

RETENTION OF CONSTRUCTION TEACHERS ENGAGED IN MISSOURI'S
SECONDARY SCHOOL SYSTEM

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Doctor of Education

by
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The undersigned, appointed by the Dean of the Graduate School, have examined the dissertation entitled

RETENTION OF CONSTRUCTION TEACHERS ENGAGED IN MISSOURI'S
SECONDARY SCHOOL SYSTEM

Presented by David McCandless

A candidate for the degree of Doctor of Education for Educational Leadership and Policy Analysis.

And hereby certify that in their opinion it is worthy of acceptance.

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DEDICATION

When I first started down this road four years ago, someone who had been a professor in the program many years stated that the commitment to this process was similar to getting married or having a baby. I have been happily married for 34 years and have raised four children and I can safely say that this has been a much more grueling process than either of the other two activities!

My father, Bob, was still with us when I started my doctorate and I wish he was here to see it come to fruition, but I still thank him and my mother, Mary, for their love and support. I also want to thank my loving wife, Carol, for her support and prayers and my four children, Joshua, Caleb and his wife Kerri, Jonah, and Mary Beth and her husband Drew for their prayers and encouragement. Finally, I want to give credit to the Lord for His guidance and direction. He has proven once again that He is faithful (I Cor. 10:13) and that all good things are possible through Him (Phil. 4:19).

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RETENTION OF CONSTRUCTION TEACHERS ENGAGED IN MISSOURI'S SECONDARY SCHOOL SYSTEM

David McCandless

Dr. Barbara N. Martin, Dissertation Supervisor

ABSTRACT

The purpose of this study was to investigate the reasons construction teachers in the CTE field left the teaching profession in their first five years of service, or if they stayed, what were the dominant factors that caused them to consider leaving the profession and what were the factors that were causing them to remain in the CTE field in Missouri. This was done through the triangulation of 44 mixed-design surveys with open-ended questions and six semi-structured interviews.

The data revealed there was a significant difference in the retention rate of two-year alternatively certified teachers and four-year teaching degreed teachers. The four-year teaching degreed teacher had a higher retention rate. The data also revealed the only significant difference in why two-year certified and four-year teaching degreed teachers had considered leaving the profession was the two-year certified teachers were considering leaving because of poor opportunities for professional advancement.

The main reason the stayer teachers thought teachers were leaving their profession was because of the low salary issues, however, the leavers stated that salary was not at all important in their decision to leave the CTE teaching profession. They stated their main concerns were student discipline problems, dealing with special needs students that were not interested in the program, poor student motivation, and lack of influence over school policies. Considerations of stayer teachers to leave the profession

included low salary, inadequate support from administration, and student issues, especially discipline and poor motivation.

The data were overwhelming in the reasons teachers were staying in the profession. Over 75% of the stayer teacher responses dealt with enjoyment of working with the students and seeing student success in their field followed by teacher benefits and a strong teacher retirement program.

CHAPTER ONE

INTRODUCTION TO THE STUDY

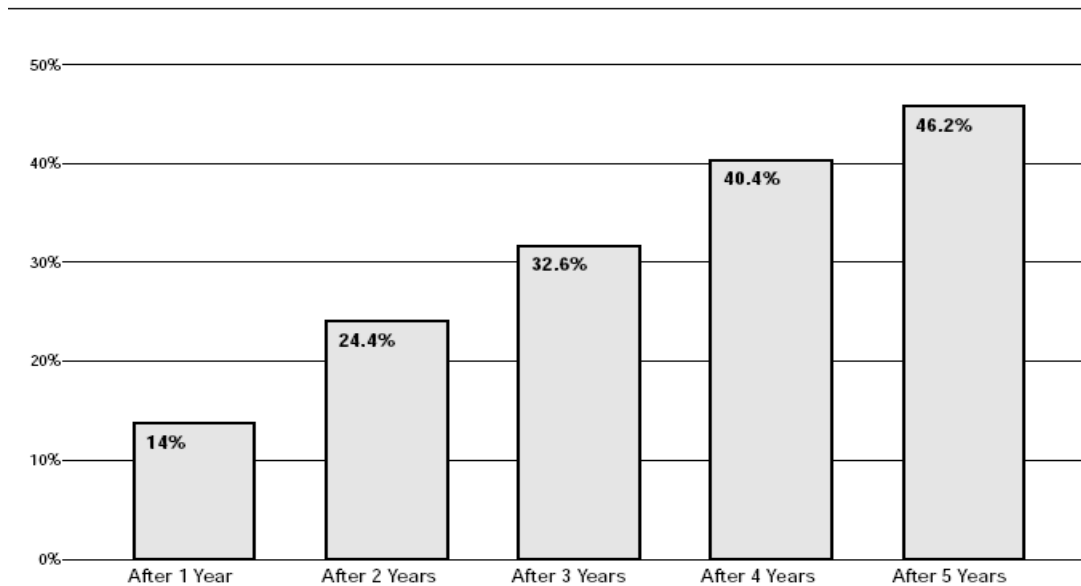
Background

The dilemma of discovering, recruiting, and retaining teachers is not a new problem facing our educational system. Educators, education stakeholders, and policymakers have been challenged with the quandary of how to deal with the teacher shortage and retain the novice teacher in their profession for decades (Bartell, 2005; Berry, 2004; Billingsley, 2006; Bradley & Loadman, 2005; Cochran-Smith, 2004; Darling-Hammond, Berry, Haselkorn & Fideler, 1999; Dove, 2004; Gray & Walter, 2001; Hull, 2003; Ingersoll, 2001; Woullard & Coats, 2004). Moreover this is not a localized problem because according to the National Commission on Teaching and America's Future (NCTAF), (2002), "an alarming and unsustainable number of teachers are leaving teaching during their first few years of teaching" (p. 3). Bartell acknowledged this when he stated "the need for well-qualified, highly competent teachers has never been greater" (p. 4) and furthermore buttressed by Ingersoll, (2001a) who argued "the failure to ensure that all classrooms are staffed with qualified teachers is one of the most important problems in U. S. education" (p. 42).

This crisis is further exacerbated by the fact that "the teacher most likely to leave the profession is the new teacher" (Cochran & Reese, 2007, p. 25). According to a report done by NCTAF (2003), teachers leaving the profession had exceeded entrants by 23 percent. In the 1999-2000 school year, for example, the nation's schools hired 232,000 teachers who had not been teaching the year before, but a year later the schools lost more

than 287,000 teachers, which is 55,000 more than had been hired, for a net loss of 24 percent (see Figure 1).

Figure 1. Beginning teacher attrition is a serious problem.



Note: From “The Teacher Shortage: A Case of the Wrong Diagnosis and Wrong Prescription,” by R. M. Ingersoll, 2002, *NASSP Bulletin 86*, *Adapted for NCTAF*, 2002, Unraveling the “teacher shortage” problem: Teacher retention is the key. Reprinted with permission.

The Career and Technology Education (CTE) field has not been immune to the teacher shortage problem. According to Gray and Walter (2001), debates about CTE teacher preparation have been bolstered because of the declines in the number of CTE preparation programs and the shortages of CTE teachers. A study done by Heath-Camp and Camp (1990) reported that 15% of newly hired vocational education teachers leave after their first year and an astonishing 48% of trade and industrial arts teachers leave before their third year has ended. Teachers going into education and not staying in the field long enough to become an established, viable asset to the program is one of the problems facing CTE programs today (McCaslin & Parks, 2002; Osgood & Self, 2002).

Furthermore McCaslin and Parks postulated that 50% of all newcomers to the CTE teaching field leave within the first five years of service. Research done by Gray and Walter (2001) reveals there is a general shortage of CTE teachers and “in some programs, such as technology education, the shortage is so severe that it threatens the program of study’s very existence” (p. 15). Missouri’s CTE program has not been exempt from these phenomena. The Missouri Department of Elementary and Secondary Education (MODESE), (2007) published a report showing the industrial technology program has had a shortage of qualified teachers every year dating back through the 1997-98 school year when the program was still called “Industrial Arts” in lieu of the new “Industrial Technology” terminology.

