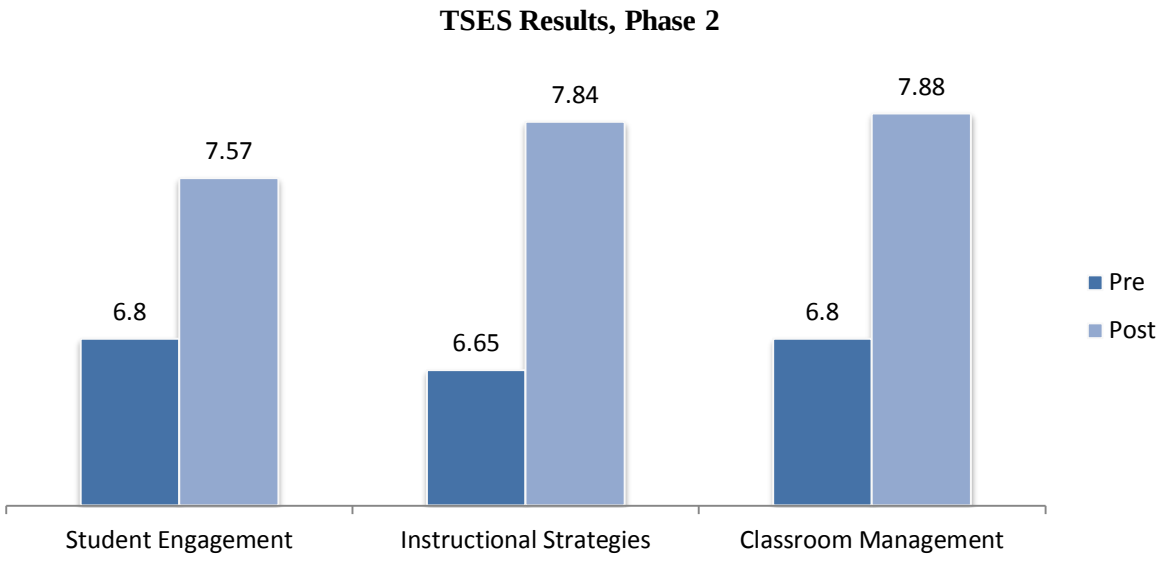
Phase 2

Demographic Characteristics of Teacher Professional Development Cohort

Characteristic	***n***
Gender	
Male	5
Female	5
Ethnicity	
White	6
Asian	1
American Indian	2
Unspecified	1
Age	
25–34	3
35–44	4
45–54	3
Highest Level of Education	
High School with professional training[1]	4
Associate's Degree	1
Bachelor's Degree	2
Beyond Bachelor's Degree	3

[1] Professional training was defined as an apprenticeship, on the job training for twelve months or more, and postsecondary vocational awards such as certifications and licenses.

Appendix N
Phase 2
Teachers' Sense of Efficacy Scale Results



Appendix O
Phase 2
Pre- and Post-Assessment Tool
for Career Commitment Questions

Post-Workshop Evaluation

Name:

1. **Which of the following statements best describes your intentions for your professional career for the next five years? (Choose the one best answer)**

   ☐ Continue working as a teacher at my current school
   ☐ Continue working as a teacher but leave this school
   ☐ Leave teaching for another opportunity in education
   ☐ Leave teaching and return to my trade
   ☐ Leave teaching and pursue a different career path
   ☐ Other. Please describe:

   _____

2. **Indicate the extent to which you agree or disagree with the following statements.**

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Being a career/technical teacher has been my long-term career goal.	1	2	3	4	5	6
I plan to teach for at least five years.	1	2	3	4	5	6
I hope I am not still teaching during the 2011-2012 school year.	1	2	3	4	5	6
Teaching as a career matches my personal needs.	1	2	3	4	5	6
Choosing to teach this year was the best career decision.	1	2	3	4	5	6

Name

Pre- and Post-Assessment Tool
for Career Commitment Questions (Post Only)

Post-Workshop Evaluation

3. To what extent do the following items influence your intentions to stay or leave your professional career in education?

	Makes me want to leave	Somewhat makes me want to leave	No influence on leaving or staying	Somewhat makes me want to stay	Makes me want to stay
Your current salary	1	2	3	4	5
Your future salary expectations	1	2	3	4	5
School leadership	1	2	3	4	5
My ability to advance within teaching	1	2	3	4	5
Feeling of success as a teacher	1	2	3	4	5
Making a difference in students' lives	1	2	3	4	5
Respect as a teacher	1	2	3	4	5
Feeling of isolation at school	1	2	3	4	5
Personal safety issues	1	2	3	4	5
Conditions of facilities	1	2	3	4	5
Availability of resources	1	2	3	4	5
Student apathy	1	2	3	4	5
Support in the classroom	1	2	3	4	5
Disciplining students	1	2	3	4	5

4. To what extent do you agree or disagree with the following statements?

	Strongly Disagree	Somewhat Disagree	Somewhat Agree	Strongly Agree
I have the same enthusiasm for teaching now as I did when I started teaching.	1	2	3	4
I question if teaching is the right career for me.	1	2	3	4
It is hard to tell people that I am a teacher.	1	2	3	4
If I had to do it over, I would still become a teacher.	1	2	3	4
I am still teaching because it is my only real option.	1	2	3	4
I am still teaching because I truly enjoy it.	1	2	3	4

Appendix P

Phase 2

Teacher Career Commitment Survey-Pre/Post

Teacher	Future professional plans		Teaching is a long-term career goal		Teach for at least 5 years		Hope to be teaching next year	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
A	Continue [4]	Other	Yes	Yes	Yes	Yes	Yes	Yes
B	Return [6]	Return [6]	No	No	Yes	No	Yes	Yes
C [1]	Continue [4]		No		Yes		Yes	
D	Continue [4]	Continue [4]	Yes	Yes	Yes	Yes	Yes	Yes
E [2]	Return [6]		Yes		No		Yes	
F	Another [5]	Continue [4]	No	No	Yes	Yes	Yes	Yes
G	Continue [4]	Continue [4]	Yes	Yes	Yes	Yes	Yes	Yes
H	Continue [4]	Continue [4]	Yes	Yes	Yes	Yes	Yes	Yes
I [1]	Continue [4]		Yes		Yes		Yes	
J [3]		Other		No		-		Yes

"-" response was left blank

[1] Did not attend summer institute 2011. Teaching for the 2011–2012 school year.

[2] Left teaching for a job outside the profession in December 2010.

[3] Did not complete the survey at the first summer institute.

[4] Result "Continue working as a teacher"

[5] Result "Leave teaching for another opportunity in education"

[6] Result "Leave teaching and return to my trade"

Appendix Q
Phase 2
Focus Group Protocol

Focus Group Protocol

Session:	Date:
Number of Participants:	Facilitator:
Subgroup:	Assistant:
Site:	

Part 1: Greeting and Researcher Introduction

- Purpose: Welcome participants and express appreciation
- Discuss
  - Introductions and role at SREB
  - Purpose of today's focus group

Part 2: Utilities and Expectations

- Purpose: Re-establish the parameters for the discussion
- Discuss
  - **IRB**
  - Confidentiality
  - Voluntary (participation and input)
  - We will be recording these sessions **[Make sure recorder is on.]**
  - No wrong answer
  - Talk to each other, not researchers
  - Negative and positive results are welcome and desired
  - Feel free to speak openly even if your opinions differ
  - Not about building consensus
  - Feel free to speak openly about a related topic
  - Personal experiences or known experiences are beneficial

Part 3: Participant Introductions and Icebreakers

- Purpose: Establish a comfortable environment
- Round robin icebreaker question: What are you planning to read this summer (work or recreation)?

Part 4: Focus Group Questions

1. Another round robin: What would you say to a colleague about the past two weeks of training?

2. Let's talk about some specific characteristics of this training. Please use your red, yellow or green cards to indicate whether you thought each aspect was right on (green); just OK (yellow); or needs major revision (red):
   - Vocabulary used by the instructor or in materials (which or both?)
   - Clarity of the message communicated by instructor or in materials (which or both?)
   - Sequence of topics
   - Pace of instruction
   - Quality of examples given
   - Differentiation/accommodation of your individual needs

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[Using your recording sheet, go back one by one, and follow up with those that answered yellow or red (e.g. For those of you that showed a yellow or red card on vocabulary, tell me how you would recommend modifying the materials or instructions to make it more beneficial for you.)]

3. Thinking back over the institute, try to pinpoint a specific activity or time that you felt you were learning something valuable and new. Tell me about when that was or what was happening in the classroom, and what were you learning?

4. What have you learned from the other teachers that attended this institute? When did you feel you were learning the most from other teachers?

