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# PERCEPTIONS OF CAREER AND TECHNICAL EDUCATION (CTE) TEACHERS ON INDICATORS OF TEACHING QUALITY

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**PERCEPTIONS OF CAREER AND TECHNICAL EDUCATION (CTE) TEACHERS  
ON INDICATORS OF TEACHING QUALITY**

By

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B.A., History & Latin American Studies, Oberlin College, 1999  
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2002

DISSERTATION

Submitted in Partial Fulfillment of the  
Requirements for the Degree of

**Doctor of Philosophy  
Multicultural Teacher and Childhood Education**

The University of New Mexico  
Albuquerque, New Mexico

**May, 2018**

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**ABSTRACT**

The purpose of this study was to examine the perceptions of career and technical education (CTE) teachers regarding the importance they assign to various indicators of quality teaching practice. The population consisted of CTE teachers who teach or who taught in the State of New Mexico. The first research question asked how CTE teachers perceive the importance of quality teaching indicators as they relate to what CTE teachers should know and be able to do. The subsequent four research questions examined the degree to which four demographic categories (years of experience, level of education, discipline of instruction, and licensure type) influence CTE teachers' opinions regarding the importance of the quality teaching indicators.

Data for this study were gathered using a survey instrument derived from Danielson's Framework for Teaching Evaluation Instrument (Danielson, 2014). Results from the questionnaire responses were analyzed using descriptive and comparative statistics. In total, 200 valid responses were examined relative to the research questions. Findings indicate that CTE teachers generally rate as important the elements within each domain of the framework.

This implies a degree of continuity between the beliefs of CTE teachers regarding effective practice and generally held assumptions of effective teaching practice in the profession as a whole. Overall, CTE teachers in all categories rated the elements in Domain 4: Professional Responsibilities as less important than the other three domains. Some differences in teacher opinion were also identified based on demographic characteristics, with the most notable differences between early career teachers and more experienced teachers. The findings from this research suggest opportunities for informing the preparation and professional development of CTE teachers.

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## **Chapter One**

### **Introduction**

This dissertation reports the findings of a quantitative study that examined the perceptions of career and technical education (CTE) teachers regarding the importance of quality indicators in the practice of teaching. The indicators of quality were based on Danielson's Framework for Teaching (Danielson, 2007). The purpose of the study was to examine these perceptions to inform the preparation and professional development of current and future CTE teachers. This study employed a quantitative survey instrument as a means for collecting data and descriptive and comparative analysis to examine the data and interpret the findings. Participants for this study included current and former secondary CTE teachers in New Mexico. The first chapter of this dissertation presents the background of this proposed study, the statement of the problem that informs the study, the professional significance of the study, the conceptual framework for the study, an overview of the proposed methodology, research assumptions, and the delimitations of the study. This dissertation continues with Chapter Two, which reviews literature and research relevant to this study, Chapter Three which provides detailed descriptions of the methodology used in this study, Chapter Four which presents the results from data analysis, and Chapter Five which summarizes and discusses the results of the research.

### **Background of the Study**

Public discourse on the purpose of public education in the United States has, over the last few decades, increasingly focused on how our schools should prepare students with the skills and dispositions needed for success in college and career. President Barack Obama reinforced this notion of public schooling as a means to prepare competitive workers for the

economy during his first address to Congress on the issue of education. He stated that, “it will be the goal of this administration to ensure that every child has access to a complete and competitive education – from the day they are born *to the day they begin a career*” (Obama, 2009, italics added). Recent government initiatives in education—including No Child Left Behind, Race to the Top, and Every Student Succeeds Act (ESSA)—have very much aligned to the idea that schools should prepare students with the skills and knowledge needed to be college and career ready after high school (Dougherty & Lombardi, 2016). Indeed, at the signing of ESSA in 2015, President Obama once again reinforced the idea that government involvement in public education seeks to ensure, “that all of our students graduate prepared for college and future careers” (Obama, 2015). While the idea that public schooling should prepare students for professional success in life is not new, what has changed is the understanding of what skills and knowledge are needed in the new, globalized economy (Rojewski, 2009).

The widespread adoption of the Common Core State Standards over the past several years, along with increasing focus on teacher accountability for student achievement, has brought new force to the issue of student preparation and what it means for teachers (Center for American Progress and the Council of Chief State School Officers, 2014; Darling-Hammond, Wilhoit, & Pittenger, 2014; Doherty & Jacobs, 2013; Dougherty & Lombardi, 2016). The integration of academic content and higher-order thinking across all content areas presents both a challenge and an opportunity as teachers, schools, and the profession at large struggle with how to provide a rich and equitable education for all students. Complicating this focus on high standards for student success are the realities of diverse student

populations, including second language learners and students with special needs who benefit from diverse and inclusive pedagogies (Banks et al., 2005; McCaslin & Parks, 2002).

These challenges are particularly relevant in CTE settings, where career-oriented curriculum has not always shared a focus on the integration of academic content and the need to find congruence within the larger secondary school curriculum (Clark, Threton, & Ewing, 2010; Dougherty & Lombardi, 2016). The reauthorization of the Elementary and Secondary Education Act as the Every Student Succeeds Act (ESSA, 2015) has made the integration of CTE and academic learning—in the name of college and career readiness—that much more salient. For the first time, the federal government now includes CTE in its definition of a “well-rounded education” along with traditional academic subjects like science, math, and language arts (Section 8002, ESSA, 2015). This integration means more opportunities for states to direct federal funding toward programs that support college and career readiness. Additionally, states are now required to develop academic standards aligned to applicable state CTE standards.

While these changes portend good things for the longevity of CTE as an integral part of the public education system, there are challenges to be met. With increased attention, expectations, and funding also comes the need for greater accountability (Center for American Progress and the Council of Chief State School Officers, 2014; Darling-Hammond et al., 2014). This accountability impacts all levels of the education system, but it falls particularly heavy on the shoulders of the teachers responsible for incorporating higher academic standards while meeting the needs of diverse learners (Dougherty & Lombardi, 2016). In order to ensure that teachers are equipped to meet the increased demands of teaching in the 21<sup>st</sup> century, robust models of teacher education are needed to support the

development of knowledgeable and capable educators (Darling-Hammond, Hammerness, Grossman, Rust, & Shulman, 2005; McDonald, Kazemi, & Kavanagh, 2013). This is true as much in CTE as it is in traditional areas of licensure, but because of the unique and separate history of CTE teacher education, addressing these issues through traditional teacher education may not be adequate (Lynch, 1997; McCaslin & Parks, 2002).

Despite the current movement toward integrating CTE disciplines with core academic learning and standards, structural divisions exist between vocational and academic educational fields. Of particular note is that the preparation of CTE teachers has historically taken place separate from the preparation of teachers in elementary, “academic” secondary, and special education (Lynch, 1997; Gordon, 2014; Walter & Gray, 2002). Compounding this issue of diverse pathways to licensure is the problem of teacher shortages and high rates of attrition in CTE, not unlike that seen in the general population of teachers, which has supported the proliferation and maintenance of alternative routes to teaching (Camp & Heath-Camp, 2007; Ingersoll, 2001; National Association of State Directors of Career Technical Education Consortium, 2009; Walter & Gray, 2002; Wilkin & Nwoke, 2011). Due to this unique history and the current trends in teacher retention, pathways to licensure in CTE vary widely. It is not uncommon to encounter state licensure requirements for CTE that require only a minimum of a high school diploma or GED coupled with workplace experience in the field of study (Zirkle, Martin, & McCaslin, 2007). This means that some CTE teachers enter the field with no pedagogical training and no formal understanding of how to meet the needs of diverse learners.



### **Statement of the Problem**

In New Mexico, secondary teachers have many pathways to licensure and many different licensure options for teaching in public schools. The license specific to CTE is known as the Secondary Vocational-Technical license, which allows holders to teach in grades 7-12 in any vocational subject areas. CTE teachers seeking their Secondary Vocational-Technical teaching license are not required to take any coursework in teaching or teacher education. To apply for initial licensure, candidates must meet, at a minimum, one of the following scenarios:

1. Five years of work experience in their occupational discipline and a high school diploma or GED.
2. Three years of work experience in their occupational discipline and an industry certificate.
3. Two years of work experience in their occupational discipline and an associate degree.
4. A bachelor's degree with 32 credit hours of training in their occupational discipline. (New Mexico Administrative Code § 6.61.7, n.d.)

Upon meeting one of these requirements, candidates are issued an initial teaching license that is good for three years. Within those three years the candidates must then complete either 15 credit hours of teacher education in CTE or a professional development plan with their school district in order to obtain permanent licensure. As of 2017 there are currently no institutions of higher education in New Mexico that offer standalone coursework in CTE teacher preparation outside of a comprehensive bachelor's or master's degree program in CTE teacher education. To some, this may suggest that the pathway to permanent Secondary

Vocational-Technical licensure is easier, quicker, and cheaper via a professional development plan, especially for those with no or limited post-secondary schooling (Eastern New Mexico University, n.d.; New Mexico State University, n.d.). The professional development plan consists of a school or district developed teacher performance evaluation, which is approved by the New Mexico Public Education Department. However, there are no guidelines in the licensure statute outlining the criteria for a what that professional development plan must contain (New Mexico Administrative Code s§ 6.61.7, n.d).

Adding to the larger context of CTE teacher licensure in New Mexico, and aligned to the larger national movement in teacher evaluation and accountability, is the recent adoption of the NMTEACH teacher evaluation rubric in 2012 (New Mexico Public Education Department, n.d.-b). The NMTEACH rubric is a guideline for effective teaching practice that applies to all public school educators in the state. The rubric is derived from Danielson's Framework for Teaching (Danielson, 2007) and is part of a larger teacher evaluation system that includes classroom observations, student test scores, and other quantitative measures of teacher effectiveness (New Mexico Public Education Department, n.d.-a). Because the outcomes of these evaluations can directly impact teacher retention and promotion, it is important for teachers to understand the criteria by which they are being judged. For CTE teachers, there is also the question of how accurately these broad teacher competencies reflect the specific realities of what CTE teachers need to know and be able to do in the context of their classrooms.

It is important to recognize that the population of individuals who go into CTE is unique from the population that goes into general track teaching in both the amount of education they receive and the amount of real-world work experience they have in their

discipline (Green, 2015; Lynch, 1997; McCaslin & Parks, 2002; Pratzner & Ryan, 1990; Walter & Gray, 2002). Further, the practice of CTE is grounded, both historically and pragmatically, in hands-on, experiential learning (Clark et al., 2010; Rojewski, 2009). While there are theoretical models in the literature that frame what good CTE practice should look like (Lynch, 1997; McCaslin & Parks, 2002; Walter & Gray, 2002), there is limited research on the perceptions of CTE teachers themselves with regard to what knowledge and skills are needed in the classroom. This lack of research can be problematic for those who prepare CTE teachers and support them in the field. In a recent examination of research needs in CTE, Kosloski and Ritz (2016) identified five areas of academic scholarship need related to CTE teacher education. The first three of these gaps in the research were (a) factors impacting career and technical education teacher preparation quality; (b) factors impacting career and technical education teacher quality for lateral-entry candidates; and (c) effective content and delivery methods for training effective CTE teachers. These needs relate to this study, as it aims to investigate the perspectives of CTE teachers with regard to quality teaching such that it can inform the development and delivery of CTE teacher preparation.

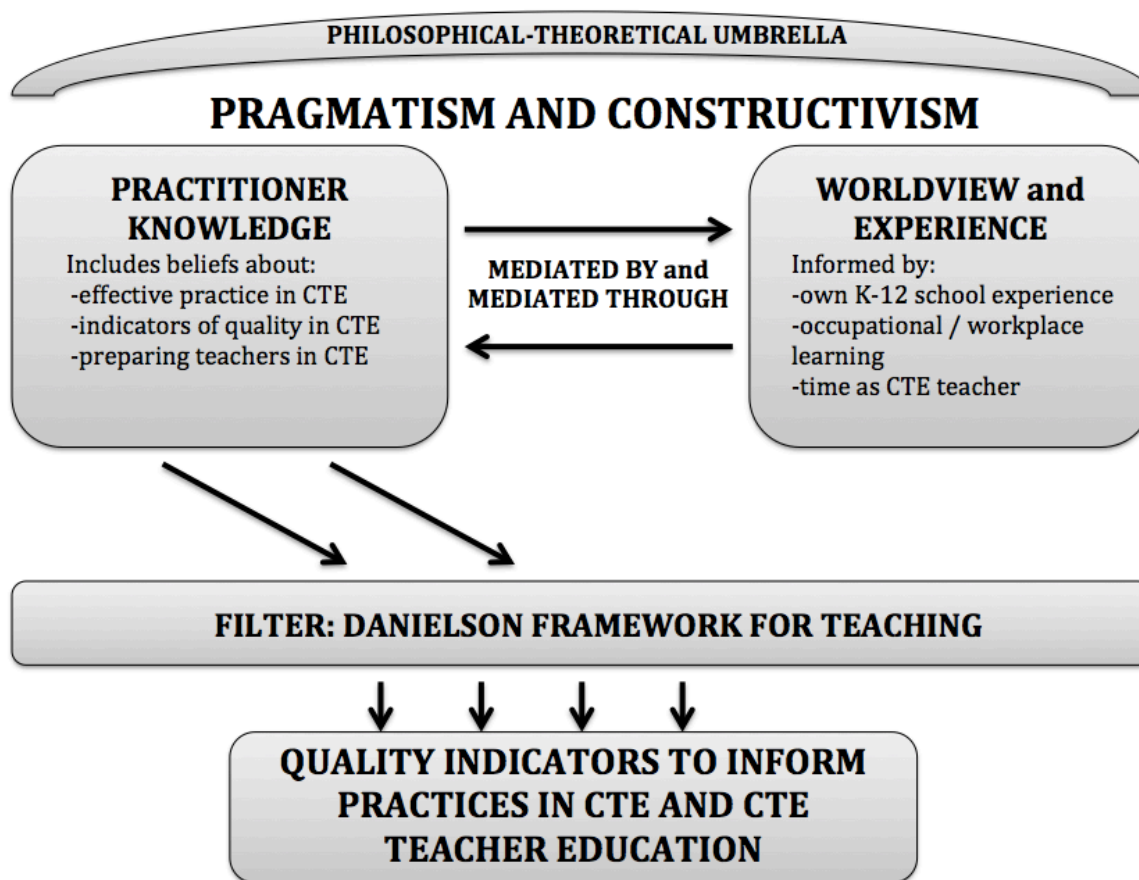
### **Significance of the Study**

This study contributes to the knowledge on CTE teachers' perceptions of quality teaching indicators and their importance in the practice of teaching. With this information, teacher educators and school districts can plan effective training and instructional support to better meet the needs of new, struggling, and experienced CTE teachers.

### **Conceptual Framework**

This study is informed by a conceptual framework that was constructed based on a review of the literature and the relevance of each theoretical component to the purpose of the

research. Miller (1996) states that, “theory is a statement about how something operates. Philosophy is about how one views the world...Congruence between philosophy and theory is vital in thinking about education” (p. 54). In order to conceptualize this study relative to theory and philosophy in CTE, the visual representation in Figure 1 was constructed.



*Figure 1.* Conceptual Framework

The overarching philosophy that informs this framework is pragmatism. As described in Miller (1996), Miller and Gregson (1999), and Rojewski (2009), pragmatism forms the primary philosophic approach in CTE. Key aspects of a pragmatist philosophy include a focus on experience as the central means by which we encounter reality, an emphasis on change as constant, and a dedication to a democratic society (Miller, 1996; Miller &

Gregson, 1999; Rojewski, 2009). Constructivism, as a theoretical construct suggests that individuals construct their own understanding of the world through the mediation of experience (Clark et al., 2010; Lynch, 1997; McCaslin & Parks, 2002). Constructivism is seen as a useful theory in the practice of CTE and CTE teacher education due to its focus on how experience shapes what we know and understand, especially given that hands-on, applied learning is at the core of CTE practice (McCaslin & Parks, 2002).

From this philosophical and theoretical standpoint, we can view the CTE educator's experience—in school, in occupational work, and as a teacher—as predominant in forming their knowledge as a practitioner. Practitioner knowledge is central in this framework as it is the basis from which informed pedagogical and practical decisions are made (Gitomer & Zisk, 2015; Macintyre Latta & Wunder, 2012; Shulman, 1986). In the context of this study, practitioner knowledge is viewed as valid and useful. This knowledge is then engaged vis-à-vis Danielson's Framework for Teaching (Danielson, 2007) as a means to identify key practices that can inform the preparation of CTE teachers. Each of the components in this conceptual framework is explored more fully in the literature review.

### **Overview of the Methodology**

The intent of this quantitative study was to examine the perceptions of current and former CTE teachers with regard to the importance they assign to various indicators of teacher quality. The population consisted of current CTE teachers working in secondary schools within the state of New Mexico, as well as former secondary CTE teachers with at least five years of experience teaching within the state of New Mexico. Survey methodology was used to collect data and investigate the research questions. Data was collected utilizing a convenience sample of all members of the population. Descriptive and comparative statistics

were used in the analysis of data in this study with the assistance of IBM SPSS software. The research questions were:

- How do career and technical education (CTE) teachers perceive the importance of quality teaching indicators as they relate to what CTE teachers should know and be able to do?
- Do years of experience teaching influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do?
- Does discipline of instruction influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do?
- Does level of education influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do?
- Does type of teacher licensure influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do?

In the context of this research study, the indicators of quality teaching were derived from Danielson's Framework for Teaching (Danielson, 2007). The methodology used in this study is explained in further detail in Chapter Three of this dissertation.

### **Assumptions**

The following assumptions informed the design and analysis of this research project:

- The Danielson Framework for Teaching (Danielson, 2007) accurately reflects the skills, knowledge, and dispositions needed to effectively teach in CTE contexts. The

Danielson Framework for Teaching, upon which the survey instrument was built, is a well-regarded, widely used, research-based framework for examining and evaluating classroom teaching in a variety of settings. It is an assumption of this study that this framework correlates to the actual practices of good teachers in CTE settings.

- Participants responded honestly to the questions in the survey instrument. It is an assumption of this study that participants took the time and energy to respond honestly and accurately to the items in the questionnaire. The introduction statement of the questionnaire encouraged participants to respond accurately and honestly.

### **Delimitations**

According to Glatthorn and Joyner (2005), delimitations are, “the boundaries of the study, and ways in which findings may lack generalizability” (p. 168). The following delimitations have been identified for this study:

- This is a quantitative study that utilized a questionnaire with closed-ended questions. Participants did not have the ability to elaborate on or contextualize their answers, and thus were inherently limited in the types of practitioner knowledge that they could share.
- This study utilized a convenience sample of secondary CTE teachers in the State of New Mexico. The degree to which this sample accurately reflects the larger population of CTE teachers in New Mexico is unknown.
- Participants in the study were teachers in New Mexico, and the research findings may not be applicable to CTE teachers in other contexts.