Many states are responding to these shortages by offering alternative routes into the teaching profession that provide only a few weeks of preparation before entering the classroom (Darling-Hammond, 2000a). However, many of these programs exacerbate the problems of supply and demand because the attrition rate of those entering through these “alternative” pathways can be as high as 60 percent (Darling-Hammond, Berry, & Thorenson, 2001).

This high turnover and attrition problem does not come without cost. Studies show that teacher turnover is very costly (NCTAF, 2003). This is supported by Darling-Hammond (2003) who stated “early attrition from teaching bears enormous costs” (p. 8) and not only puts a drain on a schools’ financial situation but also on its human resources. The Alliance for Excellent Education (2005) supports this with their research that states the cost of replacing school teachers leaving the profession is \$2.2 billion a year and by adding in the cost of teachers transferring to other positions or schools it increases the

cost to \$4.9 billion every year. However, the entity that suffers the highest cost of teacher attrition may be the student. Substantial research data suggest a well prepared teacher has a large impact on student achievement and learning (Darling-Hammond, 2000; NCTAF, 2003; Wilson, Floden, & Ferrini-Mundy, 2001; Wong, 2004). The impact of high teacher turnover creates a no win situation for the students and diminishes their chances of achieving a quality education (NCTAF).

Statement of the Problem

The educational community understands there is a shortage of quality teachers in classrooms across America. NCTAF (2003) announced that teacher retention was a national crisis (p. 8). Although some research has been done on the recruitment and retirement of the teacher workforce, new research suggests this is the wrong diagnosis for the more significant problem of retention and attrition (Ingersoll, 2002a; Ingersoll & Smith, 2003; Merrow, 1999). Additionally, many studies have specialized their research in the areas of mathematics, science, or special needs teachers which are in high and critical demand in the secondary school system (Billingsley, 2004; Boyer & Gillespie, 2000; Feistnitzer, 2005; Ingersoll, 2003, McLeskey, Tyler, & Flippin, 2004; Rosenberg & Sindelar, 2005), but very few studies have been done on the retention and attrition of CTE teachers; especially in the high labor demand area of the construction industry. There have been numerous studies (Bartell, 2005; Berry, 2004; Billingsley, 2006; Bradley & Loadman, 2005; Cochran-Smith, 2004; Darling-Hammond, Berry, Haselkorn & Fidler, 1999; Dove, 2004; Gray & Walter, 2001; Hull, 2003; Ingersoll, 2001; Woullard & Coats, 2004) done promoting the understanding of why teachers leave their profession during their first years of teaching on a national level, but research is deficient

concerning CTE teacher retention and attrition on the state level. “...The experiences of career and technical education teachers have been relatively ignored in the broader educational reform literature” (Scribner, Truell, Hager, & Srichai, 2001, p. 46).

Furthermore, McCaslin and Parks (2002) argued “There needs to be more research done for career and technical teacher education” (p. 10) and buttressed by Cohen and Besharov (2002) who pointed out “More research needs to be done on how schools... retain good CTE faculty” (p. 40).

Purpose of the Study

Therefore, using quantitative and qualitative data, the study examined the reasons construction teachers in the CTE field left the teaching profession in their first five years of service, or if they stayed, what were the dominant factors that caused them to consider leaving the profession and what were the factors that caused them to remain in the CTE field in the state of Missouri. Also examined in this study were the former and current construction teachers’ perceptions on how industry has encouraged or could encourage these educators to stay in the profession and become an even greater asset to the student and educational community.

Research Questions

The research questions for this study were designed to reveal descriptive quantitative comparison data regarding any difference in the retention rates of four-year certified teachers compared to two-year alternatively certified teachers, differences in the reasons four-year certified teachers were leaving compared to two-year certified teachers, and differences in the reasons four-year certified teachers have considered leaving compared to two-year certified teachers. In addition, phenomenological qualitative data

based on participants' answers to open-ended questions and personal interviews on attrition were used to find the dominant reasons construction teachers have left the profession during their critical first five years, the factors causing existing teachers to consider leaving and factors causing them to stay, and how industry has been a benefit or could better benefit the construction teacher in the educational setting. The following research questions guided this study.

1. Are there differences in the retention rates of construction CTE teachers receiving their four-year teaching degree from a college or university and construction CTE teachers coming directly out of industry with a two-year alternative certificate?
2. Are there differences in the reasons four-year teacher certified construction CTE educators are leaving the profession and those having a two-year alternative certification are leaving the teaching profession?
3. Are there differences in the reasons four-year teacher certified construction CTE educators have considered leaving the profession and those having a two-year alternative certification have considered leaving the teaching profession?
4. What are the widespread and dominant reasons why construction CTE teachers are leaving the profession during their critical first five years?
5. What are the dominant reasons current construction teachers would consider leaving the profession?
6. What are the factors causing CTE teachers who have been teaching more than three years to stay in the teaching career field?
7. What effect has mentoring had on the beginning construction CTE teacher?

8. What is industry doing or what could industry do in the future to help in the retention of qualified construction teachers in Missouri's secondary school system?

Research Hypotheses

In order to answer the preceding research questions, the following null hypotheses were explored in this study:

1. Hypothesis 1. There is no statistically significant difference between the retention rates of construction CTE teachers receiving their four-year teaching degree from a college or university and construction CTE teachers coming directly out of industry with a two-year alternative certificate.
2. Hypothesis 2. There are no significant differences in the reasons four-year teacher certified construction CTE educators are leaving the profession from those having two-year alternative certification.
3. Hypothesis 3. There are no significant differences in the reasons four-year teacher certified construction CTE educators have considered leaving the profession from those having two-year alternative certification.

Limitations and Assumptions

For the purpose of this study, the following limitations and assumptions were acknowledged:

1. The participants of this study were limited to four-year university CTE graduates and two-year alternatively certified construction teachers who entered the construction teaching profession in the state of Missouri from 2003-2007.
2. The survey instruments utilized in this study were created by the researcher.

3. This study was limited by the degree of reliability and validity of the survey instrument.
4. It was assumed that participants were honest in their responses and correctly interpreted the survey instrument.
5. It was assumed that participants based their responses upon their own experiences.

Design Control

A two-phased, sequential mixed-method Explanatory Design was chosen as a means for conducting this study (Creswell & Clark, 2007). In the first phase, a survey was utilized to gain data from a determined population regarding particular phenomenon (Fraenkel & Wallen, 2003). The survey, consisting of closed and open-ended questions, was administered to the population of construction CTE teachers in the Missouri secondary school system during the school years of 2003-2007. The comprehensive High Schools and Career and Technology Centers employing a construction CTE teacher were called and the contact information was verified for each stayer and leaver at each of these institutions from 2003-2007.

Since surveys have the potential problem of a lack of response (Fraenkel & Wallen, 2003), the researcher helped control this by corresponding with the participants through different mediums and at different times. The researcher called the participants if an email address was not available, asking for their assistance and their current email address. Each participant was emailed, informing them of the research taking place and asking for their assistance in an email survey. The actual email survey and informed consent was sent out one week later, and a follow-up email was sent out within one week

of the initial questionnaire. If a participant had not responded a week after the follow-up email, they were contacted by phone asking them to participate in the initial survey.