5. What have you learned about yourself? When did you feel you were learning the most about yourself?

6. Tell me about the work you have produced during this institute. Would you feel comfortable sharing the lesson and unit plans you have developed here with a mentor teacher or someone whose opinion you respect?

   If not, why?

   Will you be able to put these materials to use with little additional work when you arrive in your classroom?

7. **[First Focus Group only]** The institute has addressed four primary topics. Think about the time that has been devoted to each topic over these two weeks. How much time – in your opinion – was devoted to each topic. Use cards: Just Right (Green); Too Much (Red); Not Enough (Yellow)

	Time Devoted
Instructional Planning	
Instructional Strategies	
Assessment	
Classroom Management	

   After, probe reds and yellows. What was emphasized too much? What did you want more of?

8. **[Second Focus Group only]** Let's talk about some specific characteristics of this program. Please use your red, yellow, or green cards to indicate whether you thought what was taught during these aspects was at the right time (green); was before or after I needed it (yellow); or was a waste of my time (red):
   - First two weeks of training
   - First coaching visit
   - Two days of training in January
   - Webinars
   - Second coaching visit
   - Last two weeks of training
     - Two weeks straight or one week, a break, and then the last week preferred?

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9. **[Second Focus Group only]** Thinking back over all the training, do you feel that anything was emphasized too much for the first year? What did you want more of during the year?

10. Finally, of all the things we have discussed tonight, what do you feel is the most important message you would like to convey to the developers of this training program?

Part 5: Conclusion

- Thank participants
- Assure participants we will use the feedback they shared to improve the induction model
- Provide email addresses in case participants wish to follow up

Appendix R
Phase 2
***Q-Sort* Protocol**

Q-Sort Protocol

Session: **2011 Summer Institute**	Date:
Participant:	Facilitator:
Site:	

Part 1 Greeting and Researcher Introduction

- Purpose: Explain Q-Sort is being used to compare participants' opinion on training
  - Review of the summer institute (over 3 weeks)

Part 2 Expectations

- Purpose: Re-establish the parameters for the discussion
- Discuss
  - **IRB**
  - Confidentiality
  - Voluntary (participation and input)
  - No right or wrong answer
  - Not timed

Part 3 Conducting Q-sort

- Script: explain the process for Q-Sort
- Discuss
  - Opinion only
  - 7 Stacks of Responses
    - Strongly Agree
    - Agree
    - Somewhat Agree
    - Neutral
    - Somewhat Disagree
    - Disagree
    - Strongly Disagree
  - Expected to explain thoughts on assortment

- Example script:
  This next activity is called a Q-Sort. It is considered to be an informal interview, an opportunity for you to provide your point of view and opinions about the CTE training and support you have received throughout the past year. Any information you provide during this activity will remain confidential. Your participation in this activity is voluntary and you may choose not to participate. Do you have any questions?

  First I want you to read over the CTE program statements on the cards to yourself.

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Next I want you to place the cards into seven stacks of statements that you

1. Strongly agree with,
2. Agree with,
3. Somewhat agree with,
4. Have no opinion of,
5. Somewhat agree with,
6. Disagree with and
7. Strongly disagree with.

After you have completed this part of the activity, I would like you to explain to me why you placed the cards where you did. Thank you for your participation in this activity.

Part 4 Q-Sort items

- The training was organized to give me time to digest what I was learning.
- Examples were from my own field.
- I don't think anybody truly understood most of the activities.
- I had enough time to really reflect deeply on what I was learning.
- Lecture lecture lecture. It was too much talking.
- There are things that I learned from the other teachers here, even if it didn't come through this course.
- I can tweak the rubric or lesson plans provided here and use them immediately.
- When I would ask questions on the side, I got so much more information.
- I had a chance to take part in role-playing real classroom scenarios.
- I gained valuable instructional skills just from watching how the instructor managed the training.
- Some of the work I did was made up and fictitious because I didn't have enough time or the right materials to do my best work.
- I can go home and apply what I've learned here.
- The instructor assumed that I knew the vocabulary that was used.
- Talking to my peers helped me better understand some things.
- There was a lot of good information but I didn't have time to process it.
- I felt the instructors already know who I was ahead of time.
- I had the opportunity to take what I learned, apply it to my content area, and on top of that, share that idea and get feedback.
- I had a chance to work closely with other teachers in a similar content area.
- I would like to have had more time for us to ask questions.
- I have classroom management down pat.
- I know the material that I'm supposed to be teaching.
- Running a classroom is a whole different thing from working in my trade.
- I know how I can improve students' reading ability as part of teaching my course.
- Administration plays a part in how much control I have over what I do in my classroom.
- The academics part should be taken care of by other teachers or the sending school.
- I'm very proficient at my trade or content area.
- You can't motivate some students.
- I didn't come to teaching to teach academics. I came in to teach students a trade they could get a job at.
- I was able to see an opportunity to use math in my field where I would not normally.
- The one thing that really opened my eyes was assessment.
- I didn't realize how ill-equipped the students I was teaching might be.
- In some cases, I may need to get through remediation before I can teach my content.

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Appendix S

Phase 2

***Q-Sort* Results**

Statements	Pre	Post
Academic Integration		
I know how I can improve students' reading ability as part of teaching my course.	Agree	Agree
The academics part should be taken care of by other teachers or the sending school.	Disagree	Disagree
I didn't come to teaching to teach academics. I came in to teach students a trade they could get a job at.	Disagree	Disagree
I was able to see an opportunity to use math in my field where I would not normally.	Split	Agree
In some cases, I may need to get through remediation before I can teach my content.	Disagree	Disagree
Learning from Peers		
There are things that I learned from the other teachers here, even if it didn't come through this course.	Agree	Agree
Talking to my peers helped me better understand some things.	Agree	Agree
I had a chance to work closely with other teachers in a similar content area.	Split	Split
Time/Reflection		
The training was organized to give me time to digest what I was learning.	Neutral	Agree
I don't think anybody truly understood most of the activities.	Disagree	Disagree
I had enough time to really reflect deeply on what I was learning.	Split	Neutral
Some of the work I did was made up because I didn't have enough time or access to the right materials to do my best work.	Split	Split
There was a lot of good information, but I didn't have time to process it.	Split	Neutral
I would like to have had more time to ask questions.	Disagree	Disagree
Self-Efficacy		
I have classroom management down pat.	Split	Split
I know the material that I'm supposed to be teaching.	Agree	Agree
Running a classroom is a whole different thing from working in my trade.	Split	Agree
Administration plays a part in how much control I have over what I do in my classroom.	Neutral	Agree
I'm very proficient at my trade or content area.	Agree	Agree
You can't motivate some students.	Agree	Agree
I didn't realize how ill-equipped the students I was teaching might be.	Neutral	Agree
Application/Relevance & Authentic Examples		
Examples were from my own field.	Neutral	Disagree
I can tweak the rubric or lesson plans provided here and use them immediately.	Agree	Agree
I had a chance to take part in role-playing real classroom scenarios.	Agree	Agree
I can go home and apply what I've learned here.	Agree	Agree
I felt the instructors already knew who I was ahead of time.	Agree	Neutral
I had the opportunity to take what I learned, apply it to my content area, share that idea, and get feedback.	Agree	Agree
High Quality Adult Learning		
Lecture, lecture, lecture. It was too much talking.	Neutral	Disagree
When I would ask questions on the side, I got so much more information.	Agree	Neutral
I gained valuable instructional skills just from watching how the instructor managed the training.	Agree	Agree
The instructor assumed that I knew the vocabulary that was used.	Neutral	Agree
No Category		
The one thing that really opened my eyes was assessment.	Disagree	Split

Appendix T
Phase 2
Teacher Interview Protocol

Teacher Interview Protocol
Summer Institute

Name: _____

Date: 7/27 7/28 **Interviewer:** LHB JHU

1. Tell me how you become interested in being a teacher?

2. Looking back over last five years, what experiences have you had that you feel will help you be a successful teacher?

3. News stories about schools today often report increasing numbers of failing students. Why do you think so many kids fail in schools today?

4. As you look forward to the first day of school, what do you feel apprehensive or excited about?

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Appendix U
Phase 2
Daily Instructor Debrief

Post Module Training Review **Your Initials:**
Date

1. **Did you do anything that deviated from what you had *planned* to do today?**
   - ☐ **Yes**
   - ☐ **No (continue on to question 9)**
2. **What did you see, hear or learn to determine that a change was needed?**
3. **How did you change the planned activity?**
4. **How did the change work out?**
5. **What would you do differently next time?**
6. **What materials can/should be developed to support this adaptation?**
7. **Is this adaptation likely to be something a future instructor will need to make?**
8. **Should the module be changed, or should this adaptation be added as an option?**
9. **What advice would you give to another instructor about how to successfully teach today's lessons/module components?**
10. **What evidence did you observe that the teachers met the learning goals for today?**

Appendix V
Phase 2
Mentor and Administrator Survey

NRC CTE National Research Center for Career and Technical Education

SREB

☐ Principal
☐ Mentor

Name: _____

School: _____ **Date:** _____

1. What are specific needs of new CTE teachers coming to the classroom through an alternative route that are different from those of traditionally-prepared teachers?