**Organization of the Dissertation**

Chapter Two of the dissertation reviews relevant literature and research that informed the design, implementation, and findings of this study. Chapter Three provides detailed descriptions of the methodology used in designing and conducting the study. Chapter Four presents the results from data analysis. Chapter Five summarizes and discusses the results of the research.



## Chapter Two

### Review of Related Literature

#### Introduction

This chapter provides a historical and philosophic overview of career and technical education (CTE) and reviews relevant literature concerning CTE as it relates to teacher preparation and evaluation, practitioner knowledge, and Danielson's Framework for Teaching (Danielson, 2007). CTE and CTE teacher education are multi-dimensional areas of study that draw on literature from various bodies of research. Therefore, this literature review aims to incorporate various theoretical strands that together provide a conceptual grounding for the study. The purpose of the larger study was to examine the perceptions of current and former CTE teachers regarding the relative value of various teaching quality indicators in the practice of teaching, in order to inform the preparation and professional development of CTE teachers. Specifically, the study was designed to analyze questionnaire data that asked participants to rate the importance of elements from Danielson's Framework for Teaching Evaluation Instrument (Danielson, 2014) as a means to develop a knowledge base regarding what CTE teachers consider central to their work. The findings are intended to provide greater insight into practices and approaches in the education of new teachers and the professional development of existing teachers.

The organization of this literature review is as follows. It begins with a historical overview of CTE in the United States, with particular attention paid to theoretical strands that have undergirded its delivery and practice over time. A particular focus on the philosophy of pragmatism and associated ways of thinking about teaching and learning in CTE is present. Literature on issues of equity and progress in CTE are explored in order to contextualize the

social context of vocational education. Next a review of teacher preparation in CTE and the current state of CTE at a national level is provided, framed from a progressive, constructivist standpoint. The review then explores the concept of practitioner knowledge to establish the validity of teacher experience as a basis for understanding what are important knowledge and skills in the practice of CTE teaching. This literature review ends with a brief look at teacher evaluation in the United States with particular attention to Danielson's Framework for Teaching (Danielson, 2014), from which the survey instrument used in this study was developed.

In identifying the literature base for this chapter the following search strategies were utilized. Multiple academic databases (including Education Research Complete, ERIC, ProQuest Thesis and Dissertation, and Google Scholar) were searched using a combination of the following terms: *career technical education, CTE, vocational education, teacher education, teacher preparation, teacher training, teacher knowledge, practitioner knowledge, teacher quality, practice based teacher education, teacher evaluation, Danielson Framework, and, Framework for Teaching*. Additionally, every issue of the following journals was fully reviewed for the years 2007 to the present: *Career and Technical Education Research, Journal of Career and Technical Education, Journal of Vocational Education and Training, Journal of Industrial Teacher Education, Journal of STEM Teacher Education, International Journal of Vocational and Technical Education, and the Journal of Technology Education*. Finally, the following journals were individually searched using the search terms *career technical education, CTE, and vocational education: Journal of Teacher Education, Review of Research in Education, Review of Educational Research, Teaching and Teacher Education, and Action in Teacher Education*.

Research and writing regarding effective practice in teacher education is relatively well documented within the literature base (Carroll, 2007; Cochran-Smith, Feiman-Nemser, McIntyre, & Demers, 2008; Cochran-Smith & Zeichner, 2005; Darling-Hammond, 2006; Darling-Hammond & Bransford, 2005; Darling-Hammond & Sykes, 1999; Nager & Shapiro, 2007). While this larger umbrella of research in teacher education has applications for those who prepare CTE teachers, research and writing particular to CTE teacher education, specifically on effective practices for CTE teacher educators, is relatively scant. Scholarship on research needs in CTE has consistently identified teacher preparation as an area of need and interest within the field of CTE (Kosloski, Jr & Ritz, 2016; Lambeth, Joerger, & Elliot, 2009; Rojewski, Asunda, & Kim, 2008). This study aims to begin addressing this gap by identifying knowledge and skills in teaching, as manifest in Danielson's Framework for Teaching (Danielson, 2014), that are seen as important in CTE teaching and thus can be applied in the preparation and professional development of CTE teachers. While several studies have previously utilized the individual elements in the Framework for Teaching to explore various perceptions of teachers relative to practice (D'Alfonso, 2006; Doerr, 2012; D. J. Olson, 2015; D. M. Olson, 2013; Sweeley, 2004), none have specifically addressed the practice of CTE teachers.

### **Overview and Historical Background of CTE**

Career and technical education (also known as vocational education, workforce education, industrial arts, manual arts, and industrial education) is most conveniently defined as education and/or training that addresses occupational knowledge and skills. While CTE has historically been considered distinct from traditional academic learning, the distinctions have become more blurred as the push for college and career readiness in all educational

pathways has recognized the interconnections between the two (Dougherty & Lombardi, 2016; Rojewski, 2009). The Association for Career and Technical Education (ACTE) identifies 16 career clusters connected to 79 career pathways that compose the fields of study in CTE. Those 16 career clusters are (a) Agriculture, Food & Natural Resources; (b) Architecture & Construction; (c) Arts, A/V Technology, & Communications; (d) Business Management & Administration; (e) Education & Training; (f) Finance; (g) Government & Public Administration; (h) Health Science; (i) Hospitality & Tourism; (j) Human Services; (k) Information Technology; (l) Law, Public Safety, Corrections & Security; (m) Manufacturing; (n) Marketing; (o) Science, Technology, Engineering & Mathematics; (p) Transportation, Distribution & Logistics (Association for Career and Technical Education, n.d.-b). These fields of study are expansive vis-à-vis the labor market and make explicit the connection between CTE and workforce development. Of particular interest as it relates to this study, is that one of the career clusters is Education and Training, which technically encompasses CTE itself as well as CTE teacher education. While some in the field of education rightly take issue with the notion that teacher preparation could be considered merely technocratic occupational training (Giroux, 1988; Hammerness et al., 2005; Kincheloe, 1993), it is nonetheless important to consider the ways in which CTE teaching and CTE teacher education are considered, at least conceptually, embedded within the structural framework of CTE itself. It is also important to contemplate how CTE fields should not necessarily be limited in definition to job training absent of higher intellectual purpose, critical academic content, or concern for the social-emotional development of the individual (Crawford, 2010; Dewey, 1916).

From a historical standpoint, CTE has been a fundamental part of formal and informal educational experience in the United States for hundreds of years (Gordon, 2014). Most education in the early agrarian societies of colonial America consisted of learning skills that were important for economic survival and success. This training primarily occurred within the family or as a part of an apprenticeship system that was designed to meet the immediate labor needs of the community (Gordon, 2014; McCaslin & Parks, 2002). Vocational education at this stage and through the early part of the 19<sup>th</sup> century was characterized by strict adherence to social-structural expectations, with specific fields and opportunities limited along gender, racial, and class lines (Hogg, 1999).

A series of related historical shifts in the 1800s had a significant impact on the shape of American education generally with implications for the practice and implementation of vocational education. The rise of the common school, the advent of the industrial revolution, demographic population shifts from rural to urban areas, and the large influx of immigrants into the country all created a milieu in which schooling became seen as essential for shaping the social and economic direction of the country (Bernard & Mondale, 2002). Not only was school to function as a means to assimilate an increasingly diverse population, but also as a mechanism to support economic growth (Dougherty & Lombardi, 2016; Gordon, 2014). Furthermore, vocational education was also promoted, along with compulsory education generally, as a means to equalize educational and economic opportunity and support upward social mobility (Gordon, 2014). This shift led to the establishment of formal programs for the training of vocational skills and the integration of these programs into comprehensive high schools, which provided programs of study in both vocational and traditional academic

disciplines. By the turn of the 20<sup>th</sup> century, vocational education was firmly established as a fundamental part of the formal educational landscape (Gordon, 2014; Hogg, 1999).

The recognition of the potential for formal education to impact and shape economic forces—within a democratic political framework and capitalist economic system—soon led to direct involvement of the federal government in the support and oversight of CTE (Gordon, 2014; Imperatore, 2017). The Smith-Hughes Act of 1917, which provided matching federal funding to states to develop vocational training programs, formalized workforce education as a constituent part of the American public education system (Lynch, 1997; Miller & Gregson, 1999). While this new law specifically noted that vocational education was only to comprise part of students' educational experience (the rest being spent on traditional academics and citizenship skills), it also helped to reify vocational education as a distinct field from general academic education (Dougherty & Lombardi, 2016; Gordon, 2014). Importantly, this and subsequent legislation specifically earmarked support for the training of vocational educators. This funding helped establish career and technical teacher education programs around the country, programs that were often separate from general teacher education programs (Gordon, 2014; Walter & Gray, 2002).

Federal support for CTE continued throughout the 20<sup>th</sup> century, and increased substantially with the Vocation Education Act of 1963 and its subsequent reauthorizations (Hogg, 1999). This act further expanded federal support for existing vocational education while shaping educational policy with regard to what and who should be taught. Language in the law specifically addressed providing meaningful workforce training to all students based on their needs, interests, and abilities. It also explicitly addressed the need to support academically, economically, and socially disadvantaged students as a means to address social

inequality (Dougherty & Lombardi, 2016; Gordon, 2014; Hogg, 1999). Today, the Carl D. Perkins Act of 1984 (and its subsequent reauthorizations in 1990, 1998, and 2006) has the largest influence on federal support of career and technical education in America. While the focus is still very much on funding vocationally-related education, the definition of such activities has broadened to include preparation for further education (including post-secondary education) and/or careers while supporting the development of skills that connect and transfer to academic knowledge, employability, critical problem-solving, and technically or occupationally specific knowledge (Camp & Heath-Camp, 2007; Dougherty & Lombardi, 2016; Gordon, 2014).

### **Philosophic Underpinnings of CTE**

Despite 100 years of consistent government support as a means to inform and guide workforce development, CTE in the United States has never been exclusively regarded as a practical, skill-based response to the economic needs of the nation. Mirroring debates regarding the purpose of education generally, there has been an ongoing examination of the value and purpose of CTE from varying philosophic standpoints. While CTE has its institutional roots in training and apprenticeship for the workforce, there are also strong connections to the foundations of modern progressive approaches to education (Gordon, 2014). The two competing strands of thought that inform this discourse can be identified as either essentialist or pragmatist (Miller, 1996; Miller & Gregson, 1999; Rojewski, 2009).

The essentialist approach is grounded in the Social Efficiency movement of the early 20<sup>th</sup> century in parallel with scientific management theories that informed industrial development (Miller & Gregson, 1999). Early proponents of this theoretical framework included David Snedden and John Prosser, both of whom saw in vocational education a

system distinct from the general education track, and one that should primarily be driven by measurable content and skill outcomes (Doolittle & Camp, 1999; Gordon, 2014; Miller & Gregson, 1999). From this essentialist standpoint, the purpose of CTE is separate from academic learning and exists to meet the needs of the labor market in order to ensure social and economic stability (Gordon, 2014; Rojewski, 2009). In terms of pedagogy, this approach necessitates a focus on identifying strategic, sequential curriculum that, regardless of learner needs, translates skill acquisition directly to the workplace (Rojewski, 2009). As it relates to teacher education, the essentialist perspective posits that CTE teacher preparation should be separate from general teacher education and that effective teaching practice is primarily grounded in content knowledge rather than pedagogy (Camp & Heath-Camp, 2007; McCaslin & Parks, 2002; Rojewski, 2009; Walter & Gray, 2002).

Contrasting the essentialist approach to vocational education is a progressive pragmatist philosophy, embodied in the work of John Dewey (1916, 1938). This philosophy places the experience of the learner—and reflection on that experience—at the center, as a means to develop individuals that are self-actualized and holistically prepared for life in a communal, democratic context (Lynch, 1997; McCaslin & Parks, 2002). As Dewey noted, reflecting on differences between the essentialist and progressive orientation:

Put in concrete terms, there is danger that vocational education will be interpreted in theory and practice as trade education: as a means of securing technical efficiency in specialized future pursuits.

Education would then become an instrument of perpetuating unchanged the existing industrial order of society, instead of operating as a means of its transformation. The desired transformation is not difficult to define in a formal way.



It signifies a society in which every person shall be occupied in something which makes the lives of others better worth living, and which accordingly makes the ties which bind persons together more perceptible—which breaks down the barriers of distance between them. (Dewey, 1916, p. 369)

From the progressive pragmatist viewpoint, the purpose of education serves the edification of the individual for social ends over the market needs of the economy (Dougherty & Lombardi, 2016). That is, if a field of study within CTE appeals to and has meaning to an individual, especially in the context of the community, that in and of itself is reason to pursue it, regardless of direct transfer to the workforce. The view promoted in Dewey's words also suggests that change, in particular positive societal change and the ability to adapt and promote it, is at the center of a pragmatic approach to conceptualizing teaching and learning (Miller & Gregson, 1999).

While both Dewey and the essentialists shared a proclivity for hands-on experiential learning, they saw it as a means to very different ends (Dewey, 1938; Gordon, 2014). Where the essentialists saw this approach as effective for teaching applicable skills, meaningful experience in vocational contexts for Dewey was grounded in a constructivist framework that recognized the potential for experience to inspire thinking and reflection as central to the learning process (Clark et al., 2010; Lynch, 1997). The dichotomy of dual educational tracks—one vocational and the other academic—promoted in an essentialist perspective is consciously missing from the pragmatist approach to CTE, where no one discipline, vocational or academic, is thought to be inherently more intellectual or worthy than the next. All fields of study have potential value if they connect in meaningful, applicable ways to the

lived experiences of the learner and their place within the larger community (Crawford, 2010; Noddings, 2011).

Miller and Gregson (1999) and Rojewski (2009) identify in Dewey's work a tendency toward egalitarian change that they suggest compliments his pragmatist approach with a streak of social reconstructionism, whereby the purpose of education is to inform and promote a more equitable, democratic society. They propose that this pragmatist-reconstructionist pairing is well suited as a theoretical framework to inform vocational education in the 20<sup>th</sup> century due to its inclusive, comprehensive, and progressive perspective on the role of CTE:

The overarching purpose of vocational education should be to help facilitate the growth of learners who are competent as problem solvers, collaborators, makers of meaning, lifelong learners, worker-citizens adaptable to change and active as change agents, and practitioners of democratic processes. (Miller & Gregson, 1999, p. 32)

This definition of CTE, grounded in a progressive philosophy, suggests a role for learners and teachers alike that moves well beyond preparation for the workforce. It also suggests that the role of CTE teacher preparation should remain closely aligned to the goals of progressive teacher education generally, and that content area knowledge for teachers must be paired with pedagogical knowledge and practice (McCaslin & Parks, 2002; Nager & Shapiro, 2007).

Change, and the need to respond proactively to it, is a predominant theme in these definitions of pragmatism. It is important to note, however, that this adoption of a progressive, pragmatic, and constructivist stance in CTE is not universally held. Although Rojewski (2009) indicates that the reconstructionist strand of pragmatism seems to be

predominant within the field, it is important to recognize that this assessment is not unanimous. A focus on concrete outcomes such as employability and meeting corporate needs continues to inform research literature and professional publications in CTE today, conceptually framing some of the discourse on the purpose of CTE (Association of Career and Technical Education, n.d.-a; Lee & Roth, 2008; Symonds, Schwartz, & Ferguson, 2011).

### **Issues of Equity in CTE**

Despite the potential benefits of CTE to either shape occupational opportunities, support personal educational development, or address problems of social inequality, issues of equity have plagued vocational education. This is important to consider if adopting a pragmatic, progressive framework in conceptualizing the purpose and value of CTE. While many proponents of CTE, both historically and today, tout the potential for addressing societal inequalities through the diverse curricula in CTE programs (Gordon, 2014), the realities are not so clear cut. Like all educational endeavors, CTE can play a role in either the maintenance or disruption of structural inequalities within the society (Bowles & Gintis, 1977; Giroux & McLaren, 1988). Indeed, one of the most salient critiques of CTE is that it can and has been used as a mechanism to track students and reinforce the stratification of educational experiences and outcomes (Dougherty & Lombardi, 2016).

In her book, *Keeping Track*, Oakes (2005) describes the ways in which vocational programs have been used to segregate students by class, race, and ability in order to track and poor students into courses with minimal academic content and low expectations, while affording white and middle- or upper-class students courses with higher academic standards, expectations, and outcomes. In her analysis, vocational education has not returned on its promise to provide meaningful access to quality employment, and often results in less

financial or occupational rewards for students who participate. This in turn has helped to stigmatize vocational course offerings as suitable primarily for working class students and those with low academic potential (Reay, 2011).

Another issue of educational equity in CTE concerns disproportionate gender representation in many CTE fields. As Toglia (2013) points out, despite the passage of Title IX legislation over 30 years ago, which mandated the equal opportunity for participation in all educational programs that receive federal funding, there continues to be underrepresentation of female students in certain CTE programs, particularly STEM (science, technology, engineering, and math) fields. Part of the challenge in this context is that those fields where women tend to be underrepresented are usually higher paying (such as engineering, construction trades, and technology) and those in which they are overrepresented tend to be lower paying (such as cosmetology, childcare, and health services), reinforcing inequitable economic patterns where women are paid less despite making up half of the workforce (Association for Career and Technical Education, The National Alliance for Partnerships in Equity, & The National Women's Law Center, 2009). In this context, the argument can be made that CTE programs potentially act as mechanisms to reinforce gender inequality in society, at least from an economic standpoint if not also from a social one (Toglia, 2013).

Attempts to address these issues of gender, racial, and economic equity call for the integration of higher-order academic content within CTE, the active recruitment of diverse students in all fields of study, and the recognition of these fields as intellectually equivalent to traditional academic subjects (Miller, 1996; Noddings, 2011; Pratzner & Ryan, 1990). One challenge with this lies in the imbalanced structural nature of society. As Reay (2011) notes,

“part of the problem is that educational systems are only as good as the societies they emerge out of. Capitalist, neoliberal societies beget capitalist neoliberal educational systems” (p. 2). That is, within stratified social and economic systems, the reproduction of social inequalities through vocational education becomes not just possible, but probable (Bowles & Gintis, 1977; Collins, 1971). This analysis presents a challenge to those working in CTE of how to specifically achieve the emancipatory aims of a progressive approach to career and technical learning, while avoiding the pitfall of an essentialist approach that reaffirms social inequities.