The survey was created by the researcher based on the concerns identified in the review of the literature. The survey was piloted to a small sampling of construction CTE teachers to “reveal ambiguities, poorly worded questions, questions that are not understood, and unclear choices, and ... indicate whether the instructions to the respondents are clear” (Fraenkel & Wallen, 2003, p. 404). Unclear questions and directions were corrected or eliminated prior to administering the survey to the entire population. Participants were asked on the survey if they would be interested in taking part in an interview to collect more descriptive information that will “directly reflect the purpose of this study and guide in the identification of information rich cases” (Merriam, 1998, p. 61). From these responses, a purposeful and convenience sampling in the form of follow-up interviews (Merriam) with both stayers and leavers from different sites were instigated to provide the researcher with additional insight into retention and attrition of construction CTE teachers. Additionally, the interview process applied to this study allowed the investigator to serve as a research instrument while remaining close to the data (Patton, 1997), and to apply inductive strategies to produce the thick, rich, descriptive information being sought (Merriam). The subjectivity and validity of this study was strengthened through the use of triangulation of the data from the quantitative close-ended questions of the survey, the open-ended qualitative questions of the survey, and the coding of the rich, thick descriptive data of the qualitative interview process (Merriam).

Definition of Terms

The following terms were used throughout this study. Where appropriate, these operational definitions have been paraphrased from dictionaries, textbooks, and peer-reviewed resources.

Alternative certification. An option into teaching that reduces the standards for entry into teaching and allows individuals to assume roles as teachers even though they have not completed many of the requirements for a license in the area of subject matter or teaching and learning (Darling-Hammond et al., 1999).

Alternative route. Those options into teaching that provide an option to the traditional undergraduate teacher education program without lowering existing standards (Darling-Hammond et al., 1999).

Attrition. The reduction in the workforce when personnel leave for personal reasons, school staffing, dissatisfaction, career change, or retirement.

Career and Technology Center (CTC). Area educational centers strategically located throughout the state to provide skill training for high school students and adults. They combine academic and occupational skill training to prepare students to enter the workforce.

Career and Technical Education (CTE). Organized educational activities that offer a sequence of courses providing individuals with the academic and technical knowledge and skills to prepare for careers in emerging sectors. Originally known as “vocational education” or “voc ed”, arose in response to the need for skilled workers in manufacturing and construction industries and the need for an entry level working class (Cohen & Besharov, 2002).

Construction. Includes instructional programs that prepare students for careers in areas such as: Carpentry, Cabinet Maker, Mill Worker, Electrician, Building Maintenance, Plumber, Painter, Brickmason, Pipefitter and Heating, venting and air conditioning.

First-year teacher. Teachers who are currently engaged in their first-year of teaching elementary and/or secondary education (Smith & Ingersoll, 2004).

Induction. Induction can be broadly characterized as professional education and development tailored for teachers in their first and second years of teaching” (Olebe, 2005, p. 159).

Leavers. Refers to construction educators who began teaching full time in the fall of 2003 or later, but had left the profession at some point and did not have more than three years of consecutive teaching experience.

Mentoring. A “nurturing process in which a skilled or more experienced person, serving as a role model, teaches, sponsors, encourages, counsels a less skilled or less experienced person for the purpose of promoting the latter’s professional and/or personal development” (Anderson & Shannon, 1988, p. 40).

Novice teacher. For the purpose of this study, novice teacher was operationally defined as a new secondary education teacher engaged in the first, second, or third year of teaching.

Professional development. “Teachers working together over time to deepen their knowledge, improve their craft and transform schooling for their students and themselves” (Lieberman & Miller, 2001, p. viii).

Qualified teacher. For the purpose of this study, the term qualified teacher was operationally defined as a teacher who possesses the content knowledge and full certification in a given subject area.

Retention. For the purpose of this study, the ability to keep or retain teachers in their profession.

Stayers. Refers to construction educators who began teaching full time in the fall of 2003, 2004, or 2005 and had three or more years of continuous teaching experience through the beginning of the 2008-09 school year.

Turnover. The departure of teachers from their professional teaching jobs, including those who transfer or move to different teaching jobs at other schools (Ingersoll, 2001).

Summary

The background of the study, statement of the problem, purpose of the study, research questions, study limitations identified during the research process, and definitions of terms were provided in Chapter One. The problem driving this study was the high percentage of novice secondary teachers who leave the profession during their first few years of teaching. This problem is significant, especially due to the fact that very little research has been done on the retention and attrition of construction CTE teachers and how industry and the educational community can keep these qualified teachers in their profession. Research is needed to help reduce the attrition problem and reduce the amount of qualified Missouri teachers needed to fill current and future vacancies arising from teacher retirement, student population increases, and novice career education teacher attrition. The review of related literature for this study will be presented in

Chapter Two. Teacher retention and preparation, induction, attrition, workplace conditions, and industry support for teachers will be discussed. Discussed in Chapter Three is a description of the research design and methodology. This discussion includes research questions and hypothesis, population and sample, methods of data collection, and data analysis. The rationale for selecting a mixed-design for the study is described. In Chapter Four, the data findings and analysis of these findings are presented. Findings, conclusions, and recommendations for future research are described in Chapter Five.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

Introduction

This review of the literature was synthesized to demonstrate the low retention and high attrition rates facing the novice teacher in our nation today. With the recent studies that have been done linking quality teachers with a better school climate and improved student achievement (Darling-Hammond, 2000; National Commission on Teaching and America's Future (NCTAF), 2003; Wilson, Floden, & Ferrini-Mundy, 2001; Wong, 2004), it is imperative good teachers are retained in our educational system. First, the teacher educational process is discussed and how the educational community is dealing with the supply and demand issues as well as teacher preparation programs, especially in the area of Career and Technology Education (CTE). Also investigated are the ways beginning teachers are handling their first years of teaching and the induction programs being put into place to help retain quality teachers such as New Teacher Institutes, mentoring, and professional development. Attrition is then addressed in regards to secondary and CTE teachers, and special attention is given to the areas of pay and work place conditions. In the final section of this review, industry support for the CTE teacher is examined and discussed.

Teacher Retention and Preparation

There is little doubt about the magnitude of the nation's teacher retention and attrition problems facing our educational system today. According to Ingersoll (2001) there are few educational problems that have received more attention than how we are

going to staff our schools with qualified teachers. Darling-Hammond (2000a) succinctly stated:

There is no doubt that demand for teachers will continue to increase over the next decade. Growing enrollments of students caused by increased birth rates and immigration, coupled with a large wave of retirements and turnover of younger teachers, have created the largest growth in the demand for teachers in America's history. The most well-reasoned estimates place the total demand for new entrants to teaching at 2 million to 2.5 million between 1998 and 2008, averaging over 200,000 annually. (p. 6)

“Every year many school systems across the country struggle to fill vacancies left by teachers who move, quit, retire, or change jobs....Just as the importance of teachers to student achievement has begun to be demonstrated through research, the number of teachers seem to be shrinking” (Hull, 2003, p. 1). Furthermore, Ingersoll (2002) calls teaching a revolving door occupation with relatively high flows in, through, and out of the school system. Due to the “graying workforce” teacher retirement has been cited as being a major part of the shortage problem; but much more serious than retirement is the fact that the number of teachers leaving the profession for other reasons is almost three times larger than the number who are retiring (NCTAF, 2003) and student population increases, classroom policies, and attrition are also factors contributing to teacher shortages (Bradley & Loadman, 2005; Darling-Hammond, 2003; Dove, 2004; Hull, 2003; Ingersoll, 2002a; Johnson, Berg, & Donaldson, 2005; Whisnant, Elliott, & Pyncheon, 2005). This is further supported by Guarino, Santibanez, and Daley (2006) who reported that the growing school aged population is causing schools to struggle to retain their most

effective teachers. As the educational community considers all of these issues, it is vital that “in the decades to come it will be critical to attract, support, and retain an equally large or larger influx of novice teachers to meet the growth of the school-age population” (Whisnant et al., p. 2). Because teaching is a relatively large occupation accounting for four percent of the nation’s civilian workforce (Ingersoll & Smith, 2003), when examined in its entirety, combined with a relatively high turnover rate, there is a massive amount of teachers moving into, between, and out of the profession each year. This is argued by Darling-Hammond et al. (1999) who stated “the demand for additional teachers in any given year is largely a function of turnover, which usually comprises two-thirds to three-fourths of total new demand” (p. 194). Research done by the American Association for Employment in Education (2006) indicated there has been a slow, steady increase in the demand for educators and 32 of the 64 fields surveyed reflected an increase in demand from the previous year. This dilemma to teacher retention is intensified with the current research that suggests the school’s climate and its students suffer from the lack of teacher retention and soaring attrition problems (Bartell, 2005; Berry, 2004; Billingsley, 2006; Bradley & Loadman, 2005; Cochran-Smith, 2004; Darling-Hammond, Berry, Haselkorn & Fideler, 1999; Dove, 2004; Gray & Walter, 2001; Hull, 2003; Ingersoll, 2001; Smith & Ingersoll, 2004; Vail, 2005; Woullard & Coats, 2004)