2. What are three things you can do to help new CTE teachers become more effective instructors?

   I

   _____

   II

   _____

   III

3. What can you do to help increase new CTE teachers' desire to continue teaching?

Appendix W
Phase 2 – Phase 3
Observation Checklist for Administrators & Instructors

NRCCTE/SREB CTE Teacher Induction Project
Classroom Observation Checklist

Teacher's Name: _____ Date: _____

Observer's Name: _____ Course: _____

Instructions: Place a (✓) in the appropriate box.

I. Planning and Preparation	Unsatisfactory	Basic	Proficient	Distinguished
a. Teacher displays understanding of students' skills, knowledge, and needs, including special learning needs [FFT1b]	☐	☐	☐	☐
b. Teacher displays knowledge of interests of students [FFT1b]	☐	☐	☐	☐
c. Instructional goals (e.g. standard and objective) are clearly visible and written in language students can understand	☐	☐	☐	☐
d. Instructional goals include: (circle all that apply)	Technical content | Academic content | 21st Century skills			
II. Classroom Environment				
a. Teacher-student interactions are friendly and demonstrate warmth, caring and respect [FFT2a]	☐	☐	☐	☐
b. The lesson, interactions and classroom environment conveys clear expectations for positive student behavior [FFT2b]	☐	☐	☐	☐
c. Transitions occur smoothly, with little loss of instructional time (teacher starts class ready to go and has a clear closing at end of class) [FFT2c]	☐	☐	☐	☐
d. Teacher uses appropriate interventions to respond to unwanted behavior and respects the student's dignity, or student behavior is generally appropriate [FFT2d]	☐	☐	☐	☐
e. The classroom and laboratory space are orderly and support learning [FFT2e]	☐	☐	☐	☐
f. The physical space includes motivational displays (circle all that apply):	Student work | Career-Course content connections CTSO information | Recognition of student achievements			
III. Instruction				
a. Most of teacher's questions are of high quality and adequate time is available for students to respond [FFT3b]	☐	☐	☐	☐
b. The lesson has a clearly defined structure of activities and is well-paced. Instruction is from bell-to-bell [FFT3c]	☐	☐	☐	☐
c. Representation of content is appropriate and links well with students' knowledge and experience [FFT3c]	☐	☐	☐	☐
d. Instructional groups are productive and fully appropriate to the students or to the instructional goals of a lesson [FFT3c]	☐	☐	☐	☐
e. Teacher provides students with feedback that is accurate, specific, constructive and timely [FFT3d]	☐	☐	☐	☐
f. Students are engaged in real workplace projects and problem-solving experiences	☐	☐	☐	☐
g. A variety of active engagement strategies are employed	☐	☐	☐	☐
h. Teacher uses frequent formative assessment to check for understanding	☐	☐	☐	☐
i. Teacher integrates academic content with career/technical content (circle all that apply)	Reading | Writing | Mathematics			
j. Students are engaged in intellectually challenging tasks: (circle all that apply)	Plan | Create | Synthesize | Analyze Solve problems | Make decisions | Apply			

Appendix X
Phase 2
Pride Surveys: Facts about Participating High Schools and Tech Centers

	Yes		No	
Did you grow up in the same general community in which your school is located?	34%		64%	
	Strongly Disagree	**Disagree**	**Agree**	**Strongly Agree**
At my school: Most members of this school community are proud of their school.	0%	6%	60%	34%
At my school: Overall, this school is a good place for me to work.	2	2	38	59
At my school: My class sizes are too large for me to meet the needs of all students.	39	50	9	3
At my school: I believe this school is headed in the right direction	3	8	42	47
My principal or instructional supervisor: Promotes “drill and practice” methods to increase student test scores.	9	39	40	12
At my school: Overall this school is a good place for me to work.	2	2	38	59
At my school: Teachers are protected from duties that interfere with their essential role of teaching	12	29	46	13
At my school: My principal follows through in addressing student discipline problems.	0	5	52	44
At my school: There is an atmosphere of trust and mutual respect within the school.	9	18	55	18
At my school: There is a good mentoring program for new teachers.	8	22	52	18
At my school: Students are generally apathetic about school.	6	45	33	16
	Not True At All	**Somewhat Not True**	**Somewhat True**	**Very True**
I like being a teacher.	0%	0%	29%	71%
I have the ability to meet the needs of my students whose primary language is other than English.	34	27	31	8

Appendix Y
Phase 2
Student Survey
Questions 12-23 were not administered

The following survey contains questions about you. Please read each question carefully and select the best answer.

1. What is your gender?
   A. Male
   B. Female

2. Which race/ethnicity best describes you? (Mark all that apply.)
   A. American Indian/Alaskan Native
   B. Asian
   C. Black or African-American
   D. Hispanic or Latino
   E. Native Hawaiian or other Pacific Islander
   F. White

3. What is your age?
   A. Under 18
   B. 18-21
   C. Over 21

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The following survey contains questions about your experiences with your career/technical instructor. Please read each question carefully and **circle** the best answer.

Questions 4–5. Please respond to the following questions about your experiences in this class and how you learn best.

4. Which of the following experiences have you had in this class? (Circle all that apply.)
   - **A.** My instructor helped me understand the connection between what I am studying and why it is important.
   - **B.** My instructor links what I am learning to my interests.
   - **C.** My instructor links what I am learning to my goals.
   - **D.** My instructor took into consideration the way I learn best.

5. Which of the following do you have to do in this class? (Circle all that apply.)
   - **A.** Predict outcomes based on observations or information provided.
   - **B.** Develop a logical argument for your solution to a problem or project.
   - **C.** Make inferences from information provided to develop a solution for a problem or project.
   - **D.** Use math to solve problems related to my career/technical area.
   - **E.** Apply academic knowledge and skills to my career/technical area.
   - **F.** Apply technical knowledge and skills to new situations.
   - **G.** Complete an extended project that requires planning, developing a solution or product and presenting the results orally or in writing.
   - **H.** Read materials in order to complete an assignment in my career/technical area.
   - **I.** Have to keep a reflective diary or journal of important information.

Questions 6–7. Are you assessed on your ability to apply the following skills in this class?

		Yes	No
6.	Reading skills	A	B
7.	Mathematics skills	A	B

Questions 8–11. How often does your instructor in this class stress the following subjects and skills?

		Never	Seldom	Sometimes	Often
8.	Reading	A	B	C	D
9.	Writing	A	B	C	D
10.	Mathematics	A	B	C	D
11.	Science	A	B	C	D

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The following survey contains questions about your experiences with your career/technical instructor. Please read each question carefully and **circle** the best answer.

Questions 23–32. How often have you done each of the following in this class?

	Never	Once a year	Once a semester	Monthly	Weekly
24. Read and interpreted scientific or technical books and manuals.	A	B	C	D	E
25. Read a career-related article and demonstrated understanding of the content.	A	B	C	D	E
26. Completed a project that first required some research and a written plan before completing the task.	A	B	C	D	E
27. Used computer skills to complete an assignment or project.	A	B	C	D	E
28. Used database or spreadsheet software to complete an assignment or project.	A	B	C	D	E
29. Used computer software or other technology related to my career/ technical area to complete assignments.	A	B	C	D	E
30. Used mathematics to complete assignments.	A	B	C	D	E
31. Made journal or lab manual entries that recorded class work.	A	B	C	D	E
32. Completed short writing assignments of one to three pages that were graded by the instructor.	A	B	C	D	E
33. Discussed or debated topics with other students about something we read.	A	B	C	D	E

34. Are you required to keep a folder, portfolio or a record of your accomplishments?

- **A.** Yes, it is an electronic record of work. (Continue to Question 34.)
- **B.** Yes, it is a physical record of work. (Continue to Question 34.)
- **C.** No (Skip to end of survey.)

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The following survey contains questions about your experiences with your career/technical instructor. Please read each question carefully and **circle** the best answer.

35. What is included in your folder/portfolio? (Circle all that apply.)

- **A.** My resume
- **B.** Written documents that describe what I know and can do
- **C.** Charts and graphs presenting information I prepared
- **D.** Formal evaluations of my work experience
- **E.** Written entries on how I completed assignments
- **F.** Documentation of my post-high school plans
- **G.** Examples of how I used mathematics to complete a career/technical assignment.
- **H.** Examples of mathematical formulas and their application to problems in my field of study
- **I.** Illustrations of scientific concepts and their application to my field of study

You have completed the Survey

Thank you.