### **Teacher Education in CTE**

Understanding the current status of teacher education in CTE requires reviewing its background from a historical standpoint. Much as the debates around the purpose of CTE in the 20<sup>th</sup> century informed the practice of vocational teaching, so did they impact practices in vocational teacher education. From the essentialist standpoint promoted by John Prosser, who had become the chief administrator for the Federal Board of Vocational Education following the passage of the Smith-Hughes Act in 1917, the preparation of CTE teachers should be technically focused, be separate from general teacher education, and not require academic content above a secondary level (Lynch, 1997; McCaslin & Parks, 2002). To Prosser, CTE teachers primarily needed practical trade or work experience and that any training in the professional practices of teachers could and should be conducted outside of the university setting (Lynch, 1997). While progressive educators argued for the integration of vocational and academic learning, and thus the integration of vocational and academic teacher preparation, the essentialist view ended up dominating and was further supported by the language of the Smith-Hughes Act which separately funded vocational teacher preparation programs (Lynch, 1997; Miller & Gregson, 1999).

As a consequence of this separation between vocational and general teacher education, for much of the 20<sup>th</sup> century CTE teacher education and CTE teacher licensure had distinct systems and requirements that occurred outside of the post-secondary setting. One notable exception was in agricultural and home economics teacher education, which often occurred within colleges and universities, but even then tended to be housed separately from teacher preparation in the “academic” disciplines (Lynch, 1997; Walter & Gray, 2002). What resulted was a patchwork of CTE teacher licensure and education requirements across states that continues today and consists of two primary pathways: traditional preparation through a four-year baccalaureate program and alternative forms of preparation and licensure for lateral-entry vocational teachers with varying requirements (Pratzner & Ryan, 1990; Zirkle et al., 2007). Further complicating the matter has been the proliferation of alternative licensure options within traditional teacher preparation that have appeared as a result of educational reforms, most notably the No Child Left Behind Act of 2001 (Bowen, 2013; Fletcher Jr., 2006). According to a study of licensure requirements in all 50 states plus the District of Columbia, Zirkle, Martin, and McCaslin (2007) found that there were over 105 alternative pathways to CTE teacher certification in the country, of which only 53 required a bachelor’s degree. Twenty-two of the alternative pathways required only a high school degree or GED for licensure and 54 of the pathways required work experience in the endorsement area being pursued.

This diversity of pathways creates a challenge in terms of studying and defining standards for what quality CTE teacher education can and should look like. According to Lynch (1997), the abundance of CTE teacher preparation routes, coupled with their professional and ideological distance from traditional teacher education, meant that historical

reforms in CTE teacher education did not occur in tandem with changes in teacher education generally. However, beginning in the later part of the 20<sup>th</sup> century, there was a renewed interest in determining best practices in CTE teacher education. This occurred as a reaction to the changing demands of workplace learning in a newly globalized economic context and as a result of national reform movements placing greater accountability on teachers for student outcomes (Adams, 2010; Lynch, 1997; Pratzner & Ryan, 1990; Rojewski, 2009). Research at that time began to suggest little to no benefit in vocational teacher practice from having workplace experience and positive associations for teacher practice from post-secondary college experience (Lynch, 1997). Coupled with a recognition of developments in cognitive psychology that undermined traditional approaches to CTE, new frameworks were developed for re-conceptualizing CTE teacher preparation (McCaslin & Parks, 2002).

Moving away from the essentialist roots, literature on CTE teacher education practice and reform is grounded in a progressive approach to teaching and learning (Adams, 2010; Clark et al., 2010; Lynch, 1997; McCaslin & Parks, 2002; Miller & Gregson, 1999; Rojewski, 2002). Miller (1996) suggests that through inductive reasoning on the aims of CTE, pragmatism represents the philosophical position best aligned to vocational teacher education. Pragmatism, he asserts, incorporates the, “educational progressivist, reconstructionist, and the experimentalist” (Miller, 1996, p. 59). Further, the practices of a pragmatic teacher mirror the very nature of learning in which experience and reflection is central, and change and the need to adapt to it is a constant. Lynch (1997) and McCaslin and Parks (2002) also explore the influence of progressive philosophy as it applies to practice in career and technical teacher education. Grounded in the work of Dewey, they argue that constructivism, as a constituent part of the pragmatic approach, should frame decisions about

what and how to prepare CTE teachers. As Lynch (1997) notes, “the reality-based philosophy of pragmatism and its focus on readiness to change, and the evolving educational theory of constructivism seem far superior to underpin reforms in vocational education and the education of its teaching force” (p. 26).

Constructivism is grounded in the premise that learning takes place through the mediation of our experiences vis-à-vis the conceptual schema that inform our thinking (Bransford, Derry, Berliner, & Hammerness, 2005). For example, in a classic sociological study of teachers, Lortie (1977) describes how the process of being a student-participant in classrooms for the better part of one’s early life strongly shapes perceptions of what teaching is and what it should look like. This apprenticeship of observation, as he calls it, unconsciously informs how teachers perceive content, pedagogy, and their professional roles and responsibilities, and in turn often underpins their actions as teachers. In a more recent study examining the practices and thinking of new CTE teachers from an industry background, Green (2015) used constructivism as a theoretical lens to explore how vocational workplace experiences shaped teachers’ work in the classroom. She found that teachers were strongly influenced by their prior workplace experience, in many cases more than by their teacher education. A recognition of how the diverse experiences and worldviews new teachers bring to the classroom shape their practice should then color what experiential, practice-based learning opportunities to provide to teacher candidates as a means to consciously model good practice (Hammerness et al., 2005; Zeichner, 2012).

The recognition that pedagogy and philosophical orientations to teaching are strongly shaped by experience has implications for the design and implementation of CTE teacher preparation. McCaslin and Parks (2002), utilizing a progressive, student-centered approach



informed by constructivist theory, developed a hypothetical scenario to outline what a quality vocational teacher education program could look like. Key to this model is a curriculum that requires teacher candidates to engage in practice- and problem-based learning opportunities within a curricular structure that is based on the Danielson Framework for Teaching (Danielson, 1996). The Framework for Teaching was chosen because it delineates what is expected of beginning teachers, is based in constructivist theory, and can be used to communicate what it means to be a high-performing teacher. Adams (2010) used a qualitative approach to examine the efficacy of utilizing a teaching framework similar to the Framework for Teaching to inform curriculum in the preparation of CTE teachers. She found that the majority of teacher candidates in this context revealed a growing confidence in their abilities to demonstrate skills associated with accomplished teaching as manifest in the teaching framework. Both of these articles suggest the importance of linking practice-based learning experiences to skills and knowledge that reflect effective teacher practice as a means provide teacher candidates with purposeful experiences from which to construct their own understanding of quality teaching.

Lynch (1997) developed a set of principles for CTE teacher education based on the assumptions underlying progressivism, pragmatism, and constructivism. The following principles are relevant for structuring CTE teacher preparation along congruent philosophical lines to those proposed for CTE education (Doolittle & Camp, 1999; Miller, 1996; Miller & Gregson, 1999; Rojewski, 2009):

- Faculty are committed to their students and to students' professional development as lifelong learners.

- Faculty use curriculum and instructional techniques to integrate theory with practice, academic and work force education, professional education and subject matter, and learning theory and work force preparation...
- Faculty use dynamic pedagogy, based on learning theory and practices appropriate for youth and adults...
- Programs are dynamic and change oriented.
- Programs are grounded in academic education, workplace subject matter, workplace processes, technology, professional education and pedagogy, and clinical experiences.
- Programs reflect cultural diversity. (Lynch, 1997, p. 57)

These principles highlight the importance of change, the learner as central, and the conceptualization of CTE as being more than just occupational training. He suggests that CTE should, “emphasize integrated learning and the development of cognitive skills, broad technical skills, and a broad understanding of industries” (Lynch, 1997, p. 22).

Also working from a theoretical perspective, Clark, Threeton, and Ewing (2010), examine the principles of experiential learning and consider what the implementation of authentic experiential learning pedagogy into secondary CTE and CTE teacher education programs should look like. Grounded in a pragmatic, Deweyan notion of experience, the authors suggest that experiential learning is at the heart of CTE practice, but that effective learning requires more than just direct encounters with real-world opportunities. Using Kolb’s Experiential Learning Theory as a framework, they note the importance of iterative reflective processes in making meaning from experience. Fundamentally constructivist in perspective, they recognize that learning is best conceived as a process and not in terms of outcomes. Additionally, they state that learning is facilitated by encouraging students to

interrogate their ideas and beliefs in order that they may be evaluated and integrated into conceptual understanding. Reviewing the literature on the value of experiential learning in students' success, the authors find that it can have a meaningful impact in terms of student learning and recommend the integration of experiential learning instruction into CTE teacher education programs as vital to preparing teachers for CTE.

These contributions to the literature on CTE teacher education make clear that effective practice for CTE teacher educators can be grounded in a progressive, pragmatic philosophic approach that is cognizant of constructivist theory. This is as much a recognition of what makes for inherently meaningful learning experiences as it is an acknowledgment of the skills needed in a changing, post-industrial world (Doolittle & Camp, 1999; Rojewski, 2009). Doolittle and Camp (1999) note this change and what it means for CTE:

Preparation of workers for entry into and advancement in the workplace of the next decade requires an educational program that provides not only job skills, as career and technical education did throughout the 1900s, but also higher order thinking, problem solving, and collaborative work skills. (p. 1)

In developing a base of practice within CTE teacher preparation to help future teachers support this expanded notion of student learning, it is important to consider the constructed knowledge that CTE practitioners bring to, and create in, their teaching.

### **Practitioner Knowledge**

The view that is held with regard to the purpose of teachers and the skills needed to teach will necessarily inform opinion about whether or not teacher professional knowledge is considered valuable. From a positivist, technocratic standpoint—akin to the essentialist strand in CTE—effective teaching requires just learning and executing specific strategies

determined separate from the teacher (Giroux, 1988; Zeichner, 2012). Adopting a constructivist framework of teaching and learning, on the other hand, means recognizing the centrality of practitioner knowledge and engagement in determining what effective practice looks like. It also requires the recognition of teaching as a complex endeavor that requires intellectual engagement, active participation, and professional investment (Darling-Hammond & Bransford, 2005; Gitomer & Zisk, 2015). While the current political climate in education carries many manifestations of minimizing the importance of teacher thinking and voice (Danielson, 2016), well-regarded reform in teacher education recognizes the importance of work in, with, and through practitioner knowledge in the development of effective teachers. As Lampert noted in a theoretical examination of teacher knowledge in the practice of teaching, “multiple kinds of problems arise in establishing and maintaining relationships with students and subject matter, and the work that must be done to solve them is socially and intellectually complex” (Lampert, 2010, p. 22).

In a review of research on the understanding and assessment of teacher knowledge, Gitomer and Zisk (2015) explore the evolving historical and research-based understanding of what teachers know and how they use it in the practice of their jobs. They present four models along an increasingly progressive spectrum that frame how to view—and thus assess—practitioner knowledge in teaching. First, the “teacher as educated professional” model suggests that, “teachers should have a general set of intellectual competencies” (Gitomer & Zisk, 2015, p. 4). This focus reinforces the notion that there is fundamental knowledge needed to be effective in the classroom, but that this knowledge—in line with a behaviorist approach to learning—is external to the teacher. Next, the “teacher as content knowledge professional” model suggest that, “teachers should understand the specific

subject-matter content they will teach” (Gitomer & Zisk, 2015, p. 4). This approach connects well with the approach to CTE and CTE teacher education that predominated in the early part of the 20<sup>th</sup> century as promoted by John Prosser, in which discipline-specific knowledge is seen as tantamount for effective practice (Gordon, 2014; Lynch, 1997). The third model, “teacher as content knowledge for teaching” professional, suggests that, “teachers should understand both the subject-matter content and how to teach that content” (Gitomer & Zisk, 2015, p. 4). This model proposes that teachers are producers of knowledge, as much as they are consumers of it, and that practice is unique to the discipline taught (Mishra & Koehler, 2006; Shulman, 1986). This approach has particular salience in examining CTE and CTE teacher education as distinct from general teacher education because of the focus on content area instruction, and how it impacts pedagogy. Finally, the “teacher as knowledge-rich practitioner” model suggests that, “teachers draw on content as they carry out teaching practices” (Gitomer & Zisk, 2015, p. 4). This paradigm for understanding practitioner knowledge suggests that by examining their practice, teachers come to understand how knowledge is studied as it is enacted. The practitioner is central in this vision of practitioner knowledge and it is well suited to examining what teachers know and support relative to the standards of practice.

The idea that teachers actively build their own practical and intellectual knowledge based on the interaction of experience and previous understanding is in line with the constructivist approach to learning and germane to an examination of how we should prepare teachers. Shulman (1986) advanced the idea of pedagogical content knowledge, which addresses the intersection of pedagogy and content. This intersection is of particular interest to the field of CTE given the diversity of disciplines under that umbrella. While this idea of

pedagogical content knowledge has become well established in research on teaching and teacher education, Shulman (1986) went further in identifying a wide variety of teaching knowledge that informs practice including, curricular knowledge, knowledge of learners, knowledge of the educational context, and knowledge of educational ends, purposes, and values. The diversity of these domains speaks to the large body of knowledge that teachers must contend with in the act of effective practice.

### **The Danielson Framework for Teaching**

As a result of educational reforms over the past several decades, including but not limited to No Child Left Behind, Race to the Top, and the Every Student Succeeds Act, there has been an increasing emphasis on accountability in education, especially as it relates to schools and teachers (Rojewski, 2009). One tangible way that this has manifest is in the focus on teacher evaluation (Darling-Hammond, 2009; Darling-Hammond, Newton, & Wei, 2013), especially at the state level where the implementation of formal teacher evaluation systems has flourished (Doherty & Jacobs, 2013). One of the most commonly adopted and/or adapted frameworks for teacher evaluation is Danielson's Framework for Teaching (Danielson, 2014). The framework is a comprehensive rubric which delineates and describes, according to Danielson, all aspects of effective teacher practice (Danielson, 2007).

The framework itself is explicitly grounded in a constructivist approach to teaching and learning that privileges higher-order thinking, conceptual understanding, and learner-directed educational experiences (Danielson, 2007). It is also informed by a focus on student learning that promotes skills needed for participation in the globalized workforce, developing workers who, "can solve complex problems and design more efficient techniques to accomplish work" (Danielson, 2007, p. 15). Additionally, it is designed with an eye toward

encouraging an educated citizenry with the skills needed to actively participate in the democratic process. Danielson describes the framework as both generic and comprehensive, meaning that it is applicable to any classroom context, while still comprehensively covering all aspects of effective teaching practice (Danielson, 2007).

The framework is divided into four primary domains. They are Preparation and Planning, the Classroom Environment, Instruction, and Professional Responsibilities. Each of these domains is further divided to comprise a total of 22 components. Components are further broken down into sub categories for a total of 76 specific teaching elements (Danielson, 2014). The components within each domain are contained within Table 1.

Table 1

*Danielson's Framework for Teaching Domains and Components*

Domain 1:	Domain 2:	Domain 3:	Domain 4:
Preparation and Planning	Classroom Environment	Instruction	Professional Responsibilities
1a. Demonstrating knowledge of content and pedagogy	2a. Creating and environment of respect and rapport	3a. Communicating with students	4a. Reflecting on teaching
1b. Demonstrating knowledge of students	2b. Establishing a culture for learning	3b. Using questioning and discussion techniques	4b. Maintaining accurate records
1c. Setting instructional outcomes	2c. Managing classroom procedures	3c. Engaging student in learning	4c. Communicating with families
1d. Demonstrating knowledge of resources	2d. Managing student behavior	3d. Using assessment in instruction	4d. Participating in the professional community
1e. Designing coherent instruction	2e. Organizing physical space	3e. Demonstrating flexibility and responsiveness	4e. Growing and developing professionally
1f. Designing student assessments			4f. Showing professionalism

While the Framework for Teaching Evaluation Instrument (Danielson, 2014) is designed and can be used as an evaluative instrument for determining teacher effectiveness, Danielson notes that it is most valuable as a professional development tool to promote



reflection, improvement, and collaboration as a means to support teacher learning (Danielson, 2007). She states that it is problematic when the framework is not used to support teacher thinking and participation, and instead is used solely to judge, “the performance of certain behaviors that can be ticked off on a checklist” (Danielson, 2016, p. 20) in such ways that a focus on ratings over practice becomes predominant. To counteract this, the framework should be used, she argues, to inform the improvement of teachers at all stages of development (Danielson, 2016). McCaslin and Parks (2002) provide one example where the framework is used as more than a tool for evaluation and instead frames the very curriculum used to prepare CTE teachers.

### **Summary**

The history of CTE within American public education has been framed by a philosophic dispute to define the purpose of vocational learning (Dougherty & Lombardi, 2016; Gordon, 2014; Lynch, 1997; Miller & Gregson, 1999). While essentialist views, which support a technocratic and economically-driven approach to CTE teaching and learning, have predominated in institutional practice and policy, there has been an emerging effort to refocus CTE reform from a progressive, pragmatic, and constructivist standpoint (Lynch, 1997; McCaslin & Parks, 2002; Miller, 1996; Rojewski, 2009). These emergent approaches, grounded in the work of John Dewey, suggest that CTE should embrace the integration of academic and vocational learning, the cultivation of change-oriented, democratic citizens, and the development of critical thinking in lifelong learners. Such alternate models of CTE should also, in turn, inform the preparation and professional learning of teachers (McCaslin & Parks, 2002). While a few theoretical models of CTE teacher preparation have been advanced from a pragmatic-constructivist position (Lynch, 1997; McCaslin & Parks, 2002),

absent from the literature is adequate research regarding specific practices that could inform the delivery of CTE teacher education and professional development (Kosloski, Jr & Ritz, 2016; Lambeth et al., 2009; Rojewski et al., 2008). One framework of teaching practice that has been identified as aligned to the pragmatist and constructivist goals of CTE is the Danielson Framework for Teaching (Danielson, 2007; McCaslin & Parks, 2002). This alignment creates the opportunity for utilizing the framework to interact with CTE teachers' own perceptions of important and effective practice to determine what CTE teachers need to know and be able to do. Such an approach is based on the idea that teachers actively generate meaningful, embedded practitioner knowledge as a consequence of the interactions between beliefs, knowledge, practice, and reflection (Gitomer & Zisk, 2015; Mishra & Koehler, 2006; Shulman, 1986).

## **Chapter Three**

### **Methodology**

This chapter presents the methods and procedures that were used in this study. It provides an overview of the study and research design, participants, instrumentation, data collection, and data analysis, as well as a summary.