School Climate

In the opinion of Smith and Ingersoll (2004), “High rates of teacher turnover can inhibit the development and maintenance of a learning community; in turn, lack of community in a school may have a negative impact on teacher retention, thus creating a vicious cycle” (p. 687). Thus, a positive sense of community is a necessity and can be

built through a climate of rituals, ceremonies, music, and stories (Bolman & Deal, 2003) and as these community building ceremonies take place, the positive climate affects the teacher's morale enormously (Vail, 2005). However, without well prepared teachers who remain in the profession, schools are going to have difficulty establishing a positive climate and its going to be difficult to meet the demands of the current school environment of accountability (Bartell, 2005). Teachers who view their school climate as being a positive experience are more likely to stay and become a viable asset to their school (Billingsley, 2004) and if quality teachers remain in the system, the student will ultimately benefit.

Student Achievement

There has been significant research done in the past few years that links teacher quality with student achievement (Berry, 2001; Darling-Hammond, 2000a; Hull, 2003; Stotko, Ingram, & Beaty-O'Ferrall, 2007). This is especially true with CTE students. CTE students can benefit by attaining skills that will help them get a job and provide earnings both before and after graduation and will also provide the benefits of increasing student engagement, retention, persistence, and directing them to postsecondary education and the pursuit of lifelong learning (Brown, B. L. 2003). Additionally, Cohen and Besharov (2002) concluded the college for all myth is shortchanging secondary students who are uninterested in or unsuited for college and CTE had the potential to create a better future for these young people. They go on to state:

While "college for all" has become the mantra in today's education system, this single-minded focus shortchanges several important groups of students, including those who drop out of high school, those who complete high school and do not

continue to college, and those who enter college woefully unprepared and often drop out. CTE could encourage these students ... to complete high school, ensure that they are better prepared for jobs when they graduate, and perhaps even increase their chances of entering college. (p. 1)

Many students enrolled in CTE programs realized significant benefits over students who did not participate in these types of programs (Brown, 2000; Cohen & Besharov, 2002; MacAllum & Bozick, 2001; Wonacott, 2000). In addition, research by Cardon (2000) found many students preferred hands-on learning and they would have dropped out of school if they were not able to enroll in CTE classes. This was confirmed by Brown (2000) who reported a study showing slightly lower dropout rates, higher attendance rates, and higher graduation rates for students involved in technical classes than for non-participants.

Unfortunately, if qualified CTE teachers are not available, these educational opportunities will not be available to future students. According to Brown (2003), these programs “motivate students to get involved in their learning by engaging them in problem-solving activities that lead to the construction of knowledge and by providing them with hands-on activities that enable them to apply knowledge” (p. 3). One of the most important ways to assure success of a CTE program is by having a qualified and knowledgeable instructor (Bottoms & Presson, 2000; McCaslin & Parks, 2002; Miller & Meuleners, 2000). CTE students exceed national averages when they are taught by an instructor who is well-informed, involved, and when the instructor has been in the program long enough to establish a curriculum that helps the students learn new skills and develop positive attitudes towards the workplace. Teachers going into education but

not staying in the field long enough to become an established, viable asset to the program is one of the problems facing CTE programs today (McCaslin & Parks, 2002; Osgood & Self, 2002). One of the important steps in solving this teacher shortage is to look at current supply and demand information and how we are currently preparing teachers for this profession.

Supply and Demand

According to Guarino et al. (2006), teacher shortages occur in a labor market when demand is greater than supply. Ironically, as research began to show the correlation between teacher quality and student performance (Berry, 2001; Darling-Hammond, 2000a; Hull, 2003; Stotko, Ingram, & Beaty-O’Ferrall, 2007) and reforms to increase teacher preparation were established, the problem with teacher shortages continued to raise its ugly head. As Gray and Walter (2001) noted, “making teacher licensure more rigorous, increasing school enrollments, teacher retirements, and large numbers of teachers choosing to leave the field have produced shortages ... It is estimated that the nation will need 1 million new teachers by 2010” (p.8). This demand for teachers is driven by student enrollments, class size, teaching loads, and budget constraints (Guarino et al., 2006), but as Darling-Hammond et al. (1999) pointed out, two of these components, student enrollment and class size, are reasonably easy to forecast. It is the third and largest component, teacher turnover, that is hardest to predict and “the signs point to significant increases in new demand for teachers” (p. 194). Ingersoll and Smith (2003) indicated that efforts to recruit more teachers will not solve these shortage problems if nearly half of those teachers leave within a few years; “Pouring more water into the bucket will not do any good if we do not patch the holes first” (p. 33).

Increased student enrollment and lower class sizes will continue to increase teacher demand (Darling-Hammond et al., 1999; Gray & Walter, 2001; Johnson, Berg, & Donaldson, 2005; Woullard & Coats, 2004) and as the National Governors Association (2000) pointed out, even if class-size reduction programs offer significant benefits for student achievement, those benefits are minimized if unqualified teachers lead classes of even the most beneficial sizes. Many state and local class-size reduction programs have created an increased demand for teachers and can create pressure to get teachers into classrooms without strict attention to their qualifications. As Darling-Hammond et al (1999) argued:

This situation reflects an ongoing tension between two contradictory policies toward entry into teaching: one approach attempts to upgrade educational standards and teacher knowledge to meet growing expectations of teachers. The other ignores such standards when recruiting unprepared individuals into classrooms where students are less powerful and resources are scarce. The policies that divide America's students in this way are rooted in the failure of the policy system and the profession to create incentives that ensure an adequate supply and appropriate distribution of qualified teachers. This is a failure that must be overcome by all members of the education community if America's schools and children are to meet the challenges they now face. (p. 190)

Missouri is not exempt from this problem. According to the Missouri Department of Elementary and Secondary Education (MODESE) (2001), "Nearly one-third of Missouri's public school work force in the 2001-01 school year had five or fewer years experience, compared with 21.7 percent in 1990-91" (p.9) and "Teachers new to public

education represented 7.7 percent of the total work force in 2001, compared with 4.7 percent in 1991” (p. 11). In the opinion of Darling-Hammond et al. (1999), this issue of supply and demand in teaching is not just filling a position with a warm body, since most states are willing to lower standards to fill classrooms, but one of quality. Issues of supply and demand should be considered in the light of character, qualifications, and whether or not the instructor stays in the teaching profession. Therefore, the educational stakeholders should look at the current teacher preparation programs and examine what is working to produce a quality teacher that remains in their profession and is an asset to the student and the school community (Darling-Hammond et al, 1999; Darling-Hammond, 2000; Darling-Hammond et al., 2001; Gray & Walter, 2001; Hull, 2003).