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Appendix Z

Phase 2
Student Survey Results

Student Surveys: Highest Percentages Student <u>Weekly</u> Activities in CTE Classrooms	
Read and interpreted scientific or technical books and manuals	44%
Used computer skills to complete an assignment or project	66
Used database or spreadsheet software to complete an assignment or project	41
Used computer software or other technology related to my career/technological area to complete assignments	57
Discussed or debated with other students about what we read	42

Student Surveys: Highest Percentages of Teacher Practices in CTE Classrooms	
My instructor helped me understand the connection between what I am studying and why it is important.	82%
My instructor linked what I am learning to my goals.	63
My instructor took into consideration the way I learn best.	61
Used math to solve problems related to my career/technical area	61
Applied academic knowledge and skills to my career/technical area	73
Applied technical knowledge and skills to new situations	75
Read materials in order to complete an assignment in my career/technical area	85

Student Surveys: Teacher Inclusion of Core Content Areas in CTE Classrooms	
Reading	54%
Writing	49
Mathematics	37
Science	48

Student Surveys: Student Portfolio Contents (Based on 71 percent of students surveyed having portfolios)	
Formal evaluations of my work experience	44%
Included my resume	89
Documents that showed what I know and can do	85
Charts and graphs representing what I prepared	41

Appendix AA
Phase 2 – Phase 3
Mentor Logs

TEACHER INDUCTION MENTOR/MENTEE DOCUMENTATION FORM

Directions: As the technology center mentor and new teacher meet, record the date of the meeting, hours spent meeting, and activity/topics discussed. Some topics are suggested below; however, they are *suggestions* only. You many have other topics that are more relevant for your new teacher's situation.

TECHNOLOGY CENTER MENTOR AND NEW TEACHER DOCUMENTATION CHART

Date	Number of Hours	Mentoring Activity/Topics Discussed
August		
Click here to enter a date.	Click here to enter text.	Click here to enter text.
September		
Click here to enter a date.	Click here to enter text.	Click here to enter text.
October		
Click here to enter a date.	Click here to enter text.	Click here to enter text.
November		
Click here to enter a date.	Click here to enter text.	Click here to enter text.
December		
Click here to enter a date.	Click here to enter text.	Click here to enter text.
January		
Click here to enter a date.	Click here to enter text.	Click here to enter text.

Date	Number of Hours	Mentoring Activity/Topics Discussed
February		
Click here to enter a date.	Click here to enter text.	Click here to enter text.
March		
Click here to enter a date.	Click here to enter text.	Click here to enter text.
April		
Click here to enter a date.	Click here to enter text.	Click here to enter text.

Appendix BB
Phase 2
Mentor Log Results

Participant		Mentor		Total Mentor
First Name	Last Name	First Name	Last Name	Hours
-	-	-	-	139
-	-	-	-	76
-	-	-	-	56
-	-	-	-	97
-	-	-	-	97
-	-	-	-	0
-	-	-	-	139
-	-	-	-	76
-	-	-	-	139

Prepared on May 25, 2011 by John Uhn

Appendix CC
Phase 2
End of the Phase Instructor Interview

End of Event Interview **Instructor Initials:**

Date:

Instructor Interview Questions—6/11

1. How accurate were your planned tasks/activities throughout the school year as compared to your actual task/activities?

2. Would you change the coaching schedule next year? If so, how?

3. What aspects of the coaching process would you do differently next time?

4. What worked in coaching? What did not work?

5. Were there any surprises in your role as a coach? If so, what were they?

6. Do you have any additional comments about the coaching process?

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Appendix DD
Phase 2 – Phase 3
End of the Phase State Coordinator Interview

End of Event Interview **Date:**

State Observer Initials:

State Representative/Observer Interview Questions

1. Describe your role in the CTE project.

2. What have been your impressions of the CTE project? (process, content, scheduling)

3. What have been the benefits associated with your state's participation?

4. What have been the challenges associated with your state's participation?

5. How did or would you alter the induction program to fit with your state's needs? Why? (summer institute, training, coaching, webinars, mentors, administrators, etc)

6. Do you have any additional comments about the CTE project?

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Appendix EE

Phase 3

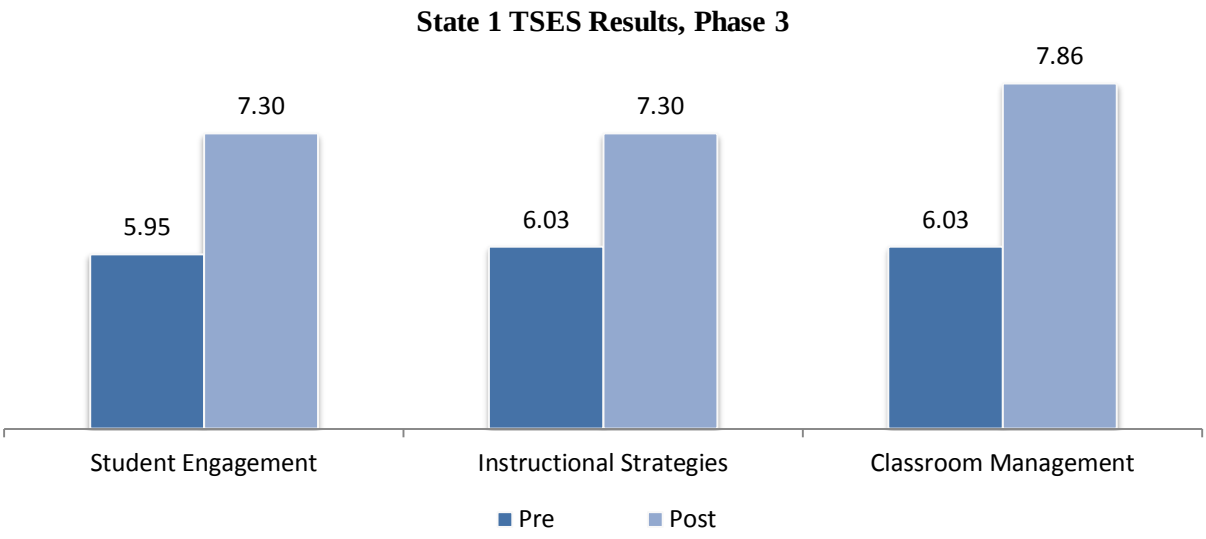
Demographic Characteristics of Stakeholder/State Cohort

State 1	
Characteristic	***n***
Gender	
Male	3
Female	6
Ethnicity	
White	7
American Indian	2
Age	
25–34	1
35–44	6
45–54	2
Highest Level of Education	
High School only	0
High School with professional training	2
Associate's Degree	3
Bachelor's Degree	3
Beyond Bachelor's Degree	1

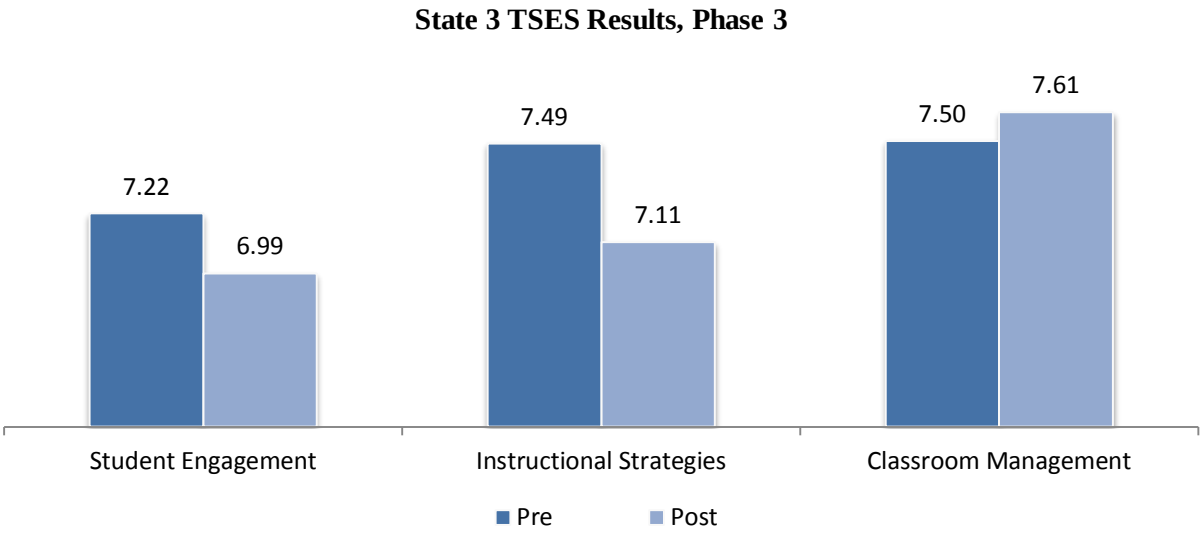
State 3	
Characteristic	***n***
Gender	
Male	10
Female	6
Ethnicity	
White	16
American Indian	0
Age	
25–34	4
35–44	4
45–54	8
Highest Level of Education	
High School only	2
High School with professional training	6
Associate's Degree	5
Bachelor's Degree	2
Beyond Bachelor's Degree	1

[1] Professional training was defined as an apprenticeship, on the job training for twelve months or more, and postsecondary vocational awards such as certifications and licenses.