#### **General Overview**

The purpose of this research was to examine the perceptions of current and former career and technical education (CTE) teachers regarding teaching practices to inform the preparation and professional development of secondary teachers in CTE fields. Specifically, it aimed to investigate the importance that current and former secondary CTE teachers ascribe to varying indicators of teacher quality. This was done as a means to discern which professional and pedagogical practices might best inform the development and delivery of teacher preparation and professional development for CTE teachers. The quality indicators used in this study were based on Danielson's Framework for Teaching (Danielson, 2007) and the Framework for Teaching Evaluation Instrument (Danielson, 2014).

This research used a quantitative approach to determine the perceptions of the participants regarding quality indicators in CTE teaching. Specifically, it utilized a survey design to inform data collection. A quantitative approach was best suited to this project as it aimed to determine the discrete opinions of a large number of teachers with regard to a large number of specific teaching practices. Survey research designs are used to, "describe the attitudes, opinions, behaviors, or characteristics of the population" (Creswell, 2015, p. 388). Descriptive statistics were used for data analysis to explore the perceptions of participants overall, and comparative statistics were used to explore the differences in response means

between sub-groups in the respondent sample. The data for this study was collected with a one-time online survey instrument (Appendix A) and is thus classified as cross-sectional, which has the, “advantage of measuring current attitudes or practices” (Creswell, 2015, p. 389).

The population for this study was current and former secondary educators in New Mexico who teach or taught in one of 16 career technical education fields as defined by the Association for Career & Technical Education (Association for Career and Technical Education, n.d.-b). Survey methodology was conducted using a web-based questionnaire due to the disperse nature of the study population and the benefits inherent in internet survey research. As Dillman, Smyth, and Christian (2014) note, with this approach, “responses can be gathered from a large number of people in a very short amount of time...[and research] can also be conducted at a fairly low cost” (p. 303). Descriptive and comparative analysis were utilized to interpret the data and draw conclusions on the relative importance of the four domains and 76 elements in the Framework for Teaching (Danielson, 2007) for CTE teachers. Attention was paid to a variety of characteristics within the sample including years of experience, discipline of instruction (content area), type of teaching license, and level of education.

The five research questions were:

1. How do career and technical education (CTE) teachers perceive the importance of quality teaching indicators as they relate to what CTE teachers should know and be able to do?

2. Do years of experience teaching influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do?
3. Does discipline of instruction influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do?
4. Does level of education influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do?
5. Does type of teacher licensure influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do?

For research questions two through five, which compared demographic variables, the following null hypotheses were identified:

2. Years of experience teaching do not influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do.
3. Discipline of instruction does not influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do.
4. Level of education does not influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do.

5. Type of licensure does not influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do.

### **Study Population and Sample**

The population for this study included current and former secondary CTE teachers who teach or have taught CTE in New Mexico. Due to the diversity of potential licenses that can be used to teach CTE fields, a lack of publicly available information on current numbers of CTE teachers in New Mexico, and the inclusion of former CTE teachers, the exact number of the study population was unknown. These factors also limited the ability to make direct contact with all members of the population. Because of these limitations, this study utilized a modified design for data collection, incorporating aspects of Dillman, Smyth, and Christian's (2014) tailored design approach and a respondent-driven "snowball" approach as described in Salganik and Heckathorn (2004), in which, "respondents are selected not from a sampling frame but from the friendship network of existing members of the sample" (p. 196). This is a form of convenience sampling (Fraenkel, Wallen, & Hyun, 2011) and the sample size included an unknown percentage of the larger study population. The total number of respondents used as a sample for data analysis purposes was 200. Further details on this sample can be found in Chapter Four.

The purpose of this study was to collect and analyze descriptive and comparative statistical information from the research sample to inform the future preparation and professional development of members of the study population, CTE teachers in the geographic area where data were collected. Therefore, a convenience sample of the population using the approaches described above allowed the researcher to access the largest

possible number of participants. As noted in Fraenkel, Wallen, and Hyun (2011), a drawback to convenience sampling is that the researcher cannot state with certainty that the sample is truly representative of the larger population. Because of this, the study examined and reported a number of demographic factors, described in Chapter Four, to help frame the sample and examine the degree to which respondents reflected the larger population.

Research approval was sought and obtained through the Institutional Review Board (IRB) at the University of New Mexico prior to the research phase of this project, including the dissemination of the questionnaire.

### **Instrumentation**

A survey instrument (Appendix A) was used that surveyed teachers regarding the relative importance they assign to the 76 elements in Charlotte Danielson's Framework for Teaching (Danielson, 2007, 2014). Five previous dissertation research studies that used the Framework for Teaching as the basis for surveying teachers on their attitudes and perspectives toward elements of effective teaching were identified (D'Alfonso, 2006; Doerr, 2012; D. J. Olson, 2015; D. M. Olson, 2013; Sweeley, 2004). All of these quantitative research studies utilized a survey instrument originally developed by Sweeley (2004) or an adapted variation thereof. For this study, Sweeley's original instrument was adapted to meet the orientation and data collection needs of this study.

Items in the adapted survey instrument were adjusted to account for three factors. First, at the time the original survey was developed (Sweeley, 2004), the Framework for Teaching, based on the first edition of Danielson's *Enhancing Professional Practice: A Framework for Teaching* (1996), contained only 66 descriptive elements of effective teaching. The current edition (Danielson, 2007) has 76, so ten elements were added. Second,

the descriptive language for each element in the current edition of *Enhancing Professional Practice: A Framework for Teaching*—which provides the evaluation rubric and contextual information—differs slightly from the current, publically available version of the Framework Evaluation Instrument (Danielson, 2014). Attempts were made to reconcile these differences and provide clarity to each element. Finally, the grammatical formation of each descriptive element in the existing questionnaire did not suit the primary research questions of this study. The grammatical construction of all elements in the survey instrument was changed to better suit what was being asked of participants.

The questionnaire asked participants to provide demographic data regarding their current teaching status, school level that they teach/taught, years of teaching experience overall, years of teaching experience in CTE, discipline of instruction, teaching licensure type, teaching licensure level, pathway to licensure, highest level of education, geographic area, and age. Participants were then asked to indicate on a five-item Likert scale the extent to which they find the 76 elements of teaching presented important for CTE teachers to know and be able to do effectively. The questionnaire offered five scaled response choices: “Very Important”, “Important”, “Moderately Important”, “Of Little Importance”, and “Unimportant”. Respondents also had the option of selecting “Do Not Understand” if they were unsure of what the item was asking them to rate. For the purpose of data analysis, responses of “Do Not Understand” were treated as missing data.

The survey instrument was specifically chosen and adapted because the Danielson Framework for Teaching Evaluation Instrument (Danielson, 2014) is a highly regarded and well known evaluation tool that has been used for over two decades in the assessment, professional development, and improvement of teachers. The survey was also chosen



because the framework, according to Danielson (2007), is grounded in research and based on a constructivist approach to teaching and learning. According to Miller (1996), Lynch (1997), Miller and Gregson (1999), and Rojewski (2009), constructivism is an important theoretical construct in CTE. Finally, this study involved teachers in New Mexico, who were likely to be familiar with the language of Danielson's Framework due to its close alignment with the statewide NMTEACH teacher evaluation system (New Mexico Public Education Department, n.d.-a).

To establish content validity, the researcher first presented the revised survey instrument to his dissertation committee during the dissertation proposal defense. Changes were made based on feedback from committee members. The researcher then recruited three teacher educators with doctoral degrees and experience using the Danielson Framework (Danielson, 2014) to evaluate teacher competence to individually review the draft survey and provide feedback on the perceived validity, accuracy, and grammatical clarity of the 76 items corresponding to the elements in the framework. A specific focus was placed on the degree to which each of the items in the survey accurately reflected the corresponding elements in the Framework for Teaching. Further revisions were made to the instrument based on feedback from the teacher educators. The elements themselves within the Framework for Teaching are already research-based and adopted worldwide as measures of effective teaching (Danielson, 2007), further supporting content validity relative to the 76 elements that inform each item on the survey.

To address issues of reliability relative to the internal consistency of items in the questionnaire, alpha coefficients using Cronbach's alpha were calculated for all element items within each domain to estimate the consistency of scores on the instrument. The part of

the questionnaire corresponding to Domain 1 of Danielson's Framework for Teaching Evaluation Instrument (2104) contained a total of 23 items with a coefficient of  $\alpha=.938$ . The part of the questionnaire corresponding to Domain 2 of Danielson's Framework for Teaching Evaluation Instrument contained a total of 15 items with a coefficient of  $\alpha=.904$ . The part of the questionnaire corresponding to Domain 3 of Danielson's Framework for Teaching Evaluation Instrument contained a total of 18 items with a coefficient of  $\alpha=.941$ . The part of the questionnaire corresponding to Domain 4 of Danielson's Framework for Teaching Evaluation Instrument contained a total of 20 items with a coefficient of  $\alpha=.922$ . According to Gliem and Gliem (2003), the closer the alpha is to a value of 1, the greater the internal consistency of the scaled items in a given instrument, or in this case, the items within a given domain. They suggest that a score of  $>.9$  can be considered "Excellent" in terms of the internal consistency of the items.

### **Data Collection**

As mentioned previously, data collection for this study utilized a hybrid design incorporating the tailored design approach as outlined in *Internet, Phone, Mail, and Mixed-Mode Surveys: The Tailored Design Approach* (Dillman et al., 2014) and a respondent-driven approach as described by Salganik and Heckathorn (2004). According to Dillman, Smyth and Christian,

Tailored design refers to customizing survey procedures for each survey situation based upon knowledge about the topic and sponsor of the survey, the types of people who will be asked to complete the survey, the resources available, and the timeframe for reporting results. Tailored design is a strategy that can be applied in the development of all aspects of a survey to reduce total survey error to acceptable levels

and motivate all types of sample members to respond within resource and time constraints. (p. 16)

Utilizing these guidelines, a web-based survey format was employed in the administration of the survey. The survey software program, Opinio, hosted by the University of New Mexico, was used to distribute the recruitment email (Appendix B) and collect questionnaire responses. The questionnaire was open for participants to respond over a three-week period. Potential participants were automatically sent up three emails during this time by the Opinio software encouraging them to participate. Email addresses of potential participants were initially collected by visiting the websites of all 89 school districts in New Mexico, and then at individual secondary school websites. The recruitment email was sent to all CTE teachers for whom contact email addresses were publicly available. For schools with no published email information on CTE teachers, school administrators were contacted, asking them to forward the recruitment email to CTE teachers. Finally, for a handful of schools with no publicly published email addresses, CTE teachers were contacted directly through web-based messaging systems on school websites. Once participants began the online survey, they were taken to an online informed consent page (Appendix C), which they had to accept before proceeding.

Due to the fact that not all school or district websites provided contact information for CTE teachers, and the fact that some websites did not appear up to date, the researcher also employed aspects of a respondent-driven approach to data collection (Salganik & Heckathorn, 2004) in order to reach a larger percentage of the study population. In all email contacts with potential participants, recipients were asked to forward the recruitment email to any other current or former CTE teachers that they thought met the criteria for participation.

Additionally, at the end of the questionnaire, participants received a thank you message which again asked them to share the survey link with individuals they thought would be interested and meet the criteria for participation. Finally, in order to reach more potential participants, executive officers of the New Mexico Association for Career and Technical Education (NMACTE), whose contact information was publicly available on the NMACTE website, were sent an email asking to forward the recruitment email to members or associates who would fit the criteria for participation.

To encourage potential respondents to participate in the survey, questionnaire completers were offered the opportunity enter into a drawing for one of five \$100 gift cards. As noted in Dillman, Smyth and Christian (2014), compensation has shown to notably increase the response rate of both online and in-person surveys. Questionnaire completers who chose to participate were asked to follow a link to a separate questionnaire where names and email addresses were collected for the drawing. A separate questionnaire was utilized for the drawing to ensure the anonymity of respondents to the research survey.

### **Data Analysis**

Data analysis occurred utilizing IBM SPSS, version 25, a statistical analysis software program. Full results from this analysis are found in Chapter 4 of this dissertation. First, descriptive frequencies were calculated for all demographic items in the survey. Next, mean scores and standard deviations were calculated for each of the items corresponding to the 76 elements in Danielson's Framework for Teaching Evaluation Instrument (2014), all of the items corresponding to elements within each of the 22 components, and all of the items corresponding to elements within each of the four domains. Paired-samples t-tests were

calculated between the descriptive results from each domain to determine the statistical significance of the differences in scores.

Next, independent samples t-tests were calculated to compare participant responses from the four different demographic subgroups within the sample as highlighted in the research questions. Those subgroups were based on years of experience, discipline of instruction (content area), licensure type, and level of education. For each comparative analysis that was calculated, assumptions associated with t-tests were addressed and tested. For the paired-samples t-test, these assumptions included testing for independence, normality, and continuous level of measurement. For the independent-samples t-test these assumptions included testing for independence, normality, and homogeneity of variance. All assumptions were met for the data analyzed in this study.

### **Summary**

This chapter summarized the methods that were used to study current and former CTE teachers' perceptions with regard to quality teacher indicators. The study employed a survey methodology utilizing an instrument based on Danielson's Framework for Teaching (Danielson, 2014). Data collection occurred following the protocol outlined in the tailored design approach to survey research (Dillman et al., 2014). Data analysis occurred using IBM SPSS software to inform answers to the research questions.

## **Chapter Four**

### **Results**

As described in Chapter One, the purpose of this study was to examine the perceptions of career and technical education (CTE) teachers regarding indicators of quality in the practice of teaching. The indicators of quality were based on Danielson's Framework for Teaching (Danielson, 2007). This chapter presents the results of data analysis from responses to the survey instrument described in Chapter Three. First, information is presented on the sample used for data analysis and the demographic information collected in the questionnaire. Descriptive and comparative statistics are then presented to address the five research questions outlined in Chapter One.

#### **Survey Instrument Response**

Prior to administration of the questionnaire, the researcher identified 398 unique email addresses of CTE teachers by visiting the websites of all 89 school districts in the State of New Mexico (Appendix D). Of the 398 recruitment emails sent out, 47 were returned as undeliverable, leaving 351 successfully sent emails. In a few cases, district or school websites did not provide email addresses for teachers but instead provided a direct contact form for messaging teachers. An additional 23 teachers were sent the recruitment email via this method, for a total of 373 teachers directly contacted by the researcher. In cases where there were no email addresses provided on school and district websites, or in cases where teachers were not identified by discipline of instruction, emails were sent to school administrators, requesting that they forward the recruitment email to CTE teachers at their school. Forty-one such emails were sent to school administrators. The researcher also communicated with the Executive Director of the New Mexico Association for Career and

Technical Education, who agree to send out the recruitment email to the organization's mailing list. This list included CTE teachers, school administrators, industry partners, and policymakers. Due to this, and the fact that survey recipients and questionnaire completers were encouraged to forward the recruitment email to other CTE teachers in New Mexico to support respondent-driven data collection, the total number of CTE teachers who received the survey is unknown, making a response rate impossible to calculate.

A total of 291 questionnaires were recorded in the online survey program. Of those responses, 67 were incomplete, most with only the first screening question completed. These 67 responses were eliminated from data analysis. Another 24 respondents, despite stating that they taught in CTE, self-reported instructional content areas that are not considered CTE disciplines. These 24 responses were also eliminated from data analysis. This left 200 valid responses for data analysis.

### **Demographic Data of Respondents**

All demographic data collected in the survey can be found in Table 2. Of the 200 respondents, 187 were currently teaching in a CTE field. Thirteen respondents were not currently teaching in a CTE field but had at least 5 years of experience as a CTE teacher in New Mexico. A majority of respondents either teach or taught at the high school level. A total of 179 teachers identified themselves as high school teachers and 38 identified as middle school teachers. Due to the fact that respondents could select more than one option—in cases where a teacher might teach or have taught at both levels—the total frequency of responses was higher than the total number of respondents. Years of teaching experience were reported using two different measures. First, respondents were asked how many years of experience teaching they had overall. Then, respondents were asked how many years of

experience they had teaching in CTE. As noted in Table 2, the years of reported teaching experience overall were relatively evenly distributed across all ranges. The largest number of teachers, 45 total, reported between 6-10 years of experience and the smallest number of teachers, 23 total, reported between 21-25 years of experience. The mean years of teaching experience overall was 15. Unlike the reported years of experience overall, reported years of experience in CTE was more heavily represented at the lower end of the range. One hundred ten respondents (55%) had 10 years or less of teaching experience in CTE. The largest number of teachers, 68 total, reported between 0-5 years of experience in CTE and the smallest number of teachers, 17 total, reported 25 or more years of experience. The mean years of CTE teaching experience overall was 11.9. The findings regarding teaching experience imply that there are many teachers who teach or who have taught in both general education settings and CTE. In the case of teachers with 0-5 years of experience in CTE, the data suggest that there are 35 teachers who have greater than five years of experience overall, but five years or less in CTE.

Respondents were asked to note the New Mexico county or counties in which they teach or have taught CTE. By far the most represented county was Bernalillo with 70 respondents. Bernalillo County is home to Albuquerque Public Schools, the largest school district in New Mexico and the 32<sup>nd</sup> largest school district in the nation (National Center for Education Statistics, 2016). In total, 24 New Mexico counties were represented in the data, with nine counties not represented. Those nine counties were Catron, Colfax, De Baca, Guadalupe, Harding, Hidalgo, Rio Arriba, San Miguel, and Union. Although this number represents 27.3% of the 33 counties in New Mexico, according to the 2010 U.S. Census (U.S.



Census Bureau, 2011) these nine counties have a combined total population of only 103,961, or 5.05% of the population of the entire state.

For determining discipline or content area of instruction, respondents were asked to self-report all CTE subjects that they taught. Responses were collected in open response format, allowing participants to note multiple content areas and answer using familiar terminology. These open responses were then coded into 16 categories as seen in Table 2. Several respondents taught in more than one CTE discipline, resulting in a total frequency of responses higher than the number of respondents. Information Technology accounted for the largest group, with 51 respondents in that category. A second layer of coding was done to identify all respondents teaching in disciplines of instruction considered under the heading STEM (Science, Technology, Engineering, and Math), one of the 16 career clusters identified by the Association for Career and Technical Education (Association for Career and Technical Education, n.d.-b). In total, 89 individuals taught in one or more STEM fields, which included five respondents who identified their discipline of instruction as only “STEM” on the questionnaire. There were three respondents who did not provide any response to this item, and are represented in under the heading of “No Response”.