Teacher Preparation

There is a growing recognition that investing in teacher knowledge is among the most productive means for increasing student learning (Darling-Hammond, 2000a) and measures of teacher preparation and certification are by far the strongest correlates of student achievement (Darling-Hammond, 2000). But the fact still remains that many teachers are entering the field unprepared (Berry, 2001; Darling-Hammond, 1997; Darling-Hammond et al., 1999; Liston, Whitcomb, & Borko, 2006; Whisnant et al., 2005). In fact, “27% of all new entrants to teaching had no license or a substandard license in the field they were hired to teach, indicating that they lacked ... requirements for a license in the state in which they were hired.” (Darling-Hammond, 2000a, p. 10) Since there is ample evidence to suggest these lesser prepared teachers are less likely to be effective and more likely to leave (Berry, 2001), it stands to reason that teacher

preparation should be one of the main concerns in dealing with the retention problem facing the nation's educational system.

There are supporters of traditional teacher preparation that believe improving programs within colleges of education would alleviate some of these shortages (Hull, 2003) and according to new technology teachers, the main concerns are being prepared to deal with conflict management, classroom management, and discipline problems (Hill & Wicklein, 2000). This preparation problem has partially been dealt with through the five-year teacher education program. This program is even more advantageous because it allows more classroom and management time and therefore the graduate level teacher education program supports a retention rate twice that of four-year certification (Darling-Hammond et al., 1999) and at much higher rates than those prepared in short-term, alternative certification programs (Darling-Hammond, 2000a). All factors considered the 5 year program costs substantially less per career teacher than traditional routes and even less per career teacher than short-term alternatives to certification (Darling-Hammond et al.). The number of teachers entering the profession finishing a post-baccalaureate preparation degree has increased substantially over the years. In 1999, the percentage of new teachers transitioning into teaching with a post-baccalaureate degree was 27%, or nine times higher, than what was reported ten years earlier (Feistritzer, 1999). However, the central fact remains that schools are having increasing difficulty filling vacancies in the classroom and are relying on staff teaching "out of field," with emergency or alternative certification (Hull). Alternative certification should not be used as a "Band-Aid for education" (Whiting & Klotz, 1999) where individuals are trained in a content

area but have no pedagogical experience are being allowed to enter educational environments in our schools where they attempt to teach our students.

The teacher preparation issue is definitely a problem in the CTE field. This is supported by Gray and Walter (2001) who stated:

The most formidable constraint facing the reform of career and technical education teacher licensure/preparation is the shortage of CTE teachers. CTE teachers are almost universally in short supply. Virtually every state has an emergency teacher licensure provision that allows administrators to hire individuals who have not met the formal teacher preparation requirements.

Reluctantly, most CTE administrators would agree that a marginally prepared teacher who is a subject-matter expert is preferable to no teacher at all. Thus, although teacher licensure continues to become more rigorous nationwide, the number of individuals who enter the profession with emergency licensure is also climbing and alternatives to formal teacher preparation programs are becoming more numerous. In short, when classrooms do not have teachers, all licensure rules are off, and that is the present situation in CTE. (p. 18)

Many states respond to these deficits by creating back-door routes into teaching or short-term training programs that provide only a few weeks of preparation before entering a classroom (Darling-Hammond, 2000a). However, these alternative certification programs can exacerbate the problems of supply and demand because the attrition rate for those who enter through these “alternative” pathways can be as high as 60 percent (Darling-Hammond, Berry, & Thoreson, 2001). These “programs that rely on minimum certification field requirements risk sending their candidates into professional service

with weak efficacy or initial efficacy that is highly susceptible to erosion by the realities of practice” (Mulready, 2005, p. 127). This is further supported by Berry, (2001) who stated these alternative entrants are less likely to remain in teaching and do not possess the knowledge and skills needed to reach all students. Whiting and Koltz (1999) argued that they are not against alternative programs, but these entrants need “appropriate preparation to ensure their success and not their demise” (p.8). They went on to say the educational community should not continue to “put novices into shark infested waters with the expectation that they will be able to navigate and survive, without harming either the students or themselves” (p. 7).

There are alternative route programs, however, that “have emerged as a way to address existing teacher shortages and are offered by universities as well as a variety of other entities and organizations” (Bartell, 2005, p. 37). These programs offer options for teacher candidates and carry similar content presented and the skills that are taught in the traditional educational setting (Bartell). These “alternate routes into teaching are those that provide options to the traditional undergraduate teacher education program without lowering existing standards (Darling-Hammond et al., 1999, p. 211). As Darling-Hammond succinctly argued:

Alternative routes to teaching represent a significant policy challenge and opportunity. On the one hand, thoughtfully designed postbaccalaureate and mid career entry programs have proved successful in attracting a talented and diverse cadre of new recruits into teaching. Many are developing extended clinical preparation tightly linked to critical course work for teaching and offer examples of improved induction. (p. 211)

A critical issue in creating alternative route programs is recruiting academically skilled people with a commitment to students and then preparing and supporting them in a coherent training and induction program (Berry, 2001). This is supported by a study done by Ruhland and Bremer (2002) that found CTE teachers who enter the teaching profession through alternative routes are well prepared in terms of content but feel less prepared in pedagogy skills. Whether the school system uses traditional, alternatively certified, or alternative route teachers, statistics still inform us the teacher shortage problem is not simply a supply problem that can be corrected by applying short term alternatives for entry level teachers. In addition, "...no matter whether a program is traditional or alternative, one cannot learn to teach by being told about teaching. One learns to teach by seeing and working with a master teacher for an extended period of time..." (Berry, 2001, p.25). The teacher shortage problem is in large part a demand problem that can be solved by decreasing demand and by increasing retention (Cochran-smith, 2004).

Induction

The educational community has taken note of the resident in medicine, the intern in architecture, and the associate in a law firm and how important it is to have an extended clinical preparation period that carefully guides novices into growing responsibilities and more complex practice (Darling-Hammond et al., 1999). These novices continue to sharpen their knowledge and skills under more experienced practitioners and at the same time, the novices bring the latest research to bear on their practice, where it is shared and tested by both novice and veteran practitioners (Darling-Hammond et al). The stakeholders in education have given this preparation period of the

novice teacher the term induction. While Ingersoll and Smith (2004) referred to induction programs “as a bridge from student of teaching to teacher of students” (p.29.), Portner (2005) defined induction as a comprehensive, coherent, and sustained professional development process that is well organized to train, support, and retain novice teachers while seamlessly guiding them into a lifelong learning process. Olebe (2005) characterized induction “as professional education and development tailored for teachers in their first and second years of teaching” (p. 159). “We have come to think of these years as the induction period, or the time in which the novice becomes more familiar with their job responsibilities, the work setting, and professional norms and expectations” (Bartell, 2005, p. 5). Research has already supported the fact that the initial years of the teaching are the time at which teachers are most vulnerable for leaving (Bartell, 2005; Berry, 2004; Billingsley, 2006; Bradley & Loadman, 2005; Cochran-smith, 2004; Darling-Hammond et al., 1999; Dove, 2004; Gray & Walter, 2001; Hull, 2003; Ingersoll, 2001; Woullard & Coats, 2004) and research also reveals that teacher induction programs positively influences teacher retention (Bartell, 2005; Berry, 2004; Cochran & Reese, 2007; Darling-Hammond, 2003; Dove, 2004; Feiman-Nemser, 2003; Guarino et al., 2006; Howe, 2006). In previous years, new teachers have learned mostly through trial and error and because of that, many schools have sought to help new teachers learn on the job through induction programs (Wayne, Youngs, & Fleischman, 2005). Teachers need this gradual acculturation into the profession with a structured and well-supervised clinical induction period (Darling-Hammond, 1997).