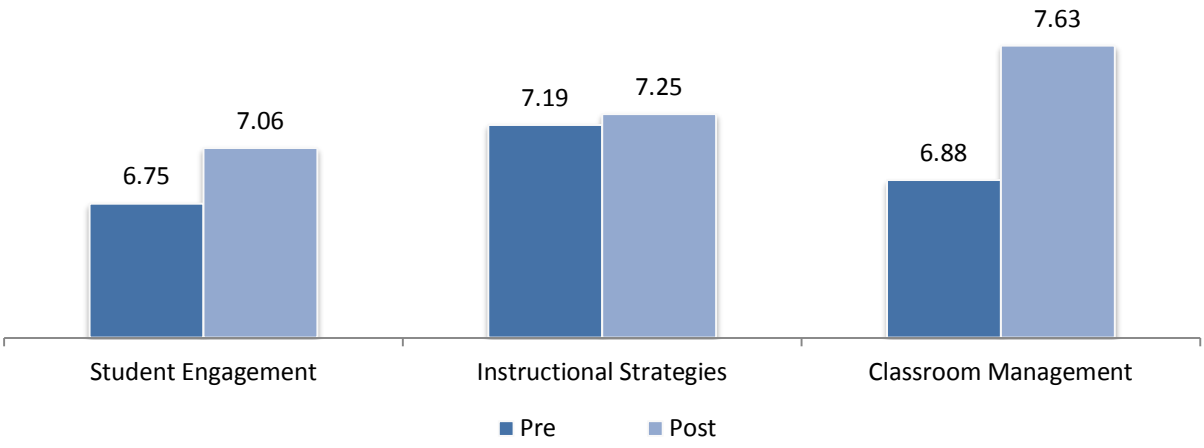
Appendix FF
Phase 3
Teachers' Sense of Efficacy Scale Results for State 1



Appendix GG
Phase 3
Teachers' Sense of Efficacy Scale Results for State 3



Appendix HH
Phase 3
Teachers' Sense of Efficacy Scale Results for both States



Appendix II
Phase 3
Pre- and Post-Assessment Tool
Teacher Career Commitment Questions

Workshop Evaluation – Career Plans

1. **Which of the following statements best describes your intentions for your professional career for the next five years? (Choose the one best answer)**

   ☐ Continue working as a teacher at my current school
   ☐ Continue working as a teacher but leave this school
   ☐ Leave teaching for another opportunity in education
   ☐ Leave teaching and return to my trade
   ☐ Leave teaching and pursue a different career path
   ☐ Other. Please describe:

   _____

2. **Indicate the extent to which you agree or disagree with the following statements.**

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
Being a career/technical teacher has been my long-term career goal.	1	2	3	4	5	6
I plan to teach for at least five years.	1	2	3	4	5	6
I hope I am not still teaching during the 2012-2013 school year.	1	2	3	4	5	6
Teaching as a career matches my personal needs.	1	2	3	4	5	6

Appendix JJ

Phase 3

Teacher Career Commitment Results for State 1

State 1								
Teacher	**Future professional plans**		**Teaching is long-term career goal**		**Teach for at least 5 years**		**Hope to be teaching next year**	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
A	Continue [5]	Continue [5]	No	No	Yes	Yes	No	Yes
B	Continue [5]	Continue [5]	Yes	No	Yes	Yes	Yes	Yes
C	Continue [5]	Continue [5]	Yes	Yes	Yes	Yes	Yes	Yes
D	Continue [5]	Continue [5]	Yes	Yes	Yes	Yes	Yes	No
E	Continue [5]	Continue [5]	Yes	No	Yes	Yes	Yes	Yes
F	Continue [5]	Continue [5]	Yes	Yes	Yes	Yes	Yes	Yes
G	Continue [5]	Continue [5]	Yes	Yes	Yes	Yes	Yes	Yes
H [1]	Continue [5]	Continue [5]	No	Yes	Yes	Yes	Yes	Yes
I [2]	Continue [5]		Yes		Yes		Yes	

[1] after completing the second summer institute, left teaching for another job due to financial concerns.
[2] Did not complete the survey at the second summer institute.
[5] Result "Continue working as a teacher"

Appendix KK

Phase 3

Teacher Career Commitment Results for State 3

State 3								
Teacher	**Future professional plans**		**Teaching is long-term career goal**		**Teach for at least 5 years**		**Hope to be teaching next year**	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post
J	Continue [5]	Continue [5]	No	No	Yes	Yes	Yes	No
K	Continue [5]	Continue [5]	No	No	Yes	Yes	Yes	Yes
L [3]	Continue [5]		Yes		Yes		Yes	
M	Continue [5]	Continue [5]	Yes	Yes	Yes	Yes	Yes	Yes
N	Continue [5]	Continue [5]	No	No	Yes	Yes	Yes	Yes
O	Continue [5]	Continue [5]	No	No	Yes	Yes	Yes	Yes
P	Continue [5]	Continue [5]	Yes	Yes	Yes	Yes	Yes	Yes
Q	Continue [5]	Continue [5]	Yes	Yes	Yes	Yes	Yes	Yes
R	Continue [5]	Continue [5]	Yes	Yes	Yes	Yes	Yes	Yes
S	Continue [5]	Continue [5]	No	Yes	Yes	Yes	Yes	Yes
T	Continue [5]	Continue [5]	Yes	No	Yes	Yes	Yes	Yes
U	Continue [5]	Continue [5]	No	No	Yes	Yes	Yes	Yes
V	Continue [5]	Continue [5]	Yes	Yes	Yes	Yes	No	No
W	Continue [5]	Continue [5]	Yes	No	Yes	Yes	Yes	Yes
X [4]	Continue [5]		No		Yes		Yes	
Y	Continue [5]	Continue [5]	No	No	Yes	Yes	Yes	Yes

[3] Left teaching for previous profession in November 2011.
[4] Left CTE new teacher induction program in January 2012; has continued teaching.
[5] Result "Continue working as a teacher"

Appendix LL
Phase 3
Planned Action Interview

Planned Action Interview

Session: **2011 Summer Institute**	Date:
Training or Coaching (circle one)	Interviewer:
Site:	State:

1. What do you see as your responsibilities as a trainer and/or a coach? (first and last time only)

2. When and where is your next training or coaching visit?

3. How are you preparing for this activity?

4. Do you see any challenges associated with the upcoming training/coaching visit? Explain.

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5. Are you preparing any additional materials for the upcoming training/coaching visit that were not a part of the current SREB materials?

   If you will be using any additional materials, what will you be using?

   Why did you choose these specific materials?

   Is it for the benefit of the entire training group, a few people or one individual?

   Do you think the additional materials should be added to the SREB materials?

6. Training only—Will you make changes in the training from what is suggested in dosage or time?

   Why do you believe such a change is needed?

   Is this a change that should be considered in the suggested dosage or time?

7. Other comments.

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Appendix MM
Phase 3
Instructor Daily Interview

Daily Post-Module Review

Session:	Date:
Training or Coaching (circle one)	Number in Training Group:
Location:	State:
Module Name:	

1. How did you prepare for today's session?

2. Did you do anything that deviated from what you had planned to do today?
   Why did you determine that a change was needed?

   How did you change the planned activity?

   How did the change work out?

   Would you do anything differently next time? If so, what?

   What materials should be developed to support this change?

   Is this adaptation likely to be something a future instructor will need to make?

   Should the module be changed, or should this adaptation be added as an option?

3. What advice would you give another instructor about how to teach today's module successfully?

4. Please circle the appropriate sentence:

Participants met ALL their learning goals today.	Participants met SOME of their learning go als today.	Participants met few/none of their learning goals today.

   How do you know?