Several items in the questionnaire focused on issues of licensure. With regard to the types of licensure held, a majority of the respondents, 121 total, have a New Mexico Secondary teaching license, meant for teachers in grades 7-12 and appropriate for any content area, including vocational disciplines, that the teacher is deemed highly qualified to teach. The Secondary Vocational-Technical teaching license, also intended for teachers in grades 7-12 but specific to CTE subjects, was the second most common, held by 75 respondents. New Mexico has a licensure level system with four tiers. The first two tiers,

Level I and Alternative Level I, are for early career teachers, are valid for five years, and cannot be renewed. Levels II and III are professional level licenses that can be renewed indefinitely, and in the case of Level III, require a master's degree or National Board Certification. As summarized in Table 2, the vast majority of respondents, 176 total, reported having either a Level II or Level III teaching license. Finally, participants were asked to identify the pathways that they used to obtain their teaching license or licenses. Although nine different pathways were identified, most respondents identified a bachelor's program (109 respondents), master's program (80 respondents), or post-baccalaureate alternative licensure program (67 respondents) as a pathway they used. It is important to note that even though, as highlighted in Chapter One, CTE teachers in New Mexico are able to obtain a Secondary Vocational-Technical teaching license with a minimum of a high school degree through one of two routes, only seven respondents identified the New Mexico Public Education Department (NMPED) Professional Development Plan (PDP) route, and only two respondents identified the NMPED 15 credit hour route.

The final demographic items on the questionnaire explored the highest level of education and the age of respondents. As seen in Table 2, 121 of the respondents had a master's degree and 63 had a bachelor's degree. Altogether, 94% of the respondents, 188 total, had a bachelor's degree or higher. Despite the fact that it is possible to obtain a Secondary Vocational-Technical license in New Mexico with only a high school diploma, only one respondent identified with that level of education. Respondent age is reported in ten-year ranges on Table 11. Teachers between the ages of 40-49 represented the largest group, with 57 respondents. Teachers between the ages of 20-29 represented the smallest group, with 17 respondents. The mean age of all respondents was 46.7 years.

Table 2

*Descriptive Characteristics of Sample – Frequency and Percent Table*

Characteristic	Frequency	Percentage of Respondents
<b>Currently Teaching</b>		
Yes	187	93.5
No	13	6.5
<b>School Level <sup>a</sup></b>		
Middle School	38	19
High School	179	89.5
<b>Years of Teaching Experience</b>		
1-5	33	16.5
6-10	45	22.5
11-15	33	16.5
16-20	38	19
21-25	23	11.5
25+	28	14
<b>Years of CTE Teaching Experience</b>		
1-5	68	34
6-10	42	21
11-15	27	13.5
16-20	26	13
21-25	20	10
25+	17	8.5
<b>Discipline of Instruction <sup>a</sup></b>		
Information Technology <sup>b</sup>	52	26
Business	35	17.5
Construction and Engineering <sup>b</sup>	20	10
Culinary Arts	19	9.5
Family and Consumer Science	19	9.5

Characteristic	Frequency	Percentage of Respondents
Industrial Arts	17	8.5
Agricultural Science	16	8
Health Science <sup>b</sup>	14	7
Visual and Performing Arts	14	6.5
Education	9	4.5
A/V Technology <sup>b</sup>	6	3
Hospitality and Tourism	6	3
STEM Only <sup>b</sup>	5	2.5
Government and Public Administration	3	1.5
No Response	3	1.5
Journalism	2	1
New Mexico Teaching Licensure <sup>a</sup>		
Secondary	121	60.5
Secondary Vocational-Technical	75	37.5
Specialty Area License	24	12
Elementary	19	9.5
Middle School	16	8
Education Administration	14	7
Special Education	8	4
Early Childhood	1	0.5
None	1	0.5
Licensure Level		
Level III	94	47
Level II	82	41
Level I	12	6
Alternative Level I	11	5.5
None	1	0.5

Characteristic	Frequency	Percentage of Respondents
Pathway to Licensure <sup>a</sup>		
Bachelor's Program	109	54.5
Master's Program	80	40
Alternative Licensure Program	67	33.5
NMPED Vocational PDP	7	3.5
NMPED Online Portfolio	7	3.5
Alternative Route		
NMPED NMTEACH	5	2.5
Alternative Route		
Work Experience	2	2
NMPED Vocational 15 Credit Hour	2	1
Inter-State Reciprocity	2	1
None	1	0.5
Highest Level of Education		
Master's Degree	121	60.5
Bachelor's Degree	63	31.5
Associate's Degree	5	2.5
Doctoral Degree	4	2
Post-Secondary, No Certificate	4	2
Post-Secondary, Certificate	2	1
High School / GED	1	0.5
Location by New Mexico County <sup>a</sup>		
Bernalillo	70	35
Sandoval	19	9.5
Doña Ana	16	8
Santa Fe	13	6.5
San Juan	12	6
Eddy	11	5.5

Characteristic	Frequency	Percentage of Respondents
McKinley	10	5
Lea	9	4.5
Valencia	8	4
Chavez	7	3.5
Curry	7	3.5
Otero	5	2.5
Taos	5	2.5
Grant	4	2
Los Alamos	4	2
Luna	4	2
Quay	3	1.5
Socorro	3	1.5
Cibola	2	1
Roosevelt	2	1
Lincoln	1	0.5
Mora	1	0.5
Sierra	1	0.5
Torrance	1	0.5
Age		
20-29 Years	17	8.5
30-39 Years	40	20
40-49 Years	57	28.5
50-59 Years	54	27
60+ Years	32	16

*Note.* <sup>a</sup> Respondents could select more than one option, resulting in total absolute frequency higher than the total number of participants (n=200) in that category. This also resulted in a percentage total above 100% for that demographic characteristic. <sup>b</sup> STEM Disciplines.

### **Research Question 1: Quality Indicator Analysis**

The following descriptive analysis presents the results of participant responses to the quality indicator items in the questionnaire, in order to address the first research question, which asked:

- How do career and technical education (CTE) teachers perceive the importance of quality teaching indicators as they relate to what CTE teachers should know and be able to do?

As mentioned in Chapter Three, there were 76 individual items on the questionnaire that correspond to the 76 elements in Danielson's Framework for Teaching Evaluation Instrument (Danielson, 2014). Those 76 elements can be further grouped into 22 components and again into 4 domains. Analysis was done at the domain, component, and element level. Participants were asked to rank the importance of each item using a five point Likert-type scale with the following descriptors and values: Very Important (1); Important (2); Moderately Important (3); Of Little Importance (4); Unimportant (5). A sixth option of "Do Not Understand" was available to select if participants did not understand what the item was asking. For data analysis purposes, items rated as "Do Not Understand" were treated as missing data. Full descriptive data analysis results for all 76 items, as well as all 22 components, can be found in Appendix E.

Table 3 presents the mean and standard deviation values for all items within each domain. As summarized in this table, CTE teachers rated Domain 2 with the highest mean importance rating, followed by Domain 3, then Domain 1, and finally Domain 4. Despite the fact that there is some variation in mean scores between the domains, all domain means fell between a score of 1 (Very Important) and a score of 2 (Important). Paired-samples t-tests

were calculated between the means of all domains to determine if there was a statistical significance in the mean differences (see Table 4). Results indicate that there is a statistically significant difference between the means of all domains, with the exception of Domain 3 and Domain 1, which showed no statistically significant difference in their means.

Table 3

*Importance Rating by Domain – Means and Standard Deviations*

Domain (Number)	Mean	SD	n
Classroom Environment (2)	1.53	.419	200
Instruction (3)	1.59	.447	200
Planning and Preparation (1)	1.63	.449	200
Professional Responsibilities (4)	1.86	.495	200

*Note.* The following scale was used for all items in each domain: 1=Very Important; 2=Important; 3=Moderately Important; 4=Of Little Importance; 5=Unimportant. Items rated as “Do Not Understand” were treated as missing data.

Table 4

*Results of t-test Comparing Domain Means*

Domain Pairs	Mean Difference	p
Domain 2 – Domain 1	.100	.000*
Domain 2 – Domain 3	.065	.001*
Domain 2 – Domain 4	.338	.000*
Domain 3 – Domain 1	.035	.113
Domain 3 – Domain 4	.273	.000*
Domain 4 – Domain 1	.238	.000*

*Note.* \* Starred p-values indicate a statistically significant difference.

Tables 5 and 6 present the 10 most important and 10 least important rated elements across all domains, respectively. Several patterns emerge from examining the data in this



format. Within the 10 rated elements of highest importance (Table 5), six are from Domain 2, two are from Domain 1, one is from Domain 3, and one is from Domain 4. The predominance of Domain 2 (Classroom Environment) elements here corresponds with the higher mean rating given to Domain 2 as a whole (Table 3). Within the 10 rated elements of lowest importance (Table 6), seven are from Domain 4, one is from Domain 2, one is from Domain 1, and one is from Domain 3. The predominance of Domain 4 (Professional Responsibilities) elements here corresponds with the lower mean rating given to Domain 4 as a whole (Table 3). Also of note when examining the data in Tables 5 and 6, is that the standard deviation range for the 10 highest rated elements is from .348-.575, while the standard deviation range for the 10 lowest rated elements is from .789-1.007. This suggests that there was less variance and stronger rater agreement on elements rated with greater importance and there was more variance and less rater agreement on elements rated with lesser importance.

Relative to the first research question, the data presented in tables 3, 4, 5, and 6 suggest that as a whole, CTE teachers perceive the indicators of effective practice in the survey instrument as important in the practice CTE. The alignment of the Danielson Framework to the survey instrument suggests that from the perspective of CTE teachers, it may be a useful representation of what vocational teachers should know and be able to do. In general these data also show that overall, items in Domain 4: Professional Responsibilities were reported to be less important than items in the other domains.

Table 5

*Elements Rated with Greater Importance Across All Domains – Means and Standard Deviations*

Element (Domain Number)	Component	Mean	SD	n
Knowledge of content and the structure of the discipline (1)	1a	1.14	.348	200
Integrity and ethical conduct (4)	4f	1.19	.406	200
Knowledge of prerequisite relationships (1)	1a	1.25	.455	199
Expectations for learning and achievement (2)	2b	1.26	.448	200
Importance of the content and of learning (2)	2b	1.29	.464	200
Safety and accessibility of the physical environment (2)	2e	1.30	.503	200
Student interactions with other students, including both words and actions (2)	2a	1.30	.503	200
Student pride in work (2)	2b	1.31	.485	200
Communicating directions for activities (3)	3a	1.32	.499	200
Teacher interactions with students, including both words and actions (2)	2a	1.36	.575	200

*Note.* The following scale was used for all items in each component: 1=Very Important; 2=Important; 3=Moderately Important; 4=Of Little Importance; 5=Unimportant. Items rated as “Do Not Understand” were treated as missing data, reflecting a sample size of less than 200 on some elements.

Table 6

*Elements Rated with Lesser Importance Across All Domains – Means and Standard Deviations*

Element (Domain Number)	Component	Mean	SD	n
Tracking non-instructional records (4)	4b	2.53	1.007	187
Engagement of families in the instructional program (4)	4c	2.50	.904	199
Participation in school and district projects (4)	4d	2.34	.982	199
Supervision of volunteers and paraprofessionals (2)	2c	2.32	.994	188
Communicating with families about the instructional program (4)	4c	2.30	.864	199
Service to the school (4)	4d	2.19	.935	200
Communicating with families about individual students (4)	4c	2.10	.856	199
Organizing instructional groups (1)	1e	2.10	.928	200
Service to the profession (4)	4e	1.96	.789	198
Grouping of students (3)	3c	1.94	.852	200

*Note.* The following scale was used for all items in each component: 1=Very Important; 2=Important; 3=Moderately Important; 4=Of Little Importance; 5=Unimportant. Items rated as “Do Not Understand” were treated as missing data, reflecting a sample size of less than 200 on some elements.

### **Research Question 2: Comparing Domain Means by Years of Experience**

Tables 7 and 8 present the results of comparative analysis to address the second research question:

- Do years of experience teaching influence CTE teachers’ opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do?

In order to examine the second research question, two independent-samples t-tests were calculated to compare participant rated importance means within each domain for teachers based on years of experience. In the first, respondents were divided into two independent variable groups: early career teachers (those five years of experience or less overall) and experienced teachers (those with more than five years of experience). Refer to Table 2 for statistical information on these populations. As illustrated in Table 7, results indicate that there was a statistically significant difference between group means regarding the importance of Domain 1,  $t(198)=2.75$ ,  $p=.006$ ,  $d=.55$ ; Domain 2,  $t(198)=2.27$ ,  $p=.024$ ,  $d=.45$ ; Domain 3,  $t(198)=2.29$ ,  $p=.023$ ,  $d=.42$ ; and Domain 4,  $t(198)=2.42$ ,  $p=.017$ ,  $d=.44$ .

These findings provide justification for the rejection of the null hypothesis, that there is no statistically significant difference in the mean importance rating given to quality indicators based on years of experience teaching, across all four domains. Teachers with five years of experience or less on average rated all domains as more important than did teachers with more than five years of experience. Calculations for Cohen's  $d$  suggest effect size for these differences in rating to be in the small to medium range, with the strongest effect size in rater response to Domain 1 ( $d=.55$ ).

In the second independent-samples t-test, respondents were divided into two different independent variable groups relating to CTE teaching experience: early career CTE teachers (those five years of CTE experience or less) and experienced CTE teachers (those with more than five years of CTE experience). Refer to Table 2 for statistical information on these populations. As illustrated in Table 8, results indicate that there was a statistically significant difference between group means regarding the importance of Domain 1 only,  $t(198)=2.11$ ,

$p=.036$ ,  $d=.44$ . There was not a statistically significant difference between group means regarding the rated importance of Domain 2, Domain 3, and Domain 4.

These findings provide justification for the rejection of the null hypothesis, that there is no significant difference in the importance rating given to quality indicators based on years of experience teaching, for CTE teachers in only Domain 1. Teachers with five years of CTE teaching experience or less rated Domain 1 as more important than did teachers with more than five years of CTE experience. Calculations using Cohen's  $d$  suggest effect size for the differences in Domain 1 rating to be in the small to medium range ( $d=.44$ ).

Table 7

*Results of t-test Comparing Domain Importance by Years of Teaching Experience Overall*

Domain (Number)	Years of Teaching Experience				p
	$\leq 5$ (n=33)		$> 5$ (n=167)		
	M	SD	M	SD	
Planning and Preparation (1)	1.43	.431	1.67	.443	.006*
Classroom Environment (2)	1.38	.381	1.56	.421	.024*
Instruction (3)	1.43	.458	1.62	.439	.023*
Professional Responsibilities (4)	1.68	.520	1.90	.483	.017*

*Note.* \* Starred p-values indicate a statistically significant difference. Domain numbers refer all items within

Table 8

*Results of t-test Comparing Domain Importance by Years of Teaching Experience in CTE*

Domain (Number)	Years of Teaching Experience in CTE				
	≤5 (n=68)		>5 (n=132)		p
	M	SD	M	SD	
Planning and Preparation (1)	1.53	.409	1.67	.462	.036*
Classroom Environment (2)	1.49	.385	1.55	.435	.330
Instruction (3)	1.51	.436	1.64	.448	.057
Professional Responsibilities (4)	1.84	.489	1.88	.499	.557

*Note.* \* Starred p-values indicate a statistically significant difference.

### **Research Question 3: Comparing Domain Means by Discipline of Instruction**

Tables 9 and 10 present the results of comparative analysis to address the third research question:

- Does discipline of instruction influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do?

In order to examine the third research question, two independent-samples t-tests were calculated to compare participant rated importance means within each domain for teachers based on discipline of instruction. For the first test, respondents were divided into two independent variable groups: STEM teachers and non-STEM teachers. For the purpose of this analysis, STEM teachers were defined as any teacher who teaches in a STEM field, even if they also teach in another, non-STEM field. Refer to Table 2 for statistical information on these populations. As illustrated in Table 9, results indicate that there was not a statistically significant difference between group means regarding the rated importance of any domains.

In the second independent-samples t-test, respondents were divided into two independent variable groups: STEM-only teachers and non-STEM teachers. STEM-only teacher were defined as individuals who teach in STEM fields, but not in any non-STEM fields. Eighteen respondents that were identified as teaching in both STEM and non-STEM fields were excluded from this analysis. Refer to Table 2 for statistical information on these populations. As illustrated in Table 9, results indicate that there was not a statistically significant difference between group means regarding the rated importance of any domains. The findings from both t-tests do not provide justification for the rejection of the null hypothesis, that there is no statistically significant difference in the importance rating given to quality indicators based on the discipline of instruction. Teachers teaching in STEM disciplines and those working in non-STEM disciplines have mean domain ratings that are statistically similar in terms of importance.

Table 9

*Results of t-test Comparing Domain Importance by Discipline of Instruction – All STEM Teachers*

Domain (Number)	Discipline of Instruction				
	STEM (n=91)		Non-STEM (n=109)		p
	M	SD	M	SD	
Planning and Preparation (1)	1.65	.485	1.61	.418	.567
Classroom Environment (2)	1.56	.419	1.50	.418	.255
Instruction (3)	1.61	.458	1.58	.439	.669
Professional Responsibilities (4)	1.92	.528	1.82	.463	.143

Table 10

*Results of t-test Comparing Domain Importance by Discipline of Instruction – Only STEM Teachers*

Domain (Number)	Discipline of Instruction				
	STEM-Only (n=73)		Non-STEM (n=109)		p
	M	SD	M	SD	
Planning and Preparation (1)	1.64	.473	1.61	.418	.698
Classroom Environment (2)	1.58	.419	1.50	.418	.211
Instruction (3)	1.62	.481	1.58	.439	.580
Professional Responsibilities (4)	1.94	.502	1.82	.463	.098

#### **Research Question 4: Comparing Domain Means by Level of Education**

Table 11 presents the results of comparative analysis to address the fourth research question:

- Does level of education influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do?

In order to examine the fourth research question, an independent-samples t-test was calculated to compare participant rated importance means within each domain for teachers based on level of education. Respondents were divided into two independent variable groups: those with less than a bachelor's degree and those with a bachelor's degree or higher. Refer to Table 2 for statistical information on these populations. As illustrated in Table 11, results indicate that there was a statistically significant difference between groups regarding the importance of Domain 4 only,  $t(198)=2.52$ ,  $p=.013$ ,  $d=.80$ . These findings provide justification for the rejection of the null hypothesis, that there is no significant difference in the importance rating given to quality indicators based on level of education, for only



Domain 4. Teachers with less than a bachelor's degree rated Domain 4 as more important than did teachers with a bachelor's degree or higher. Calculations using Cohen's  $d$  suggest effect size for the differences in Domain 4 rating to be in the large range ( $d=.80$ ).