Therefore, induction programs operate under the assumption that novice teachers will have needs as they enter the classroom (Bartell, 2005; Darling-Hammond, 1997;

Whisnant et al., 2005), but these induction programs offer varying support from one day orientation seminars and casual mentoring assignments to long term structured induction programs (Darling-Hammond, 1999; Portner, 2005; Wayne, Youngs, & Fleischman, S. 2005). These shorter, casual programs can create a problem because as Bartell (2005) postulated:

...induction program(s) are not a substitute for strong academic preparation, but an adjunct to and extension of that preparation. While the entry period represents the time at which teachers are most vulnerable for leaving, it is also the time in which professional norms and practices can be shaped for a career of lifelong practice and professional development. New teachers need guidance during this period, rather than being left to fend for themselves. (p. 15)

Therefore, successful induction programs have individualized teacher support such as mentoring, class observation, and formative assessments. They also include professional development activities such as collaborative networking, coursework, or conferences and employer sponsored program such as workshops and specific training (Olebe, 2005). Through these participatory activities, teachers exchange common cultural ideas and knowledge, as well as develop integrated collegial relationships that support continued learning (Bruffee, 1999). “The benefits of superior teacher induction include attracting better candidates; reduced attrition; improved job satisfaction; enhanced professional development and improved teaching and learning” (Howe, 2006, p. 287).

It is through these successful induction programs, “we have begun to value and appreciate the advantage of viewing teaching as a more collaborative endeavor, and

learning from each other” (Bartell, 2005, p. 57). This has not been the case for the novice teacher in prior years.

Beginning teachers

These early induction programs for the new teacher usually lasted one orientation day. The teachers filled out forms, were introduced to their colleagues, were given their handbooks and policy manuals, and then were sent off to their first class to sink or swim (Portner, 2005). According to Smith and Ingersoll (2004), “critics have long assailed teaching as an occupation that ‘cannibalizes its young’ and in which the initiation of new teachers is akin to a ‘sink or swim,’ ‘trial by fire,’ or ‘boot camp’ experience” (p. 682). This is further supported by Darling-Hammond et al. (1999) who stated that new teachers have been expected to sink or swim with little support or guidance and the principals in charge have typically been unavailable to provide the mentoring and oversight the beginning teacher requires. The NCTAF (2003) noted that “Teaching is the only profession in which entry-level individuals are expected—from Day One—to do the same job and perform at the same level of competence as experienced practitioners. Our schools regularly put rookies into the starting lineup and are surprised when they strike out” (p. 27).

Many new teachers are entering the field without adequate preparation (Darling-Hammond et al., 1999) and without added support, the first year high school teacher is even more likely to leave than the elementary or middle school teacher (Sclan, 1993). Even the technology teacher prepared in a four-year university program felt inadequately prepared to deal with the counseling and classroom management needs which they encountered (Hill & Wicklein, 2000). According to Inman and Marlow (2004), the

teacher most likely to leave the profession is the male teaching in the high school setting who has been teaching for fewer than five years and they are communicating the professional prestige of the profession is not as good as they originally perceived it would be.

These preconceived opinions of the prestige of the profession and high ideals and beliefs of what the teaching experience will be like (Liston et al., 2006) and the concept of helping students become better individuals (Woullard & Coats, 2004) are often dashed with the reality of the contemporary classroom experience. One of the biggest challenges and disappointments of the beginning teacher was learning that the students were not interested in learning (Osgood & Self, 2002).

Many new teachers are not expecting the demands that will be placed on them and are unaware of the stress that comes with the job (Woullard & Coats, 2004), causing the first couple of years to be a nightmare for the beginning teacher and often end up chasing the teacher out of the profession for good (Erickson, 2004). A growing number of these new teachers are adults changing their careers and entering the field through alternative certification programs rather than the traditional four-year undergraduate program (Portner, 2005). Many of these beginning teachers “experience ‘classroom or reality shock’ and often mistake the uneasiness they feel as an indication that they have made a mistake in their choice of profession” (Inman & Marlow, 2004, p. 606). The beginning CTE teacher often feels overwhelmed, has too little time, and is responsible for too much paperwork (Ruhland & Bremer, 2002). The new teacher wants to be trained and wants to fit in, but because the educational system has failed to recognize that formalized training matters, many school districts will continue to have ineffective teachers and poor student

achievement results (Wong, 2004). It would benefit the new teacher to have early field experiences as a method of preparation (Woullard & Coats, 2004) and because many teachers are poorly matched with the schools they are initially placed in, it would be better to allow the new teachers ample opportunities to visit and interact with a variety of realistic school settings before making a final decision (Inman & Marlow, 2004).

Beginning CTE teachers also support this because they stated they wished they had more in-depth pre-service training and earlier opportunities to deal with classroom experiences (Ruhland & Bremer, 2002).

Because of these preconceived ideas and inadequate preparation of the novice teacher, the Missouri Center for Career Education has established teacher support systems intended to help these new teachers succeed. These include the New Teacher Institute (NTI) and a two-year induction program that includes mentoring for the new teacher. The mentoring program pairs experienced teachers with the new teacher. The mentor and protégé work together and NTI puts new teachers from various areas of CTE together, while the mentoring program pairs those in the same content areas (Cochran, & Reese, 2007).

New Teacher Institute

Research indicates new teacher workshops are useful in teacher retention and give new teachers opportunities to learn and have hands-on teaching experiences (Osgood & Self, 2002). University and state agency personnel conduct the workshops, but the dominant players and presenters are teachers. According to Osgood and Self, many of the participants:

...are new teachers who have been identified as superior in certain aspects of their responsibilities. These practitioners relate better with the incoming teachers, and show proof that not only can a new teacher survive but also thrive. They role model good and varied teaching styles, and are future networking contacts. (p. 7)

In Missouri, NTI has been in existence for more than 40 years and is a year long comprehensive development program. It is “designed to be a sort of teacher boot camp” (Cochran & Reese, 2007, p. 25) and helps individuals coming into the teaching profession from business and industry. “NTI has three main goals: to develop the pedagogical skill of new CTE teachers; to identify resources to support new CTE teachers; and to establish a support network for new CTE teachers” (Cochran & Reese, p. 26). According to Washer (2000), NTI should be required for all new instructors who do not possess a formal education degree or documented classroom experience.

Since the 2003 school year, the Missouri development program has also instituted a two-year mentoring program into their induction program to help retain their CTE teachers (Cochran & Reese). “With the plethora of alternative certification teachers, giving such a teacher a mentor alone to meet on occasion is not sufficient” (Wong, 2004, p.43), but putting an experienced teacher with the novice in conjunction with the other induction goals may be instrumental in alleviating a poor first year experience and retaining the novice teacher (Musanti, 2004; Whisnant et al., 2005).

Mentoring

It is important to note the terms induction and mentoring are often used synonymously (Ingersoll & Smith, 2004), however the terms have very different meanings and cannot be used interchangeably (Cornu, 2005; Portner, 2005; Wong, 2004);

“A mentor is a component of the induction process” (Wong, p. 42). While mentoring is perhaps the most important element of an induction program, it may not be effective if used alone in training and supporting novice teachers (Wong, 2004). However, mentoring is a good retention tool for the novice teacher (Bartell, 2005; Brown, 2003; Cochran & Reese, 2007; Darling-Hammond, 1997; Feiman-Nemser, 2003; Lee et al.; 2006; Igersoll & Smith, 2004; Vail, 2005; Wayne et al., 2005) and plays an important role in keeping new teachers in the profession by assisting in the navigation through the rough waters of their first years of teaching (Cochran & Reese, 2007). Mentoring has become a “nurturing process in which a skilled or more experienced person, serving as a role model, teaches, sponsors, encourages, and counsels a less skilled or less experienced person for the purpose of promoting the latter’s professional and/or personal development” (Anderson & Shannon, 1988, p. 40).