5. How did participants react to today's module?

6. Did you complete everything you intended to accomplish today? If no, why not?

7. Additional comments. (write on back)

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Appendix NN
Phase 3
Teacher Focus Group
Conduced at both summer professional development sessions and in the middle of the year

Teacher Focus Group Protocol

Session: **2012 Summer Institute**	Date:
Number of Participants:	Facilitator:
Subgroup:	Assistant:
Site:	

Part 1: Greeting and Researcher Introduction

- Purpose: Welcome participants and express appreciation
- Discuss
  - Introductions and role at SREB
  - Purpose of today's focus group

Part 2: Utilities and Expectations

- Purpose: Re-establish the parameters for the discussion
- Discuss
  - **IRB**
  - Confidentiality
  - Voluntary (participation and input)
  - We will be recording these sessions **[Make sure recorder is on.]**
  - No wrong answer
  - Talk to each other, not researchers
  - Negative and positive results are welcome and desired
  - Feel free to speak openly even if your opinions differ
  - Not about building consensus
  - Feel free to speak openly about a related topic
  - Personal experiences or known experiences are beneficial

Part 3: Focus Group Questions

1. Another round robin: Would you recommend this program to a colleague (new or experienced teacher)?

2. Let's talk about some specific characteristics of this training. Please tell me what are your thoughts on these items **[move through this quickly]:**
   - Vocabulary used by the instructor or in materials (which or both?)
   - Clarity of the content communicated by instructor or in materials (which or both?)
   - Sequence of topics
   - Pace of instruction
   - Quality of examples given
   - Accommodation of your individual needs

   [Please use your colored cards to indicate whether you thought each aspect was right on (green); just OK (yellow); or needs major revision (red):

   [Record the results before going back to get a more detailed response]

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3. Thinking back over the training, was there a time where you needed help and did not receive it or did not receive a satisfactory level of assistance? Is there anything you could think of that would have helped you?

4. Let's talk about some specific characteristics of this program. Please use your red, yellow, or green cards to indicate whether you thought what was taught during these aspects was:
at the right time (green); was before or after I needed it (yellow); or was a waste of my time (red):
    - First two weeks of training
    - First coaching visit
    - Any training sessions
    - Webinars
    - Second coaching visit and beyond
    - Summer training in 2012

5. We will continue to use your red, yellow and green cards for one more question. With one year of teaching completed, where How comfortable are you with
very comfortable (green), could use a little more training (yellow) and I need help (red)
    - Instructional planning
    - Instructional strategies
    - Classroom assessment
    - Classroom management
    - Integration of core content areas, and
    - Use of standards

6. Thinking back over **all** the training, do you feel that anything was emphasized too much or little? Elaborate.

7. Did you learn anything from the other teachers that attended this training? When did you feel you were learning the most from other teachers?
Compare your learning from your instructors and coaches with your fellow teachers.

   [Brainstorm] How could you improve on this time spent with learning from other teachers?

8. Are there an ideal number of instructors necessary for this type of professional development? Explain.

9. What do we need to know about your 14-month CTE professional development experiences?

10. Finally, of all the things we have discussed, what do you feel is the most important message you would like to convey to the developers of this training program?

Part 5: Conclusion

- Thank participants
- Assure participants we will use the feedback they shared to improve the induction model
- Provide email addresses in case participants wish to follow up

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Appendix OO
Phase 3
End of Event Instructor Interview

End of Event Instructor **Date:**

Instructor Initials:

Instructor Interview Questions

1. Were your planned tasks/activities throughout the school year and your actual task/activities one in the same? (Coaching visits, webinar, training) Explain.

2. Will you change the coaching schedule next year? If so, how?

3. Did you have any challenges in your role as a coach? Explain.

4. What aspects of the coaching process will you do differently next time?

5. What strategies worked in coaching? What did not work?

6. Do you have any additional comments about the coaching process?

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Appendix PP
Phase 3
Instructor Focus Group

Instructors Focus Group Protocol

Session:	Date:
Number of Participants:	Facilitator:
Site:	State:

Part 1: Greeting and Researcher Introduction

- Purpose: Welcome participants and express appreciation
- Discuss
  - Introductions and role at SREB
  - Purpose of today's focus group

Part 2: Utilities and Expectations

- Purpose: Re-establish the parameters for the discussion
- Discuss
  - **IRB**
  - Confidentiality
  - Voluntary (participation and input)
  - We will be recording these sessions **[Make sure recorder is on.]**
  - No wrong answer
  - Talk to each other, not researchers
  - Negative and positive results are welcome and desired
  - Feel free to speak openly even if your opinions differ
  - Not about building consensus
  - Feel free to speak openly about a related topic
  - Personal experiences or known experiences are beneficial

Part 3: Focus Group Questions

1. Training —

   What was the teacher participant response to the training?

   What was the quality of teacher participant products?

2. What are your specific responsibilities as an instructor?

   [Please list them on a note card with your name at the top]

   How were these responsibilities decided upon?

   Are they reasonable responsibilities?

   Are there any responsibilities missing? Explain.

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3. How would you describe the fidelity of your CTE program implementation this year by components

Overall		
High	Medium	Low

Professional Development		
High	Medium	Low

Support from Schools (Mentors and Administrators)		
High	Medium	Low

Electronic Community		
High	Medium	Low

Why is this the case?

4. Has this program been successful in your state? Explain?

What successes and failures did you have this year? Explain.

5. In your opinion, what is the ideal number of instructors necessary for this professional development? Explain.

6. As a retired or working CTE professional development instructor and coach, do you think it is better to select retired or working professionals for this position? Explain.

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Appendix QQ
Phase 3
Feasibility Survey

Feasibility Survey

Name:	State
CTE Role:	Date

1. Teachers were selected for the CTE program in my state based on (check all that apply):
   - ☐ Principal/superintendent nomination
   - ☐ Writing and/or reading sample
   - ☐ Self nomination
   - ☐ Letter of recommendation from the district or school
   - ☐ Their status as a first year CTE teacher
   - ☐ Other (Describe)

   _____

2. District administrator commitments to the CTE program for 2011-2012 in your state include (check all that apply):
   - ☐ Administrator attends administrator CTE training
   - ☐ Administrator conducts CTE teacher evaluations throughout the year
   - ☐ Administrator allows CTE teachers to participate in professional CTE development throughout the year
   - ☐ Other (Describe)

   _____

3. To be a CTE professional development instructor in my state, individuals had to have the following qualifications (check all that apply):
   - ☐ Observed CTE training
   - ☐ Background in CTE
   - ☐ Been a CTE teacher and/or professor
   - ☐ Previously served as a CTE teacher coach or mentor
   - ☐ Nominated by a colleague or a supervisor
   - ☐ Other (Describe)

   _____

Feasibility Survey - Continued

4. The CTE profession development materials were: (check all that apply):
   - ☐ Presented as written
   - ☐ Changed by making additions
   - ☐ Changed by making deletions
   - ☐ Changed by the time allotment
   - ☐ Other (Describe)

   _____

5. The webinars planned for CTE teachers this year were (check all that apply):
   - ☐ All offered
   - ☐ Presented as planned
   - ☐ Not all offered
   - ☐ Were well attended by teacher participants
   - ☐ Were poorly attended by teacher participants
   - ☐ Scaled back due to technical difficulties
   - ☐ Other (Describe)

   _____

6. Our state team's process for program feedback includes using (check all that apply):
   - ☐ Surveys
   - ☐ Discussion/conversation with stakeholders
   - ☐ Classrooms and/or trainings
   - ☐ Observations
   - ☐ Teacher participants' work
   - ☐ Other (Describe)

   _____

Feasibility Survey - Continued

7. The types of professional development issues we have addressed this year include (check all that apply):

   ☐ Teacher attendance

   ☐ Teacher participant dissatisfaction with the training

   ☐ Trainer deficiencies

   ☐ Perceived problems with the training content/pacing

   ☐ Changing the training materials

   ☐ Training schedule concerns

   ☐ School administrator/mentor concerns

   ☐ Teacher deficiencies

   ☐ Other (Describe)

   _____

8. My team makes the decisions about the implementation of the CTE state program by (check all that apply):

   ☐ Consensus

   ☐ One person on our team makes the decisions

   ☐ Group discussion

   ☐ Group vote/agreement

   ☐ It depends on the decision that is being made

   ☐ Other (Describe)

   _____

9. Our team knows our CTE program is successful when (check all that apply):

   ☐ We see quality teacher participant work products

   ☐ There is quality teacher participant discussion

   ☐ When we hear positive feedback about participants from the field

   ☐ When teachers say their program is good.