Table 11

*Results of t-test Comparing Domain Importance by Level of Education*

Domain (Number)	Level of Education					p
	Less Than Bachelor's (n=12)		Bachelor's or Higher (n=188)			
	M	SD	M	SD		
Planning and Preparation (1)	1.44	.406	1.64	.450	.134	
Classroom Environment (2)	1.46	.414	1.53	.420	.542	
Instruction (3)	1.44	.501	1.60	.443	.224	
Professional Responsibilities (4)	1.51	.457	1.89	.490	.010*	

*Note.* \* Starred p-values indicate a statistically significant difference.

### **Research Question 5: Comparing Domain Means by Licensure Type**

Tables 12 and 13 present the results of comparative analysis to address the fifth research question:

- Does type of teacher licensure influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do?

In order to examine the fifth research question, two independent-samples t-tests were calculated to compare participant rated importance means within each domain for teachers based on type of licensure. For the first test, respondents were divided into two independent variable groups: all teachers with a Secondary Vocational-Technical teaching license and those without a Secondary Vocational-Technical teaching license (see Table 12). Refer to

Table 2 for statistical information on these populations. As illustrated in Table 12, results indicate that there was not a statistically significant difference between group means regarding the rated importance of any domains. The findings from this t-test does not provide justification for the rejection of the null hypothesis, that there is no statistically significant difference in the importance rating given to quality indicators based on the type of licensure.

In the second independent-samples t-test, respondents were divided into two independent variable groups: teachers with *only* a Secondary Vocational-Technical teaching license and those without a Secondary Vocational-Technical teaching license (see Table 13). Thirty-two respondents that were identified as having a Secondary Vocational-Technical teaching license and one or more other types of teaching license were excluded from this analysis. As illustrated in Table 13, results indicate that there was a statistically significant difference between group means regarding the importance of Domain 2,  $t(166)=2.17$ ,  $p=.031$ ,  $d=.38$  and Domain 3,  $t(166)=2.03$ ,  $p=.044$ ,  $d=.36$ . There was not a statistically significant difference between group means regarding the rated importance of Domain 1 and Domain 4. The findings from this second t-test provide justification for the rejection of the null hypothesis, that there is no significant difference in the importance rating given to quality indicators based on type of licensure, for CTE teachers in Domain 2 and Domain 3. Teachers with only a Secondary Vocational-Technical teaching license rated Domain 2 and Domain 3 as less important than did teachers who did not have a Secondary Vocational-Technical teaching license. Calculations using Cohen's  $d$  suggest effect size for the differences in Domain 2 and Domain 3 means to be in the small to medium range ( $d=.38$  and  $d=.36$ , respectively).

Table 12

*Results of t-test Comparing Domain Importance by Licensure – Licensure Type*

Domain (Number)	Licensure Type					p
	Vocational-Tech. (n=75)		Non-Vocational- Tech. (n=125)			
	M	SD	M	SD		
Planning and Preparation (1)	1.63	.462	1.62	.442	.873	
Classroom Environment (2)	1.54	.442	1.52	.406	.615	
Instruction (3)	1.60	.452	1.59	.446	.841	
Professional Responsibilities (4)	1.83	.512	1.89	.485	.496	

Table 13

*Results of t-test Comparing Domain Importance by Licensure – Licensure Type*

Domain (Number)	Licensure Type					p
	Vocational-Tech. Only (n=43)		Non-Vocational- Tech. (n=125)			
	M	SD	M	SD		
Planning and Preparation (1)	1.70	.462	1.62	.442	.341	
Classroom Environment (2)	1.68	.442	1.52	.406	.031*	
Instruction (3)	1.75	.452	1.59	.446	.044*	
Professional Responsibilities (4)	1.95	.512	1.89	.485	.468	

*Note.* \* Starred p-values indicate a statistically significant difference.

### **Conclusion**

Data analysis from this study clearly indicates that overall, CTE teachers rated as important the quality teaching indicators represented by the elements within Danielson's Framework (Danielson, 2014). The exact level of importance differed between the domains and between some subgroups of the sample, but at the domain level all mean scores fell

between “Important” and “Very Important”. Even at the individual item/element level, all mean scores were at least above “Moderately Important”, with the majority at or above “Important”. Despite the generally favorable ranking given to all domains and the elements within those domains, across all categories of the population, Domain 4 was consistently ranked as less important than the other three domains.

In examining subgroups within the sample, the data suggest some comparative differences in the ranking of domain importance. Years of teaching experience as a category for analysis provided the most compelling difference across all four domains. Using level of education as a category suggested a difference in opinion for Domain 4, and licensure type suggested a difference for Domains 2 and 3. There was no statistically significant difference in mean domain ranking scores based on comparisons with STEM as a discipline of instruction. In Chapter Five that follows, a detailed summary of the findings and discussion of the implications are presented.

## Chapter Five

### Summary and Discussion

The final chapter of this dissertation is divided into two parts. The first section reviews the focus of the study and statement of the problem, reviews the methodology for conducting the research, and summarizes the results presented in Chapter Four. The second section discusses interpretation of the results, applications for practice, further recommendations for study, and limitations to the research.

#### Summary

As discussed in Chapter One, the focus of this research was to examine the perceptions of career and technical education (CTE) teachers regarding the importance they assign to various quality indicators in the practice of teaching. Utilizing the Danielson Framework for Teaching Evaluation Instrument (Danielson, 2014) to inform the collection of data, the study sought to identify areas of agreement and disagreement regarding the importance of teacher practice among CTE teachers in New Mexico. The study employed a quantitative approach to data collection and analysis, with the goal of accruing evidence that would support decisions in the preparation and professional development of vocational educators. This comes at a time of rising importance for the role of CTE in public education (Association for Career and Technical Education, 2016; Dougherty & Lombardi, 2016).

Public discourse on the purpose of public education in the United States has, over the last few decades, increasingly focused on how our schools should prepare students with the skills and dispositions needed for success in college *and* career (Dougherty & Lombardi, 2016; Gordon 2014). While the idea that schooling should prepare students for professional success in life is not new, what has changed is the understanding of what skills and

knowledge are needed in the new, globalized economy and in turn, the role vocational education will play in that process (Rojewski, 2009). Career and technical education has a long and separate history from traditional academic education, both in terms of delivery and in the training of teachers (Gordon, 2014; Lynch, 1997; Walter & Gray, 2002). Yet, recent trends in education have begun to bring them closer together, including legislative requirements to integrate CTE disciplines with core academic learning and standards, and policy regulations for teacher evaluation systems that include all teachers, regardless of discipline (Center for American Progress and the Council of Chief State School Officers, 2014; Darling-Hammond, 2009; Darling-Hammond et al., 2014; Doherty & Jacobs, 2013).

Nevertheless, this tendency toward the integration of vocational and academic educational tracks is still at odds with the realities of CTE preparation and recruitment. Pathways to licensure in CTE vary widely and it is not uncommon to encounter state licensure requirements for CTE that require only a minimum of a high school diploma or GED coupled with workplace experience in the field of study (Zirkle et al., 2007). Additionally, the population of individuals who go into CTE is unique from the population that goes into general track teaching in both the amount of education they receive and the amount of real-world work experience they have in their discipline (Green, 2015; Lynch, 1997; McCaslin & Parks, 2002; Walter & Gray, 2002). Moving from vocational content area work experience into CTE teaching is more common than say, trained historians leaving jobs in their field to become history teachers. Finally, the practice of CTE is grounded, both historically and pragmatically, in hands-on, experiential learning, which may differ from approaches in traditional “academic” teaching and teacher education (Clark et al., 2010; Rojewski, 2009).

As long as there are alternate pathways for CTE teachers, recruitment that occurs from within the job market, and unique pedagogies for vocational classroom practice, there remains a need to focus on what makes for quality specifically within CTE settings, both for teachers and teacher educators. While there are theoretical models in the literature that frame what good CTE practice should look like (Lynch, 1997; McCaslin & Parks, 2002; Walter & Gray, 2002), there is limited research on the perceptions of CTE teachers themselves with regard to what knowledge and skills are needed in the classroom. In a recent examination of research needs in CTE, Kosloski and Ritz (2016) identified five areas of academic scholarship need related to CTE teacher education. The first three of these gaps in the research were (a) factors impacting career and technical education teacher preparation quality; (b) factors impacting career and technical education teacher quality for lateral-entry candidates; and (c) effective content and delivery methods for training effective CTE teachers. These needs relate to this study, as it aimed to investigate the perspectives of CTE teachers with regard to quality teaching such that it might inform the development and delivery of CTE teacher preparation.

New Mexico, where this study was conducted, experiences many of the challenges in aligning the work of vocational and traditional educators, while recognizing the unique attributes of CTE teachers and pathways to CTE licensure. For example, teachers seeking their Secondary Technical-Vocational teaching license in New Mexico are not required to take any coursework in teacher education and can be issued a temporary license with as little as a high school degree and five years of work experience in their occupational field. This differs considerably from all other pathways to licensure in the state, where a minimum of a bachelor's is required, along with an approved pathway requiring at least some pedagogical

coursework. Nevertheless, all teachers are subject to the same annual evaluation criteria, a performance rubric derived from the Danielson Framework (Danielson, 2014; New Mexico Public Education Department, n.d.-b). Given this diversity of teacher populations but consistency of expectations, this study aimed to explore how CTE teachers conceive of good practice relative to common indicators of teacher quality.

### **Review of the Methodology**

The population for this study included all current CTE teachers in the State of New Mexico, and all former CTE teachers in New Mexico with at least five years of experience teaching in CTE. Data collection procedures involved sending out a recruitment email with the online survey instrument link to publicly available email addresses of CTE teachers across the state. Recruitment email recipients and questionnaire completers were also asked to forward the instrument link to any other CTE teachers who met the criteria and might be interested. Finally, the Executive Director of the state chapter of the Association for Career and Technical Education forwarded the recruitment email to their electronic mailing list.

The survey instrument was adapted from an existing questionnaire used by Sweeley (2004) to investigate the extent to which teachers agree that the elements in Danielson's Framework (1996) are important to effective teaching and learning. This instrument was adapted to account for three things: changes to the number and content of items in the framework that occurred in more recent editions (Danielson, 2007, 2014), differences in language between different versions of the framework, and changes to the grammar of items to provide clarity and alignment to the research questions for this study. The instrument contained a total of 76 items on a five point Likert-type scale, asking participants to rate the importance of each teaching practice, in addition to demographic questions.



Data from the questionnaire responses were analyzed using descriptive and comparative statistics with the statistical software program IBM SPSS, version 25. Frequencies and percentages were calculated for all demographic questions. Means and standard deviations were calculated for all 76 individual items in the instrument, as well as for all items within each of the 22 component and four domains, as outlined in the Framework for Teaching (Danielson, 2014). Comparative analysis utilizing independent-samples t-tests was used to find statistically significant differences in the mean scores between various groups within the sample. Effect size calculations using Cohen's *d* (Cohen, 1969) were done for all t-test items that showed a statistically significant difference in mean scores. The research questions were: (a) How do career and technical education (CTE) teachers perceive the importance of quality teaching indicators as they relate to what CTE teachers should know and be able to do? (b) Do years of experience teaching influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do? (c) Does discipline of instruction influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do? (d) Does level of education influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do? (e) Does type of teacher licensure influence CTE teachers' opinion regarding the importance of quality teaching indicators CTE teachers should know and be able to do?

## **Results**

As discussed in the Chapter Four, the total sample included 200 valid responses after excluding incomplete surveys and ineligible participants. As a group, the sample was diverse relative to years of teaching experience, location, discipline of instruction, licensure type,

level of education, and age. Within level of education, it is important to note that only six percent of the respondents had less than a bachelor's degree, despite the pathway that exists for individuals in New Mexico to obtain vocational licensure without a bachelor's degree.

**Research question one: CTE teacher perceptions of quality teaching indicators.**

Relative to the first research question, the mean ratings for all domains fell within a range of “Very Important” (score of 1) to “Important (score of 2), suggesting that as a whole, CTE teachers found the Danielson Framework to be a useful representation of what vocational teachers should know and be able to do. On average, CTE teachers found items in Domain 2: Classroom Environment to be most important, followed by Domain 3 and then Domain 1. Items in Domain 4: Professional Responsibilities were reported to be least important. The differences in mean scores between domains were found to be statistically significant, except in the case of the mean scores between Domain 3 and Domain 1. These findings partially correspond to the findings of Olson (2015), who used a similar tool to gauge award-winning teachers' agreement on the importance of Danielson's framework. He found that teachers in his study also rated the elements in Domain 4, on average, as less important than the other domains, and that Domains 3 and 2 ranked highest, in that order.

Of the 10 individual elements rated as most important in this study of CTE teachers (Table 5), five of the items had to do with communication and interactions with students. Three of the items had to do with the importance of content, one item had to do with ethical conduct (the only item from Domain 4), and one had to do with the physical environment of the classroom. Of the 10 individual elements rated as least important in this study of CTE teachers (Table 6), four had to do with organizational tasks, three had to do with family engagement, and three had to do with professional responsibilities outside of the classroom.

It should be noted, that even among the lowest rated elements on the questionnaire, the average scores still fall between “Important” (score of 2) and “Moderately Important” (score of 3). One final observation, as mentioned in Chapter 4, is that the highest rated elements all had smaller standard deviations as a whole, suggesting more rater agreement, while the lower rated elements had larger standard deviations, suggesting less rater agreement on those items.

**Research question two: Comparing years of experience.** The second research question examined how years of teaching experience influenced teacher perception of the quality indicators in the framework. Comparative groups were divided into those with five years or less of experience and those with more than five years, as a means to examine the views of early career teachers relative to more experienced educators. Research has found that beginning teachers are unique in their experiences, are more susceptible to attrition, and have distinct professional needs compared to teachers with more experience (Buchanan et al., 2013; Darling-Hammond et al., 2013; Inman & Marlow, 2004; Ruhland & Bremer, 2002). Teachers with five years or less of teaching experience overall reported higher importance rating across all four domains than did more experienced teachers. These differences were all statistically significant and had effect size values between .42 and .55. In calculating effect size, Cohen (1969) suggests that a *d* value of .5 can be considered medium and, “conceived as one large enough to be visible to the naked eye,” (p. 24) to the extent that over time such differences would make themselves apparent to the observer. Although Cohen cautions that the terms and values associated with small, medium, and large effect sizes are relative and not necessarily conventional operational definitions for all contexts, they nonetheless provide a useful frame of reference for understanding the implications of statistical differences in means.

In addition to examining the differences between early career and more experienced teachers, the sample was also examined for differences relative to years of teaching experience in CTE. As noted in the demographic information in Table 2, the distribution of years of experience was not equivalent between CTE settings and all settings overall. There was a higher number of teachers with five or less years of teaching in CTE than with five or less years of teaching experience overall. This implies that there are many teachers with experience teaching in both CTE and non-CTE fields, and that many teachers who are new to CTE have previous teaching experience in other settings. In comparing mean scores between beginning and experienced CTE teachers, the differences noted previously with early career teachers were not as prevalent. Although beginning CTE teachers had mean scores indicating greater importance within all domains, only the difference in Domain 1: Preparation and Planning showed statistical significance.

**Research question three: Comparing discipline of instruction.** The third research question examined how discipline of instruction influenced teacher perception of the quality indicators in the framework. As noted in Table 2, there were a variety of different content areas represented in the responses of participants, with many individuals teaching in more than one area. In order to examine this research question, teachers were divided to those teaching in STEM (science, technology, engineering, and math) fields and those who were not. The prevalence of STEM fields in CTE has grown considerably over the past several decades (Drage, 2009), making this distinction worth investigating. Indeed, the largest content area represented in this study consisted of Information Technology teachers by a considerable margin (see Table 2). In the first comparison, the mean scores of all teachers who taught in one or more STEM fields were compared against the mean scores of all

teachers who did not teach in any STEM fields. Note that the STEM-identified teacher group could include individuals who taught in *both* STEM and non-STEM fields. In the second comparison of means, the teachers who did not exclusively teach in STEM fields (for example, someone who taught Information Technology *and* Business) were excluded resulting in a lower n for that analysis. In both cases, although the STEM teachers rated all domains as less important, there was no statistical significance in these differences. This suggest, at least with regard to STEM as a field of study, there is relative homogeneity regarding how CTE teachers in these two groups view the importance of the teaching practices as represented in the questionnaire.

**Research question four: Comparing level of education.** The fourth research question examined how level of education influenced teacher perception of the quality indicators in the framework. As noted previously, teaching in CTE as an occupational track is notably different from other areas of professional teaching in the ability of individuals without bachelor's degrees to become licensed teachers. This is true on a national level as well as in New Mexico, where this study took place (New Mexico Administrative Code, n.d.; Zirkle et al., 2007). Despite this fact, the numbers of teachers represented in this study who reported an education level below that of a bachelor's degree was only 12 out of 200 total respondents. Notwithstanding the relative imbalance in the size of each group (12 to 188), the decision was made to use the bachelor's degree as a cutoff due to the unique nature of CTE licensing. Comparative analysis between the mean scores of both groups showed that while teachers without a bachelor's degree uniformly rated all domains as more important, there was only statistical significance relative to Domain 4: Professional Responsibilities. The effect size for the difference in Domain 4 is considered large ( $d=.8$ ) according to the

guidelines set forth by Cohen (1969), however due to the limitations inherent in unbalanced sample sizes, these results should be approached with some reservation.

**Research question five: Comparing licensure type.** The fifth research question examined how licensure type influenced teacher perception of the quality indicators in the framework. Like in many of the other demographic categories that were surveyed, licensure type allowed respondents to select more than one option, due to the fact that many teachers hold more than one license. For this reason, two comparative analyses were run to examine difference in mean scores between having a Secondary Vocational-Technical license against not having one. The first compared the mean scores of all individuals with a Secondary Vocational-Technical license (even if they also had other licenses) against all those without a Secondary Vocational-Technical license. No patterns emerged from this analysis and none of the differences were of statistical significance. The second test compared the mean scores of those individuals with only a Secondary Vocational-Technical license (and no other license) against all those without a Secondary Vocational-Technical license. In the second analysis, this excluded 32 cases where individuals had other licenses in addition to the Secondary Vocational-Technical license. Teachers with a Secondary Vocational-Technical license scored all domains as less important than individuals without the license, and statistical significance was found in the mean differences for Domain 2: Classroom Environment and Domain 3: Instruction. The effect size for both domains ( $d=.38$  and  $d=.36$ , respectively) was in the small (.2) to medium (.5) range (Cohen, 1969).