However, mentoring got off to a rough start and many beginning mentor teachers had little or no training or prequalification and therefore the quality varied widely (Howe, 2006; Johnson et al., 2005) and this caused many new teachers to claim they had little or no support from their mentors (Wong, 2004). Conversely, when mentors “are carefully selected, prepared for their responsibilities, supported in their work, and evaluated on a regular basis” (Bartell, 2005, p.71) they help meet the needs of the novice teacher. This is supported by Cohen (2005) and Smith and Ingersoll (2004) who reported new teachers are more likely to continue teaching in their schools when they receive quality mentoring from teachers in their subject areas. “The critical catalyst in this teacher education equation is to provide novice teachers with experienced, well-qualified and specially trained mentors” (Darling-Hammond, 1997, p. 295). Mentoring is especially helpful for

CTE teachers who are in a specialized field and are trying to learn how to communicate technical information and expertise in the classroom without previous classroom or lab experience (Brown, 2003). Research done by Darling-Hammond (2000a) revealed:

Beginning teachers who have access to intensive mentoring by expert colleagues are much less likely to leave teaching in the early years. A number of districts ... have reduced attrition rates of beginning teachers by more than two-thirds (often from levels exceeding 30% to rates of under 5%) by providing expert mentors with release time to coach beginners in their first year on the job. These young teachers not only stay in the profession at higher rates but become competent more quickly than those who must learn by trial and error. (p. 22)

“In this regard, there is no better form of professional development for teachers than a thoughtfully designed and carefully implemented mentoring program” (Portner, 2005).

This is buttressed by research done by Scott (2008) who found that despite having problems with accountability and programmatic considerations, when confronted with the prospect of not having mentoring available for new teachers, all the new teacher respondents interviewed identified a need for a statewide mentoring program and believed mentoring helped increase retention rates.

Professional Development

School districts are going to have trouble producing and retaining effective teachers who can turn out quality student achievement results without a carefully thought out professional development program (Wong, 2004). According to Wong:

What keeps a good teacher are structured, sustained, intensive professional development programs that allow new teachers to observe others, to be observed

by others, and to be part of networks on study groups where all teachers share together, grow together, and learn to respect each other's work. (p. 41)

This is supported by Feiman-Menser, (2003) who stated "...we must treat the first years of teaching as a phase in learning to teach and surround new teachers with a professional culture that supports teacher learning" (p. 25) because "Learning to teach is a developmental process that takes several years" (Wong). "Teachers need professional development and time to collaborate with colleagues" (Vail, 2005, p. 9) and develop a support system where they can engage in a truly collaborative, professional development community (Musanti, 2004; Wayne et al., 2005).

The CTE teachers stated in the Truell (1999) study that as far as professional growth is concerned, they needed more opportunities to observe other teachers in their field. "What is important in the life of a new teacher is the presence of a district articulated, coherent, lifelong professional development program" (Wong, p. 48). As the educational community continues to evaluate and improve its professional development programs for the novice teacher, positive outcomes will help alleviate the staggering attrition problems that face our nation today.

Teacher Attrition

Turnover rates are high, but turnover also includes those educators who transfer to a different school (Ingersoll, 2001) and those teachers who are leaving the profession all together (attrition), are even more troubling. An analysis of the most recent data from the National Center for Education Statistics found that approximately a third of America's new teachers leave teaching sometime during their first three years and almost half leave during the first five years (NCTAF, 2003). Teacher migration does not affect the overall

supply of teachers (Ingersoll), but if a teacher is moving for family reasons, there are many barriers to teacher mobility such as reciprocity in licensing, pension portability, and the unwillingness of other districts to pay teachers for their experience accrued in other districts (Darling-Hammond et al., 1999); it sometimes turns teacher migration into teacher attrition.

In addition to poor teacher mobility, retirement is a factor in dealing with the teacher shortage. However, "...it is not true that most teachers who leave teaching do so because of retirement..." (Cochran-Smith, 2004, p. 388) and "Contrary to conventional wisdom, retirement is not an especially prominent factor. It actually accounts for only a small part (12%) of total turnover" (Ingersoll, 2002a, p. 25). Therefore, retirement is among the least prominent reasons for teacher attrition (Ingersoll, 2001). "Researchers have consistently found that younger teachers have higher rates of departure..." (Ingersoll, 2002a, p.17) and the highest "attrition rates seen for teachers occurred in their first years of teaching" (Guarino et al., 2006, p.188).

The more prominent reasons the novice teacher leaves is due to personal reasons such as pregnancy, child rearing, health problems, and family moves which account for 45% of the attrition (Ingersoll, 2001) and the dissatisfaction of low salaries, lack of administration support, lack of student motivation and student discipline problems (Ingersoll; Wutke, 2004). Several studies have shown that salary issues are a prominent reason for teacher attrition (Berry, 2004; Billingsley, 2004; Ingersoll, 2002a; Woullard & Coats, 2004; Wutke, 2004) and that quality teachers will stay if they are paid well (Berry, 2004). This is supported by (Billingsley) who argued, "...salary should be a strategy that school systems consider to increase retention" (p. 45). However, the fact remains, "Our

inability to support high-quality teaching in many of our schools is driven not by too few teachers coming in, but by too many going out, that is, by a staggering teacher turnover and attrition rate” (NCTAF, 2002, p. 3). In addition to the personal reasons and salary issues, (Ingersoll & Smith, 2003) report that their “...data suggest that the roots of the teacher shortage largely reside in the working conditions within schools and districts (p. 32).

Workplace Conditions

“Surveys of teachers have long shown that working conditions play a major role in teachers’ decisions to switch schools or leave the profession” (Darling-Hammond, 2003, p. 9). The teaching profession is becoming more complicated and “The new educational conditions, goals, and reforms are compounding, for the beginning teacher, what is already a complex professional challenge” (Inman & Marlow, 2004, p. 606). It is imperative that educational planners consider working condition issues and “develop schoolwide structures that promote the frequent exchange of information and ideas among novice and veteran teachers” (Johnson & Birkeland, 2003, p.608) so these problems can be addressed. These dilemmas are compounded for most CTE teachers because of the additional challenges presented by their teaching environment. They not only have classroom responsibilities, but need to manage laboratories with all the equipment, materials, and necessary tools, while keeping up with complicated technical curriculum. (Hill & Wicklein, 2000) Moreover, Osgood (2001) noted that novice CTE teachers sometimes expressed concern because their classroom environments required that they operate equipment with which they were unfamiliar.

Therefore, the educational planners “need to consider not only the act of beginning teaching, but the *context* in which new teachers learn and perfect their craft once they begin to teach” (Bartell, 2005, p. 12). This is especially true for the new CTE teacher because their backgrounds and experiences can be so diverse. Depending on their pre-service training, they may need different types of assistance and ongoing help in the areas of curriculum development, teaching methods, and time and classroom management (Ruhland & Bremer, 2002). “The best induction programs provide connection because they are structured within learning communities where new and veteran teachers interact and treat each other with respect and are valued for their respective contributions” (Wong, 2004, p. 50).

To stay in teaching, today’s— and tomorrow’s— teachers need school conditions where they are successful and supported, opportunities to work with other educators in professional learning communities rather than in isolation, differentiated leadership and advancement prospects during the course of the career, and good pay for what they do. (Cochran-smith, 2004, p. 391)

In addition, “schools that provided teachers with more autonomy and administrative support had lower levels of teacher attrition and migration” (Guarino et al., 2006, p. 199) and this is buttressed by Ingersoll and Smith (2003) who stated improving the working conditions of the novice teacher will contribute to lower attrition rates. One of the most important ways to reduce attrition is by increasing teachers’ job satisfaction (Billingsley, 2004) and this can be partially accomplished through empowerment.