   ☐ Other (Describe)

   _____

Appendix RR
Phase 3

Feasibility Survey Results

Feasibility Survey		
	State 1	**State 3**
Teachers are selected for the CTE program in my state based on:	• Principal/superintendent nomination • Their status as a first year CTE teacher	• Their status as a first year CTE teacher • Two were second year teachers whose director wanted them in the program.
District administrator commitments to the CTE program for 2011-2012 in your state include	• Attending administrator CTE training • Conducting CTE teacher evaluations throughout the year • Allowing CTE teachers to participate in professional CTE development throughout the year	• Attending administrator CTE training • Conducting CTE teacher evaluations throughout the year • Allowing CTE teachers to participate in professional CTE development throughout the year • Attending monthly meetings statewide to support program
To be a CTE professional development instructor in my state, individuals have the following qualifications:	• Observed CTE training • Background in CTE • Been a CTE teacher and/or professor	• Background in CTE • Been a CTE teacher and/or professor • Nominated by a colleague or supervisor
The CTE professional development materials were:	• Presented as written	No answer
The webinars planned for CTE teachers this year were:	• Scaled back due to technical difficulties	• Not offered
Our state team's process for program feedback includes using:	• Surveys • Discussion/conversation with stakeholders • Teacher-participants' work	• Surveys • Discussion/conversation with stakeholders • Teacher-participants' work • Observations • College staff evaluations
The types of professional development issues we have addressed this year include:	• Training, scheduling concerns	• Teacher attendance • Changing the training materials
My team makes the decisions about the implementation of the CTE program by:	• Consensus • Group discussion	• One person on our team makes the decisions • Group vote/agreement • It depends on the decision that is being made
Our team knows our CTE program is successful when:	• We see quality teacher participant work products • There is quality teacher participant discussion • When we hear positive feedback about participants from the field • Administrator feedback	• We see quality teacher participant work products • There is quality teacher participant discussion • When we hear positive feedback about participants from the field • When teachers say their program is good

Summary of Fidelity Factors for State 1 and State 3

State CTE Induction Model: Summary of Fidelity Factors	State 1	State 3
There is a designated state coordinator.	√	√
The suggested CTE teacher induction professional development schedule is followed.	√	√
Instructors are selected based on the suggested CTE teacher induction model guidelines.	√	√
Instructors are trained on the modules.	√	*[1]
The CTE teacher induction modules are taught as designed.	*	*[1]
All instructors fulfill their roles as coaches in participating teachers' classrooms and provide feedback that is constructive and specific.	*	√
Mentors and administrators attend training and fulfill their responsibilities for the CTE teacher induction program throughout the school year.	*	*
An electronic community of practice is implemented for participating teachers.	*	*
Webinars are used for CTE teacher induction model professional development.	*	*[2]

√ = Yes
* = No
[1] The original instructor for State 3 was trained on the modules. The new instructors were trained on the modules in spring 2012.
[2] State 3 elected not to use webinars, but instead met face-to-face with teacher participants.

Appendix SS
Phase 3
Fidelity Results

Program Planning		
	State 1	**State 3**
State CTE Teacher Induction Program	In state 1, new CTE teachers either take a two-day orientation sponsored by the state CTE director and take college courses toward their undergraduate degree for several years, or they participate in the alternative induction program over a 14-month period and receive 12 hours of college credit. The new teacher's director/principal makes the decision as to which program the teacher takes part in. For this year's alternative induction cohort (2011—2012), some teachers completed their undergraduate degrees and are now working on their master's degrees independent from the program. **Two CTE teacher induction programs are in state. The tech director makes decision as to which program the new teacher participates in.**	All new CTE teachers in the state must participate in the same three-year induction program. The first year consists of intensive professional development, and the next two years include several college courses and the development of a professional portfolio. Participating teachers receive six hours of college credit for participating in the intensive first year professional development. **There is one CTE teacher induction program in the state.**
State Coordinator Responsibilities	The coordinator is responsible for selecting and having the instructors trained for the intensive alternative induction program; communicating with the sending principals/directors about their responsibilities associated with the program; locating the professional development training sites; scheduling and communicating the professional development session locations; providing information about the intensive professional development program to participating teachers; and following the state requirements for certification of new CTE teachers. The **state coordinator has many CTE induction program responsibilities.**	The state coordinator is responsible for communicating with the sending principals/directors about the overall induction program and their responsibilities; providing information about the intensive professional development program to teacher participants; scheduling the first year professional development sessions; hiring and supervising the instructors; providing the professional development materials; locating the professional development sites; paying the instructors; communicating to new CTE teachers about state induction requirements; and offering intensive training to instructors. **The state coordinator has many responsibilities.**
Dividing PD Modules Among the Instructors	The coordinator and the instructors met before the first summer training to decide who will teach which module components. Instructors selected modules that reflected their areas of expertise. University, SREB and CTE specialists are called upon to offer math, literacy and CTE organization training. **Modules were divided among instructors based on expertise. Specialists were brought in when needed.**	The instructors chose modules that reflected their areas of expertise. For areas where instructors thought they were lacking, specialists were sometimes called in to do the training. **Modules were divided among instructors based on expertise. Some specialists were called in if funding was available.**

Program Planning		
	State 1	**State 3**
Scheduling the Professional Development	Participating teachers took part in an intensive two-week professional development session in summer 1 and summer 2. This "productive struggle" on the part of participants is a foundational piece of the alternative induction program. (Teachers either stayed in town at a local hotel or drove back and forth from their homes during this two-week period.) Sending directors/principals resisted participating teachers being gone from school for professional development, so the professional development sessions offered during the school year took place on a Friday evening and all day on Saturday. **The suggested schedule was followed.**	The intensive two-week professional development in summers 1 and 2 took place on a college campus. Teacher participants could either stay in the dorms or commute back and forth from home. The professional development that took place throughout the school year occurred every month on a Saturday. Sending principals/directors believed that participating teachers should not miss school for the professional development sessions. Participating teachers noted that Friday evening professional development sessions were not an option because of family commitments and being too tired from the school week. **Most of the suggested schedule was followed. Webinars were not used but teachers met more frequently face-to-face throughout the year.**
Selecting the Number and Types of Instructors	Two university professors and a state department of career technical education specialist were selected to conduct the training. One of the university professors was chosen to be the lead instructor. **Instructors were two CTE university professors and a state CTE specialist. One instructor was named the lead instructor.**	The original instructor quit before the first professional development session began. A practicing CTE teacher and two retired teachers who had taught in career tech centers were chosen to be the instructors. **Instructors were a practicing CTE teacher and two retired teachers who had taught in tech centers**.
Training Instructors	All instructors were trained on the professional development materials from the CTE professional development director before the first summer training took place. **All instructors were trained before the CTE induction program began.**	The three instructors were replacements for the instructor who was originally supposed to lead the training. The original instructor was trained on the materials, but quit before the first summer session began. As a result, the new instructors were not trained on the materials when they started leading the professional development in the summer of 2011. In spring of 2012 the current instructors traveled to another state and participated in the training session for leading the professional development. **Due to the original instructor quitting before the professional development began in summer 2011, replacement instructors were not trained until spring 2012.**

Delivering the Professional Development Model		
	State 1	**State 3**
Teaching the Modules	The state coordinator and the lead instructor were adamant about following the professional development materials to the letter. After the instruction began, all the instructors soon realized that the modules had to be taught in the same manner. **The state coordinator told the instructors that the professional development materials had to be taught exactly as designed.**	At the beginning of Year 1 training, instructors had leeway on what they presented to teacher participants. The CTE alternative induction curriculum was not followed in its entirety and instructors supplemented with their own materials. Some topics were presented too early or too late for teacher/participants. This was due to instructors being hired at the last minute, not being trained on the CTE alternative induction materials and being more comfortable using their own materials. The state coordinator believed the instructors should receive the CTE professional development training in spring 2012, and instructors participated in the CTE training in another state. After that time, instructors followed the professional development curriculum. **The curriculum was not followed in its entirety until spring 2012, after instructors received training.**
Instructor to Instructor Communication	Two of the three instructors were able to keep in close communication with each other about student progress and planning of instruction. The third instructor, because of her professional situation, was unable to do so. **Two out of the three instructors were able to keep in close communication with each other. The third instructor was unable to communicate closely because of her professional situation.**	Instructors did communicate with each other to a certain extent; however, they did not communicate with each other about what they covered in class and what and when they assigned homework. Instructors' teaching philosophies varied enough to cause complications with the information provided during the professional development sessions. Once the complications were resolved, the participating teachers enjoyed the instructors' varying teaching philosophies and approaches. Instructors did not communicate with each other about assigning homework and the explanation of various instructional strategies presented. **Instructors did not communicate deeply with each other.**
Atmosphere of Professional Development Sessions	The training atmosphere was positive and supportive. Teacher participants felt free expressing their opinions and several participants were quite outspoken. This was a fun, humorous, upbeat group of participating teachers who had a supportive and encouraging group of instructors. **There was positive, upbeat atmosphere during the professional development sessions.**	The atmosphere of the professional development sessions was positive, warm and supportive. Instructors treated participating teachers with dignity and respect. Participating teachers got along well, were supportive of each other; there was lots of laughing and joking. Participating teachers often talked about and exchanged instructional practices during breaks. The atmosphere in every professional development session was positive and cordial. **There was positive and supportive professional development session atmosphere.**