## **Discussion**

This study was conducted to help bring understanding to how CTE teachers conceptualize meaningful practice in CTE settings. The use of the Framework for Teaching

(Danielson, 2007) as a conceptual schema for effective teaching was pragmatic for several reasons. As described in Chapter Two, the framework is aligned to constructivist theory and approaches to teaching. This corresponds well with the constructivist strand of CTE that finds its roots in the ideas of John Dewey (Dewey, 1916; Dewey, 1938) and therefore provides a mechanism for examining teacher practice within a theoretically consistent context (Lynch, 1997; McCaslin & Parks, 2002). Also of importance is the structure of the Framework for Teaching, which presents larger constructs through each of the domains, yet is broken down into discrete, observable, and evaluative elements. This makes the use of the framework as a tool, particularly user friendly. Finally, the Danielson Framework has become a model upon which many teacher evaluation systems have been built, including the New Mexico NMTEACH observation protocol, which has been in use since 2012 (New Mexico Public Education Department, n.d.-a).

While it is inappropriate to make generalizations about all CTE teachers' perceptions of effective practice based on just this one study, it is notable that, on average, teacher responses indicated relative agreement on the importance of the indicators in each domain. That is to say, vocational teachers in this study believe that the framework accurately reflects the knowledge and skills teachers must have to be effective in the classroom. From this broad perspective, these findings reaffirm the value of the Framework for Teaching (Danielson, 2007) as a guide to be used in the preparation and professional development of CTE teachers (McCaslin & Parks, 2002). Despite the historical, practical, and theoretical differences between CTE and the teaching profession as a whole, this may be one important area of common ground.

This idea that good teaching practice in CTE classrooms mirrors good teaching practice for all classrooms—at least relative to the Danielson Framework for Teaching (Danielson, 2007), but perhaps beyond—has potential implications for how we approach the preparation and professional development of CTE teachers. The wide body of knowledge on meaningful and effective teacher education (Darling-Hammond, 2006; Feiman-Nemser, 2008; Hammerness et al., 2005; Zeichner, 2012), including work grounded in constructivist approaches to learning, would seem to be a good fit for addressing the needs of CTE contexts. Inversely, it means that the unique character of CTE, which is ideally experienced-based, occupationally focused, and oriented toward the edification of the individual in society (Dougherty & Lombardi, 2016; Green, 2015; Lynch, 1997; McCaslin & Parks, 2002; Walter & Gray, 2002), may have something to offer approaches to the development of teachers in all settings. Within this frame of understanding the connections between vocational and academic education, further investigation might look to examine how core aspects of CTE, which are informed by pragmatism as a philosophy and constructivism as a theory, could help ground and inform other areas of teacher education.

Looking more specifically at the mean ratings of each individual domain gives insight into the opinions of CTE teachers concerning what kinds of practice they find most important. Although all domain means were rated between “Important” and “Very Important”, one relevant observation is the relatively lower rating that was consistently given in Domain 4: Professional Responsibilities, compared to the other domains. This occurred not only in the sample as a whole, but within every subgroup for which comparative analysis was done. These findings may not be unique to CTE teachers. Three other research studies utilizing the Danielson Framework (2007) to survey teacher perceptions also reported lower



mean scores for Domain 4 compared to the other three domains (Doerr, 2012; Olson, 2015; Sweeley, 2004). This trend was also observed in the list of the 10 elements rated as least important, where seven of the 10 were from Domain 4. Although there is no clear evidence from these data to suggest why this trend occurred, one hypothesis could have to do with the nature of teaching today. With the increased demands for accountability and evaluation (of both student and teacher), the high levels of teacher burnout and attrition in the profession, and the push for college and career readiness, it is possible that teacher attention is uniformly more directed toward the immediate concerns of the classroom, as opposed to the professional responsibilities outside of the class or external to the acute demands of student learning (Buchanan et al., 2013; Inman & Marlow, 2004). As the name of the domain implies, many of the items in Domain 4 relate to important professional responsibilities that teachers take on as part of the job, but not necessarily items that relate to the act of instruction within the classroom.

This idea is somewhat substantiated when looking at the elements within the lists of most and least important items (Tables 5 and 6). Examining the list of least important items, it could be argued that the following eight items (seven of which are from Domain 4) relate to tasks or responsibilities external to the immediate instructional concerns in the classroom: (a) Tracking non-instructional records; (b) Engagement of families in the instructional program; (c) Participation in school and district projects; (d) Supervision of volunteers and paraprofessionals; (e) Communicating with families about the instructional program; (f) Service to the school; (g) Communicating with families about individual students; (h) Service to the profession. By contrast, examining the list of most important elements it could be argued that the following nine items all have to do with instructional concerns within the

classroom: (a) Knowledge of content and the structure of the discipline; (b) Knowledge of prerequisite relationships; (c) Expectations for learning and achievement; (d) Importance of the content and of learning; (e) Safety and accessibility of the physical environment; (f) Student interactions with other students, including both words and actions; (g) Student pride in work; (h) Communicating directions for activities; (i) Teacher interactions with students, including both words and actions. Further research is needed to determine if such trends are in fact related to how teachers perceive their job requirements relative to the responsibilities and expectations of the teaching field today.

There are also implications to the comparative analyses that were done based on demographic characteristics, as the data suggest some relevant findings. As noted previously, beginning teachers rated, on average, all domains as more important than did more experienced teachers by statistically significant margins. Of all the t-tests calculated, this was the only one to show significance across all domains. Although both groups still had average ratings that indicated they viewed the items in all domains with at least a base level of importance, the higher ratings given by early career teachers suggest that this population is unique relative to their views on indicators of teacher quality or the Framework for Teaching in particular. One possibility for this difference could be the familiarity that beginning teachers in New Mexico have with the NMTEACH rubric. The NMTEACH rubric, which again is derived from the Framework for Teaching Evaluation Instrument (Danielson, 2014), was first introduced to New Mexico teachers in 2012. This means that teachers in New Mexico with five years or less of teaching experience in classrooms have for their entire career been exposed to an evaluative framework very similar to the Framework for Teaching upon which the survey instrument was built. In addition to the use of the NMTEACH rubric

in schools, many teacher education programs around the state have begun using the rubric or aligned frameworks in the evaluation of teacher candidates, which would further expose new teachers to the rubric structure and its purpose. Being familiar with and understanding the purpose of the various elements, components, and domains of effective teaching practice might make teachers more positive toward the instrument used in this study. Another related possibility is the reality that most new teachers enter the profession with positive attitudes toward teaching that often dissipate over time as individuals experience burnout (Buchanan et al., 2013; Inman & Marlow, 2004). This positivity may be what is reflected in the higher mean ratings on the survey items. Further research could examine the ways in which early exposure to teaching frameworks shapes teachers' perceptions of those frameworks.

The CTE teachers in this study who had less than a bachelor's degree also rated all domains highly, and in comparison to those with a bachelor's degree or higher the difference was statistically significant for Domain 4 with a large effect size, the largest of any groups for which comparative analysis was done. As mentioned previously, due to the small number of individuals with less than a bachelor's degree ( $n=12$ ), the groupings were numerically unbalanced and these results should be approached cautiously. Nevertheless, considering what factors contributed to this difference may provide insight into the beliefs and needs of vocational teachers without a four-year degree. It is likely that those individuals without a bachelor's degree or higher have come to the teaching profession without any formal pedagogical training. As noted in Chapter One, it is possible to receive a Secondary Vocational-Technical license without taking any coursework in the practice of teaching. For individuals without this preparation, it could be that the NMTEACH rubric and/or the Framework for Teaching provide a more meaningful guideline for their professional

expectations as teachers. Further exploration of this trend would require a larger sample size, and perhaps more qualitative investigations into this unique population.

The final comparative analysis for which there was statistical significance involved individuals who have only a New Mexico Secondary Technical-Vocational license. This group rated all domains as less important than those without the license, with statistical significance for Domain 2 and Domain 3. Individuals with only this license, it could be hypothesized, are distinct as a population in that they represent teachers who are only able to teach in CTE contexts. Additionally, these are individuals for whom content and trade knowledge, specifically through occupational experience, is the basis of the licensure requirements (New Mexico Administrative Code, n.d.). Green (2015) noted the unique character of CTE teachers from an occupational background and the degree to which their job experienced influenced perceptions of teaching more than any pedagogical training. Since Domains 2 and 3 are focused on the pedagogical factors of classroom environment and instruction, and not on content or occupational knowledge, it could be hypothesized that this accounts for the difference in ratings from a Secondary Technical-Vocational license.

### **Applications for Practice**

The findings from this study have practical applications for CTE teacher educators, administrators, and CTE teachers themselves. In considering how to apply these findings it is helpful to first step back and examine the larger picture. In a field where increasing accountability and the widespread adoption of evaluative measures have become commonplace for teachers, the importance and permanence of formal frameworks for delineating what effective practice looks like is well established. Considering the Framework for Teaching (Danielson, 2007) as a whole, this research study finds that it is a useful and

accepted standard for what CTE teachers believe should be practiced in classrooms and in the profession. Teacher educators would do well to engage teacher candidates in critical examinations of the domains, components, and elements within this framework in order to piece apart what they mean and how to apply them.

Teaching is not merely a technocratic endeavor, however, and teachers need to have critical engagement, thinking, and reflection skills to effectively meet the demands of the pragmatic-constructivist classroom (Clark et al., 2010; Giroux, 1988; Kincheloe, 1993; Lynch, 1997; McCaslin & Parks, 2002). These processes, so important in the work of constructivist educators, and embedded within the professional practice domain of the Framework for Teaching itself, are inherently intertwined (Cargas, Williams, & Rosenberg, 2017) and essential for being able to apply the various descriptors of effective practice in the framework to the specific demands of the classroom (Danielson, 2007).

This means that administrators and those responsible for evaluating teachers are wise to understand this and approach the framework as a professional development tool first, helping vocational teachers to translate evaluative rubrics into opportunities for improved practice, as Danielson herself recommends (Danielson, 2007; Danielson, 2016). Perhaps most importantly, as vocational teachers work to become better in their job of supporting students while simultaneously meeting the evaluative standards set for them, they can utilize the elements in this framework to guide their practice. In the end, the differences in ratings between and among the various elements and domains on the survey instrument in this study are relatively minor. As a whole, all domains means were rated as greater than “Important”, and no individual item means were scored as less than the midpoint between “Important” and “Moderately Important”. That is to say that the individual ratings given to items in this study

may be of less importance than the discourse that could be potentially generated from deep and active engagement with each of these items in the very real task of educating students.

### **Research Limitations**

Like all research, this study has limitations that minimize the generalizability of the findings. First, this study utilized a convenience sample for the collection of data. Not only is it unknown if all members of the target population, current and former CTE teachers in New Mexico, received the survey instrument, the factors that influenced voluntary participation are unknown. It is possible, for example, that those who chose to participate were teachers with already stronger dispositions toward sharing professional knowledge, which may have affected their responses. A second limitation in this study is that teachers self-reported responses to the questionnaire. While it is assumed that respondents were truthful and spent the time to think deeply about each item, these conditions cannot be confirmed. A third limitation to this research is the fact that it drew from a population of teachers in New Mexico, and the findings may not have applicability in other regional contexts. Finally, this research utilized a quantitative approach to data collection that inherently limited the responses that participants could give. There were no opportunities in the survey instrument to contextualize answers or provide detailed explanations, and participants were only able to rate items according to the scale provided. This limitation means that potentially more nuanced data were precluded from analysis.

### **Recommendations for Further Study**

Studying the value of professional teaching frameworks, particularly the Framework for Teaching (Danielson, 2007), as they relate to the work of CTE teachers has other potential research directions. Qualitative studies that consist of interviews, observations, or

focus groups could provide a deeper understanding of the findings from this study. Of particular interest might be the reasons for differentiated ratings between individual items and the domains as a whole, for example the consistently less important ratings given to Domain 4 and the elements within it. Data collected and analyzed from such research might help, for example, teacher educators or administrators to better understand how to support teachers in those areas. Other areas of potential future research are the sub-populations within the sample studied here. Of particular interest are vocational teachers without a bachelor's degree, who made up a relative small percentage of the respondents in this study, but who are unique in many ways from the larger population of CTE and general academic teachers. Future studies could specifically seek out these individuals to better understand their professional strengths and needs.

### **Conclusion**

This study was designed to examine the perceptions of CTE teachers regarding indicators of quality practice as manifest in Danielson's Framework for Teaching. Findings suggest that vocational teachers find both the larger organizational categories of professional practice, as well as the individual indicators, to be important for teaching in CTE contexts. Survey instrument items that focused on skills and knowledge needed for the immediacy of the classroom tended to be rated higher than items focused on professional responsibilities outside the classroom. The findings have implications for practice among teachers, administrators, and teacher educators. Nonetheless, there are limitations to this study that are important to bear in mind, and that suggest the need for future research.

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**Appendix A:****CTE Teaching Quality Indicator Survey****SCREENING QUESTION:**

Do you currently teach, at least part time, in a career and technical (CTE) / vocational field in New Mexico?

OR

Are you retired with at least 5 years of experience teaching in a career and technical (CTE) / vocational field in New Mexico?

NOTE: If you are unfamiliar with the discipline areas that are considered CTE / Vocational, please see <https://careertech.org/career-clusters>)

YES / NO

(If response is YES, participant taken to CONSENT STATEMENT, and then to the survey below. If response is NO, participant is exited from the survey.)

**PART 1: DEMOGRAPHIC INFORMATION**

This part of the survey will ask you basic information about where and what you teach in CTE fields.

1. New Mexico County in which you teach or taught CTE at the secondary level (choose all that apply):
  - a. Bernalillo
  - b. Catron
  - c. Chaves
  - d. Cibola
  - e. Colfax
  - f. Curry
  - g. De Baca
  - h. Dona Ana
  - i. Eddy
  - j. Grant
  - k. Guadalupe
  - l. Harding
  - m. Hidalgo
  - n. Lea
  - o. Lincoln
  - p. Los Alamos
  - q. Luna
  - r. McKinley
  - s. Mora

- t. Otero
  - u. Quay
  - v. Rio Arriba
  - w. Roosevelt
  - x. Sandoval
  - y. San Juan
  - z. San Miguel
  - aa. Santa Fe
  - bb. Sierra
  - cc. Socorro
  - dd. Taos
  - ee. Torrance
  - ff. Union
  - gg. Valencia
2. Are you currently teaching in a CTE field:
    - a. Yes
    - b. No
  3. What secondary level do/did you teach CTE in
    - a. Middle School
    - b. High School
  4. Total years of teaching experience:
  5. Total years of teaching experience in CTE:
  6. Content areas that you currently teach in CTE:
  7. NM PED Professional teaching licenses held (check all that apply):
    - a. Secondary Vocational-Technical (7-12)
    - b. Secondary (7-12)
    - c. Middle School (5-9)
    - d. Elementary (K-8)
    - e. Special Education (PreK-12)
    - f. Early Childhood (B-3)
    - g. Specialty Area License (PreK-12)
    - h. None
    - i. Other
  8. Route to Teaching Licensure (check all that apply):
    - a. Four-year Bachelors Program
    - b. Masters Program
    - c. Alternative Licensure Program
    - d. NM Vocational-Technical PDP Route (Professional Development Plan)
    - e. NM Vocational-Technical Credit Hour Route (15+ Credit Hours in CTE Teacher Preparation Coursework)
    - f. OPAL Online Portfolio Alternative Route
    - g. NMTEACH Alternative Route
    - h. Other
  9. Licensure Level:
    - a. Alternative Level I

- b. Level I
  - c. Level II
  - d. Level III
  - e. None
10. Highest level of education completed:
- a. High School or GED
  - b. Some post-secondary, no degree or cert
  - c. Post-secondary leading to certificate
  - d. Associate's Degree
  - e. Bachelor's Degree
  - f. Master's Degree
  - g. Doctoral Degree

## PART 2: TEACHING ELEMENTS

### Directions:

The purpose of this survey is to gain a better understanding of what CTE teachers consider important in terms of effective teaching and learning. The items in this survey should look familiar, as they are based on the work of Charlotte Danielson's Framework for Teaching, which was the model upon which the NMTEACH classroom evaluation rubric was based. Please take the time to respond accurately and honestly to the items in the survey.

Indicate the extent to which you think the following elements of teaching are important for career and technical education (CTE) teachers to know and be able to do effectively. Key words have been bolded to help you identify the focus of each item.

To indicate your responses select one of the choices below. If you do not understand the meaning of the statement please indicate by selecting the Don't Understand response. If you have an aversion to answering a question, please select the "Decline to Answer" response.

Very Important / Important / Moderately Important / Of Little Importance / Unimportant /  
Don't Understand / Decline to Answer

### SECTION A: Planning and Preparation

Based on your experience as a CTE teacher, how important do you feel it is that CTE teachers...

1. Have a **knowledge of content** and the structure of their discipline.
2. Reflect an **understanding of the relationships** between and among concepts taught.
3. Identify and use **pedagogical approaches** appropriate to their discipline.
4. Understand typical **developmental characteristics** of the age group of students being taught.
5. Understand **how students learn, different learning styles**, and how to apply this knowledge.



6. Have **knowledge of students' skills, knowledge, and language proficiency**, and strategies for utilizing this knowledge in instruction.
7. Have **awareness of students' interests or cultural heritage**, and strategies for utilizing this knowledge in instruction.
8. Have knowledge of **students' special learning needs** and how to accommodate them.
9. Develop **instructional outcomes** that reflect significant learning, and reflect, when appropriate, Common Core State Standards.
10. Develop **instructional outcomes** that are clear about what students will learn, and that permit viable methods of assessment.
11. Develop **instructional outcomes** that reflect several different types of learning opportunities including **knowledge, conceptual understanding, and thinking skills**.
- 12A. Develop **instructional outcomes** that are **suitable for all students** in the class.
13. Have awareness of **teaching resources and materials** that align with learning outcomes.
14. Have awareness of **teaching resources and materials** to extend their professional knowledge.
15. Have awareness of available **resources and materials** to support students' academic growth.
16. Develop and locate **diverse learning activities** that engage students and advance them through the content.
17. Develop and locate **materials and resources** to support instructional outcomes and engage students in learning.
18. Organize **instructional groups** that are varied and appropriate to support student learning.
19. Produce **lessons** and units that have clearly **defined structure and sequence**.
20. Develop and locate **assessments that match instructional outcomes** and learning expectations.
21. Communicate **assessment criteria and standards** so that expectations are clearly defined for students.
22. Design **formative assessments** for learning that are planned as part of the instructional process.
23. Use **assessment results** to plan future instruction for students.

## SECTION B: THE CLASSROOM ENVIRONMENT

Based on your experience as a CTE teacher, how important do you feel it is that CTE teachers...