Delivering the Professional Development Model		
	State 1	**State 3**
Instructor Feedback to Participating Teachers	Participating teachers remarked that in professional development sessions they rarely received feedback beyond, "You are doing a good job." Most stated that they craved/desired constructive feedback. Participating teachers were unclear about how they received their university grades associated with the intensive professional development program because work they submitted to instructors was not graded. **Participating teachers wanted more specific feedback about their work from instructors.**	For the most part, instructors provided highly constructive feedback to participating teachers during PD sessions and in teacher participants' classrooms. There were a few problems throughout the year when instructors would offer conflicting feedback or information about a particular topic, an instructional strategy or teacher product. **From time to time instructors offered conflicting feedback or information about a particular topic, an instructional strategy or teacher product.**
Instructors on Site	Ideally all instructors should be on site every day of professional development to be able to view training progress and ascertain teachers' strengths and weaknesses. Realistically with peoples' busy schedules and the financial constraints due to paying instructors, this is almost impossible to do. That said, two of the three instructors were at the training site most of the time either observing or conducting training. The state coordinator attended most of the trainings. **Several instructors and the state coordinator were in attendance for most of the professional development sessions.**	Instructors saw themselves as separate entities, rather than as a team of instructors. Funds were limited to pay instructors for additional time; only the instructor assigned the professional development session was present. The program did not require all instructors to be present during a professional development session. **Only the assigned instructor was present at each professional development session.**
Organization and Sequence of Modules	The modules were offered and followed as designed. **The modules were presented and followed as designed.**	There was not always continuity from one professional development module to the next and some module components were offered out of sequence. These concerns were addressed and resolved by spring 2012. **There was not always continuity between modules. Some module components were offered out of sequence.**
How Instructional Time was Used	From time to time participating teachers got the instructors off track with side discussions, but this was not a constant. Instructors were aware of the content that needed to be covered and the professional development timeline, and always tried to remain on topic and on schedule. **Instructors usually stayed on topic.**	Some of the instructors did get off track from time to time with their own classroom stories. A portion of the Saturday sessions throughout the year were devoted to teacher exchanging lessons learned in their classrooms. Though valuable, this exchange cut into the scheduled professional development topics that were scheduled to be presented. **Instructors' classroom stories and, "How is it going in your classrooms?" questions sometimes got the professional development sessions off track.**

Delivering the Professional Development Model		
	State 1	**State 3**
Instructor Coaching on Site	The three instructors and the state coordinator were each assigned to coach several participating teachers. Coaching at the school sites was uneven. Some coaches conducted their three visits and provided constructive feedback about instruction to participating teachers, and others did not provide comprehensive feedback. Participating teachers appreciated when coaches included their directors/principals in their coaches' feedback sessions. **The level of instructor coaching support at tech center sites varied from instructor to instructor.**	This was an outstanding component for State 3. Instructors and the state coordinator each had four students they coached in the field. Instructors and the state coordinator took their coaching roles very seriously. They closely observed participating teachers in classrooms several times during the school year and provided comprehensive and constructive feedback. Principals/directors were usually invited to sit in on the feedback sessions with the participating teacher and the coach. **Instructors took their coaching roles very seriously and observed in assigned teacher participants' classrooms during the year and provided constructive feedback.**
Teacher Participant Homework	Teacher participants received homework from instructors, and the instructors worked together in assigning homework. **Instructors worked together in assigning teacher participant homework.**	Teacher participants frequently experienced an overload of homework from instructors. Coordination of homework assignment among instructors initially did not take place. This was resolved by spring 2012 when teacher participants complained about the overload. **At the beginning of the program teacher participants experienced homework overload. Teachers complained and the problem was resolved.**
Curriculum	Teacher participants found the concept of curriculum maps to be highly complex and confusing and shut down on the day it was presented due to utter frustration. The instructors met and made changes to what was presented previously and made the revised presentation more logical. **The only big glitch in the delivery of the modules was the presentation of curriculum maps.**	Teacher participants felt overwhelmed and overloaded by the CTE professional development content presented and homework assigned during summer 1, but this was a design of the program. They felt the content presented during summer 2 was done at a much more leisurely pace than in summer 1. The only time the teacher participants came to a standstill with their learning was with the introduction of curriculum maps in summer 1. The participating teachers rebelled, stating that the curriculum maps should be designed from small picture to big picture rather than big picture to small picture. This challenge was resolved, with the instructor revising the curriculum map instructions. **Teacher participants experienced productive struggle during summer institute 1, the summer institute 2 pace was more leisurely.**

Delivering the Professional Development Model		
	State 1	**State 3**
Instructional Approach/ Delivery	Instructors used an interactive instructional delivery style that included lots of teacher discussion. For each segment of instruction, teacher participants were asked to create some product or respond to questions. There was some participant work on the walls during summer 1; the walls were covered with teachers' work during summer 2. The instructional approach was interactive and teacher participants were asked to create a product or respond to questions. **Interactive, project-based delivery approach.**	The prominent instructional delivery method was lecture with some discussion. **The professional development modules were presented primarily using a lecture format with some discussion.**

Administrator and Mentor Support		
	State 1	**State 3**
Orientation/ Leadership of Each Sending School	In this state the work of CTE is fairly centralized. Principals/directors received an orientation to the CTE teacher induction professional development program along with assigned mentors. This session was not well attended. Directors/principals overall were not good about submitting the participating teacher observation forms to the program evaluators throughout the school year. This could have been due to their busy schedules and competing priorities. That said, some principals/directors were more supportive of the alternative induction professional development program than others. **CTE is fairly centralized in this state. The mentor and administrator training was not well attended. Overall directors/principals were not good about returning forms to the program evaluators. Some directors/principals were more supportive of the program than others.**	Technical centers in this state are independent from one another. Directors/principals and mentors did receive an orientation to the intensive alternative professional development program and administrators took the information quite seriously based on their attendance and the types of questions they asked. One participating teacher was never assigned a mentor. There was some concern on the part of principals/directors about following union guidelines as it had to do with observing teachers. Principals/directors were good about submitting their checklists to project evaluators. **Technical centers in State 3 work independently from each other. Directors/principals took their role with new CTE teachers quite seriously.**
Mentor Selection	Mentors are selected by principals/directors to work with new CTE teachers. **Mentors are selected by principals/directors to work with new CTE teachers.**	Mentors were selected by principals/directors to work with new CTE teachers. **Mentors were selected by principals/directors to work with new CTE teachers.**
Reimbursement of Mentors	The state pays the mentors to work with new CTE teachers. To verify their hours, the state provides the mentors with a log to document the dates and amount of time they worked. **The state pays the mentors to work with new CTE teachers.**	At some technical centers mentors are paid for working with new CTE teachers; at others they are not. **At some technical centers mentors are paid for working with new CTE teachers; at others they are not.**

Electronic Facilitated Discussion		
	State 1	**State 3**
Community of Practice	The state coordinator and the instructors talked about setting up a Facebook group for communication/reflection purposes at the beginning of the 2011-2012 school year, but it never materialized. Teacher participants and instructors communicated with each other via email throughout the school year. At the conclusion of the year, the state coordinator noted that group communication for 2012-2013 teacher participants would be up and operational before their initial summer training began in June 2012. **Electronic facilitated discussion did not occur.**	The state coordinator attempted to set up Moodle for teacher participant electronic communication/reflection at the beginning of the 2011-2012 school year. The passwords did not work and teachers were unable to enter the system. Teacher participants also expressed frustration with the technology capabilities of the college where summer training 1 and 2 were held. Teachers were not able to use email on campus, and passwords for using the college technology system never worked. Teacher participants and instructors did communicate via email throughout the school year. **Electronic facilitated discussion did not occur.**
Webinars	The state coordinator and the instructors searched for different platforms to conduct the informational webinars and the platforms they used were unsuccessful. They attempted to offer webinars at three different times during the school year and each time the platform did not offer the needed support to transmit the webinar properly. Teacher participants had to get substitutes so they could view the webinars and then the webinars were not operational. All involved were frustrated. The statewide platform system for webinars will be used next year. **Due to problems with platforms, attempted webinars were never successfully delivered.**	State 3 did not offer webinars to teacher participants during the school year, instead they had face-to-face Saturday seminars every month in a central location except when there was a severe weather situation and participating teachers from part of the state met in one location, and teachers from another part of the state met in another location. **State 3 did not offer webinars, but instead scheduled face-to-face meetings with participating teachers.**