1. Develop and maintain **teacher-student interactions** are that friendly, demonstrate caring and respect, and are appropriate to age and cultural students.
2. Support **positive student interactions** in the classroom that are polite and respectful.
3. Convey genuine **enthusiasm** for the educational value of what students are learning.
4. Convey **high expectations for achievement** through instructional goals, assignments and activities, and classroom interactions.
5. Support **students' pride in their work** and dedication to learning.

6. Manage **instructional groups** so that students are productively engaged during small-group or independent work.
7. Manage **instructional transitions** smoothly with little loss of instructional time between learning activities.
8. Manage **routines for handling materials and supplies** with minimal disruption to the flow of instruction.
8. Establish efficient systems for performing **classroom routines** and non-instructional duties.
9. Supervise **volunteers and paraprofessionals** to be productively and independently engaged during class.
10. Establish and implement **clear standards of conduct** for all students.
11. Monitor **student behavior** and support students to self- and peer-monitor behavior.
12. Respond to **misbehavior** in ways that are appropriate and respectful of student's dignity.
13. Provide a classroom that is safe and where **learning is equally accessible** to all students.
14. Arrange the **physical environment of the classroom** to support instructional goals and learning activities.

#### SECTION C: INSTRUCTION

Based on your experience as a CTE teacher, how important do you feel it is that CTE teachers...

1. Communicate the **purpose and goals for learning** to all students.
2. Provide **clear directions and procedures** for activities and assignments to students.
3. Provide **thorough and clear explanation of content** that connects to student knowledge and experience.
4. **Speak and write the English language** in ways that is clear and correct as well as appropriate to students' age and culture.
5. Develop and ask **questions of high quality** with adequate time for students to respond.
6. Implement effective **discussion techniques** that promote learning and student engagement.
7. Engage all students in **discussion** to ensure equitable participation.
8. Implement **activities and assignments** that promote learning where students are cognitively engaged in exploring content.
9. Design **instructional groups** that are productive and appropriate to the students and the instructional purposes of the lesson.
10. Utilize **instructional materials and resources** that are suitable to instructional goals and engage students mentally.
11. Implement **lessons** that have clearly defined **pacing and structure** around which the activities are organized
12. Communicate to students the **assessment criteria** and performance standards by which their work will be evaluated.
13. Monitor **student progress** and elicit evidence of student understanding .
14. Provide **feedback to students** that is of high quality and is delivered in a timely manner.
15. Support students to **self-assess and monitor progress** relative to assessment criteria and performance standards.

16. Adjust **instructional strategies** within lessons, as needed, to support student learning and engagement.
17. Accommodate **students' questions or interests** and take advantage of teachable moments.
18. Persist in seeking approaches for student who have **difficulty learning**.

#### SECTION D: PROFESSIONAL RESPONSIBILITIES

Based on your experience as a CTE teacher, how important do you feel it is that CTE teachers...

1. Accurately **assess lesson effectiveness** and reflect on the extent to which instructional goals are achieved.
2. Make **specific suggestions** on how a lesson might be improved.
3. Track student **completion of assignments**.
4. Track student **progress in learning**.
5. Track **non-instructional information** and activities.
6. Communicate frequent information about the instructional program to **families**.
7. Communicate with parents about **student progress** on a regular basis
8. Engage families so that they can participate in the **instructional program**.
9. Maintain **relationships with colleagues** that are cooperative and supportive.
10. Participate in and contribute to a **professional learning community** focused on improving practice
11. Volunteer to **participate in school initiatives** and projects beyond classroom duties.
12. Participate in **school and district projects**.
13. Seek out opportunities for **professional development** to enhance content knowledge and pedagogical skill.
14. Participate actively in **professional networks** that provide collegial support and feedback
15. Participate in **professional organizations** to enhance personal practice and provide leadership and support to colleagues.
16. Act with **integrity and honesty** in interactions with colleagues, students, and the public.
17. Put students first in all **considerations of their practice**.
18. Advocate for **students' best interests** to ensure they receive a fair opportunity to succeed
19. Participate in team or **departmental decision making** with an open mind.
20. Adhere to **district and school policies** and established procedures.

## **Appendix B:**

### **CTE Survey Recruitment Email**

Subject Line: Opportunity for CTE Teachers to Participate in Survey Research on CTE Practices

Dear Teacher,

My name is Jesse Chenven, and I am a doctoral student in the College of Education at the University of New Mexico. I am conducting a research study on the perceptions of career and technical education (CTE) teachers regarding effective teaching practice. You are receiving this email because you have been identified as a current or retired CTE teacher in New Mexico.

The purpose of this research is to gain a better understanding of what CTE teachers consider important in terms of effective teaching practice. The conclusions drawn from this research have the potential to inform the future preparation and professional development of CTE teachers. While much research has been done on effective teaching in general education classrooms, CTE settings remain an area in need of further study. Your participation in this study offers the opportunity to share your professional knowledge as a vocational educator. Participation is open to any current secondary teacher (middle school or high school) teaching at least part time in a CTE field in New Mexico OR any retired secondary CTE teacher with at least 5 years of experience. If you know of other teachers who meet the criteria, please take a minute to forward this email to them.

If you agree to participate, this study will involve taking a 20-30 minute online survey that asks to you rate the importance of specific teaching practices. The study has minimal risks for participants and has the potential to benefit the future preparation and professional development of CTE teachers. Survey responses would be kept confidential. Survey completers will have the opportunity to enter into a drawing for one of five (5) \$100 Amazon gift cards, which will occur after data collection has completed in November of 2017.

You do not have to participate in this study, your decision to be in any study is entirely voluntary. If you feel you understand the study and would like to participate, please click on the link at the bottom on this email and you will be directed to the survey website. If you know of other teachers who meet the criteria for participation, please forward this email to them, so that they might have the opportunity to participate as well.

If you have questions prior to participating, please contact Jesse Chenven at [REDACTED] or Dr. Cheryl Torrez, the dissertation chair at [REDACTED]

**(SURVEY LINK HERE)**

Thank you for your time,

*Jesse Chenven*

*Doctoral Candidate*

*Department of Teacher Education, Educational Leadership & Policy*

*University of New Mexico*

## **Appendix C:**

### **Informed Consent for Online Survey**

#### **Assessing Career and Technical Education (CTE) Teachers' Perceptions of Quality Teaching Indicators**

Jesse Chenven, a doctoral student working with Professor Cheryl Torrez, from the Department of Teacher Education, Educational Leadership & Policy at the University of New Mexico, is conducting a research study with career and technical education (CTE) teachers. The purpose of the research is to gain a better understanding of what CTE teachers consider important in terms of effective teaching practice. You are being asked to participate in this study because you have been identified as a secondary CTE teacher in New Mexico.

Your participation will involve responding to an online survey about teaching practice. The survey should take about 20-30 minutes to complete. The survey includes questions such as, "How important do you think it is for CTE teachers to use assessment results to plan future instruction for students?" Your involvement in the study is voluntary, and you may choose not to participate. Although you are encouraged to complete the whole survey, you can refuse to answer questions at any time. There are no names or identifying information associated with your responses. There are no known risks in this study, but some individuals may experience discomfort or test anxiety when answering questions. Data collected from this study will be collected online and maintained in password-protected software. Once a survey has been submitted, the data contained therein will belong to the researchers.

The findings from this project will provide information on CTE teachers' perceptions of effective teaching practice. This information may be used to inform future professional development and preparation for CTE teachers. If published, results will be presented in summary form only.

Individuals who complete the survey will have the option to enter into a lottery drawing for one of five (5) Amazon Gift Cards worth \$100 each. To enter the lottery, participants will fill out a separate questionnaire asking for name and email address. Chances of winning will be 1 out of 100 or better, depending on the number of completed surveys submitted. The total number of surveys accepted will not exceed 500. Winners will be chosen daily, at random, by the research team beginning on November 21<sup>st</sup>, 2017 until all prizes have been awarded. Winners will be contacted by email.

Should you have any technical difficulties or any questions about this research project, please feel free to contact Jesse Chenven at [REDACTED] or Dr. Cheryl Torrez at

██████████. If you have questions regarding your rights as a research subject, or about what you should do in case of any harm to you, or if you want to obtain information or offer input you may call the UNM Office of the IRB (OIRB) at (505) 277-2644 or [irb.unm.edu](http://irb.unm.edu).

By clicking “Proceed” below you will be agreeing to participate in the above described research study. Thank you for your time.

### Appendix D:

#### List of New Mexico School Districts and Corresponding Counties

District	County	District	County
Alamogordo	Otero	Las Cruces	Doña Ana
Albuquerque	Bernalillo	Las Vegas City	San Miguel
Anima	Hidalgo	Logan	Quay
Artesia	Eddy	Lordsburg	Hidalgo
Aztec	San Juan	Los Alamos	Los Alamos
Belen	Valencia	Los Lunas	Valencia
Bernalillo	Sandoval	Loving	Eddy
Bloomfield	San Juan	Lovington	Lea
Capitan	Lincoln	Magdalena	Socorro
Carlsbad	Eddy	Maxwell	Colfax
Carrizozo	Lincoln	Melrose	Curry
Central	San Juan	Mesa Vista	Taos
Chama	Rio Arriba	Mora	Mora
Cimarron	Colfax	Moriarty	Torrance
Clayton	Union	Mosquero	Harding
Cloudcroft	Otero	Mountainair	Torrance
Clovis	Curry	Pecos	San Miguel
Cobre	Grant	Peñasco	Taos
Corona	Lincoln	Pojoaque	Santa Fe
Cuba	Sandoval	Portales	Roosevelt
Deming	Luna	Quemado	Catron
Des Moines	Union	Questa	Taos
Dexter	Chaves	Raton	Colfax
Dora	Roosevelt	Reserve	Catron
Dulce	Rio Arriba	Rio Rancho	Sandoval
Elida	Roosevelt	Roswell	Chaves
Española	Rio Arriba	Roy	Harding
Estancia	Torrance	Ruidoso	Lincoln
Eunice	Lea	San Jon	Quay
Farmington	San Juan	Santa Fe	Santa Fe
Floyd	Roosevelt	Santa Rosa	Guadalupe
Fort Sumner	De Baca	Silver City	Grant
Gadsden	Doña Ana	Socorro	Socorro
Gallup	McKinley	Springer	Colfax
Grady	Curry	Taos	Taos
Grants	Cibola	Tatum	Lea
Hagerman	Chaves	Texico	Curry
Hatch	Doña Ana	Truth or Consequences	Sierra
Hobbs	Lea	Tucumcari	Quay
Hondo	Lincoln	Tularosa	Otero
House	Quay	Vaughn	Guadalupe
Jal	Lea	West Las Vegas	San Miguel
Jemez Mountain	Rio Arriba	Wagon Mound	Mora
Jemez Valley	Sandoval	Zuni	McKinley
Lake Arthur	Chaves		



## Appendix E:

### Descriptive Data Analysis Results for All 22 Components and 76 Elements in the Danielson Framework for Teaching

Table E14

*Importance Rating by Component in Each Domain – Means and Standard Deviations*

Component	Mean	SD	n
1a. Demonstrating knowledge of content and pedagogy	1.33	.391	200
1b. Demonstrating knowledge of students	1.63	.554	200
1c. Setting instructional outcomes	1.54	.521	200
1d. Demonstrating knowledge of resources	1.67	.600	200
1e. Designing coherent instruction	1.72	.578	200
1f. Designing student assessments	1.79	.639	200
2a. Creating an environment of respect and rapport	1.33	.500	200
2b. Establishing a culture for learning	1.28	.375	200
2c. Managing classroom procedures	1.83	.626	200
2d. Managing student behavior	1.43	.497	200
2e. Organizing physical space instruction	1.49	.507	200
3a. Communicating with students	1.48	.461	200
3b. Using questioning and discussion techniques	1.67	.580	200
3c. Engaging student in learning	1.74	.581	200
3d. Using assessment in instruction	1.59	.496	200
3e. Demonstrating flexibility and responsiveness	1.48	.474	200
4a. Reflecting on teaching	1.71	.706	200
4b. Maintaining accurate records	1.95	.654	200
4c. Communicating with families	2.30	.742	199
4d. Participating in the professional community	2.01	.670	200
4e. Growing and developing professionally	1.84	.696	199
4f. Showing professionalism	1.51	.437	200

*Note.* The following scale was used for all items in each component: 1=Very Important; 2=Important; 3=Moderately Important; 4=Of Little Importance; 5=Unimportant. Items rated as “Do Not Understand” were treated as missing data, reflecting a sample size of less than 200 on some components.

Table E15

*Importance Rating by Element in Domain 1 – Means and Standard Deviations*

Element	Component	Mean	SD	n
1. Knowledge of content and the structure of the discipline	1a	1.14	.348	200
2. Knowledge of prerequisite relationships	1a	1.25	.455	199
3. Knowledge of content-related pedagogy	1a	1.61	.685	200
4. Knowledge of child and adolescent development	1b	1.61	.670	200
5. Knowledge of the learning process	1b	1.41	.627	200
6. Knowledge of students' skills, knowledge, and language proficiency	1b	1.60	.657	200
7. Knowledge of students' interests and cultural heritage	1b	1.93	.865	200
8. Knowledge of students' special needs	1b	1.59	.737	200
9. Value, sequence, and alignment of learning outcomes	1c	1.47	.610	199
10. Clarity of learning outcomes	1c	1.50	.618	200
11. Balance of learning outcomes	1c	1.59	.703	200
12. Suitability for diverse students	1c	1.63	.654	198
13. Resources for classroom use	1d	1.65	.671	199
14. Resources to extend content knowledge and pedagogy	1d	1.71	.686	199
15. Resources for students	1d	1.65	.655	200
16. Designing learning activities	1e	1.57	.706	200
17. Appropriate instructional materials and resources	1e	1.54	.583	200
18. Organizing instructional groups	1e	2.10	.928	200
19. Clear and sequenced lesson and unit structure	1e	1.70	.717	200
20. Assessment congruence with instructional outcomes	1f	1.71	.700	199
21. Assessment criteria and standards	1f	1.83	.792	200
22. Design of formative assessment	1f	1.82	.757	198
23. Use of assessment for planning	1f	1.80	.781	200

*Note.* The following scale was used for all items in each component: 1=Very Important; 2=Important; 3=Moderately Important; 4=Of Little Importance; 5=Unimportant. Items rated as "Do Not Understand" were treated as missing data, reflecting a sample size of less than 200 on some elements.

Table E16

*Importance Rating by Element in Domain 2 – Means and Standard Deviations*

Element	Component	Mean	SD	n
1. Teacher interactions with students, including both words and actions	2a	1.36	.575	200
2. Student interactions with other students, including both words and actions	2a	1.30	.503	200
3. Importance of the content and of learning	2b	1.29	.464	200
4. Expectations for learning and achievement	2b	1.26	.448	200
5. Student pride in work	2b	1.31	.485	200
6. Management of instructional groups	2c	1.67	.711	200
7. Management of transitions	2c	1.78	.697	198
8. Management of materials and supplies	2c	1.76	.760	198
9. Performance of classroom routines	2c	1.67	.778	199
10. Supervision of volunteers and paraprofessionals	2c	2.32	.994	188
11. Expectations for student behavior	2d	1.39	.564	200
12. Monitoring of student behavior	2d	1.48	.609	200
13. Response to student misbehavior	2d	1.44	.581	200
14. Safety and accessibility of the physical environment	2e	1.30	.503	200
15. Arrangement of furniture and use of physical resources	2e	1.67	.717	200

*Note.* The following scale was used for all items in each component: 1=Very Important; 2=Important; 3=Moderately Important; 4=Of Little Importance; 5=Unimportant. Items rated as “Do Not Understand” were treated as missing data, reflecting a sample size of less than 200 on some elements.

Table E17

*Importance Rating by Element in Domain 3 – Means and Standard Deviations*

Element	Component	Mean	SD	n
1. Communicating expectations for learning	3a	1.57	.639	200
2. Communicating directions for activities	3a	1.32	.499	200
3. Explanations of content	3a	1.51	.601	200
4. Use of oral and written language	3a	1.52	.584	200
5. Quality of questions/prompts	3b	1.57	.623	200
6. Discussion techniques	3b	1.68	.672	200
7. Student participation	3b	1.77	.726	199
8. Activities and assignments	3c	1.48	.539	200
9. Grouping of students	3c	1.94	.852	200
10. Instructional materials and resources	3c	1.64	.643	200
11. Structure and pacing of instruction	3c	1.87	.797	199
12. Assessment criteria	3d	1.61	.639	200
13. Monitoring of student learning	3d	1.60	.585	200
14. Feedback to students	3d	1.47	.548	200
15. Student self-assessment and monitoring of progress	3d	1.69	.629	200
16. Lesson adjustment	3e	1.51	.610	200
17. Response to students	3e	1.40	.558	200
18. Persistence	3e	1.52	.593	200

*Note.* The following scale was used for all items in each component: 1=Very Important; 2=Important; 3=Moderately Important; 4=Of Little Importance; 5=Unimportant. Items rated as “Do Not Understand” were treated as missing data, reflecting a sample size of less than 200 on some elements.

Table E18

*Importance Rating by Element in Domain 4 – Means and Standard Deviations*

Element	Component	Mean	SD	n
1. Accuracy of reflection	4a	1.78	.766	200
2. Use of reflection in future teaching	4a	1.66	.757	197
3. Tracking student completion of assignments	4b	1.78	.786	200
4. Tracking student progress in learning	4b	1.60	.650	200
5. Tracking non-instructional records	4b	2.53	1.007	187
6. Communicating with families about the instructional program	4c	2.30	.864	199
7. Communicating with families about individual students	4c	2.10	.856	199
8. Engagement of families in the instructional program	4c	2.50	.904	199
9. Relationships with colleagues	4d	1.63	.661	199
10. Involvement in a culture of professional inquiry	4d	1.86	.787	200
11. Service to the school	4d	2.19	.935	200
12. Participation in school and district projects	4d	2.34	.982	199
13. Enhancement of content knowledge and pedagogical skill	4e	1.63	.739	199
14. Receptivity to feedback from colleagues	4e	1.93	.877	199
15. Service to the profession	4e	1.96	.789	198
16. Integrity and ethical conduct	4f	1.19	.406	200
17. Service to students	4f	1.48	.636	196
18. Student advocacy	4f	1.43	.555	197
19. Decision making	4f	1.72	.706	198
20. Compliance with school and district regulations	4f	1.73	.827	199

*Note.* The following scale was used for all items in each component: 1=Very Important; 2=Important; 3=Moderately Important; 4=Of Little Importance; 5=Unimportant. Items rated as “Do Not Understand” were treated as missing data, reflecting a sample size of less than 200 on some elements.