Empowerment

Teachers who perceive themselves having high levels of autonomy report lower levels of intent to leave the teaching profession (Dee, 2004) and teachers “...are happiest when they have some control over their work environment” (Vail, 2005, p. 7). In the opinion of Liu (2007), “A school culture characterized by strong teacher influence may well nurture a bond between first-year teachers and their schools because first-year teachers can foresee increased professional opportunities for playing leadership roles in their organizations” (p.13). Scribner et al. (2001) argued “that if all students are to learn and perform in ways consistent with being productive citizens ... then all teachers – including career and technical education teachers – must be empowered to successfully promote school reform to advance increased student learning” (p. 47). One of the best resource strategies for retaining quality employees is to empower them by providing information and support, encouraging autonomy, and fostering teamwork and participation (Bolman & Deal, 2003).

The “Autocratic, top-down management tends to quash teacher and employee morale” (Vail, 2005, p. 7) and does not lend itself to knowledge creation and the development of tacit knowledge that takes place at the front line organizational level (Nonaka & Takeuchi, 1995). When teachers have a voice in decisions and their views and opinions are taken seriously, it lets them know they are respected and valued (Vail).

Specifically, for empowerment to be effective, these decisions must focus on areas of importance to teachers such as issues directly related to them in the teaching and learning field and they must feel their participation is actually affecting the decisions made (Liu, 2007; Scribner et al., 2001). As administrators gather this employee input and

give the teacher a chance to be heard on important issues (Vail, 2005) it will foster a decision making environment that includes the teacher and this “increased decision making by teachers is not simply a goal, but is carefully integrated into the process of how things get done” (Scribner et al, p. 55). Thus, empowerment is one of the main issues of concern for the administrator when they are considering support issues for their teaching staff.

Support

“Research suggests that teachers are more likely to leave teaching or indicate intent to leave in the absence of adequate support from administrators and colleagues” (Billingsley, 2004, p. 45). This is buttressed by Wutke (2004) that found the most prevalent reason for teacher dissatisfaction was inadequate support from their administration. Many teachers feel isolated in their classroom (Gilles & Wilson, 2004; Johnson, 2003; Musanti, 2004; Vail, 2005) and “...often feel they are thrown into the classroom and are left alone” (Erickson, 2004, p. 1). This is supported by Vail who stated “turnover is exacerbated by isolation that new teachers often feel ...” (p. 5). According to Wong (2004) “The era of isolated teaching is over. Good teaching thrives in a collaborative learning environment created by teachers and school leaders working together to improve learning in strong professional learning communities” (p. 52). This is supported by Smith and Ingersoll (2004) who stated the most salient factors in teacher retention were having mentors in the same subject area, having common planning time with other teachers, collaborating with other teachers on instruction issues, and being part of a network of teachers. “The need for personal support, whether in the form of a mentor or a peer support group” (p. 29) was also mentioned by all of the novice CTE teachers in

a Ruhland and Bremer (2002) study. When teachers received this support they “were significantly less likely to depart their school at the end of their first year” (Smith & Ingersoll, p.35). Furthermore, as the educational community develops support programs they can be sure they “provide connection because they are structured within learning communities where new and veteran teachers interact and treat each other with respect and are valued for their respective contributions” (Wong, p. 50).

Therefore it is crucial that school administrators help to “overcome teachers’ isolation within and outside of the work environment” (Musanti, 2004, p. 14) and give support in “other key mediating variables, such as role design, stress, job satisfaction, commitment, and professional development” (Billingsley, 2004, p. 46). The most successful teacher programs have administrator support where the expert and novice teacher can learn together in a supportive environment and are given time to collaborate, time to reflect, and time to gradually acculturate into the teaching profession (Howe, 2006).

Time

According to Darling-Hammond (1997), a successful teacher induction program is like a chemical reaction that requires certain components to be in place for the reaction to be effective and the key element in the teacher equation is time. Several research studies identify time issue constraints as a major issue with novice teachers (Darling-Hammond, 1997; Osgood & Self, 2002; Ruhland & Bremer, 2002; Smith & Ingersoll, 2004; Truell, 1999; Vail, 2005). The Ruhland and Bremer and the Truell studies discovered the most serious concern reported by the novice CTE teacher was their demand on time issues. “Not enough time to get everything accomplished was mentioned

repeatedly by all participants” (p.19) in an Osgood and Self study and “One respondent stated, ‘I was hired the very same day the students came to school’” (p.17), and another new teacher stated, “‘I was hired three weeks after school started’” (p. 17). Therefore the time issues not only include “lack of time to accomplish all the needed tasks as well as being hired too late to get ready for classes” (Osgood& Self, p.17) but also needing additional time to collaborate with colleagues (Vail). The need to provide adequate time for the teacher to become acclimated to their environment and time to spend with experienced teachers and curriculum specialists is an absolute necessity for the novice teacher to become successful. Also, adequate time needs to be given so that the new teacher can observe other classes and be observed (Osgood & Self). In addition to administrative support and additional time, Ingersoll (2001) found that the reduction of student issues and discipline problems would also help in lowering turnover and ultimately help the overall school performance.

Student Issues

One of the major areas of dissatisfaction concerning the novice teacher is student motivation and discipline (Darling-Hammond, 1997; Osgood & Self, 2002; Wutke, 2004). According to Osgood and Self these “student issues included dealing with students’ motivation, ability, interest, attitudes and behaviors” (p. 17). Concerns with developing good work and study habits in students were reported as being the second highest concern by novice CTE teachers (Ruhland & Bremer, 2002; Truell, 1999). In the Osgood and Self study, one teacher stated “Dealing with students and their attitudes was a shock” (p.17) and another stated that “students don’t have the ethics that I had when I was in school...they have to be pushed to do everything” (p. 17). For these teachers, one of the

biggest challenges and disappointments was finding out the students were not interested in learning (Osgood & Self). Disruptive student behavior damages teacher morale and many teachers who leave say they did not feel adequately backed up when it came to disciplining students (Vail, 2005). This is especially true for CTE teachers because they must sometimes accommodate significant numbers of disadvantaged students (Hill & Wicklein, 2000). The novice teacher is already at a disadvantage because of the inexperience of their first classroom management assignment, but the experience is exacerbated when the teacher does not feel adequately backed up by the school administration when it comes to disciplining these individual students (Vail). CTE educators not only need the support of their teaching administration, but also could use community and industry support in fulfilling their teaching obligations.

Industry Support

“Without the support of the community, beginning teachers will continue to leave the profession for other endeavors which afford them positive feelings of efficacy and accomplishment” (Inman & Marlow, 2004, p. 612). According to Barton (2006) there will be 177,000 average job openings per year for the construction laborer and only 21% of those jobs require some college education. Barton stated that since approximately 80% of the workforce only needs a high school education, employers can help in the development of the skills employees need for these entry level jobs such as communication, interpersonal, decision-making, and lifelong learning skills. Barton goes on to explain “There have been a number of successful partnerships between employers and educators” (p.30). Brown (2002) highlighted that industry leaders can help teachers keep current in the midst of constant change through internships, externships, and

industry tours. The teacher will get insight into workplace skills needs, specific ways in which academic skills are used on the job, and a variety of real life applications that they can bring back to the classroom. Teachers can ensure their programs are up to date and direct students' academic and technical skill development to current and future workplace requirements by incorporating industry collaboration (Brooks, MacAllum, & McMahan, 2005).

Students should also have the opportunity to work with adults in the community and work settings. According to Brooks, MacAllum, and McMahan (2005) businesses and educators can work together to motivate students to perform better and see the relevance of academic learning by giving them real world experience through internships, job shadowing, and community service. This work-based learning component “exposes young people to professional settings where they can gain ‘real world’ experiences that allow them to explore potential career options, develop professional skills, and apply academic concepts to life situations” (Brooks, MacAllum, and McMahan, p. 29).

In addition, Berry (2004) stated the development of school-community partnerships helps in the retention of the novice teacher and the community “can contribute toward the beginning teacher’s feeling of self-worth and thus improve the condition of the classroom environment through active involvement” (Inman & Marlow, 2004, p.613). School administrators even suggested the possibility of adding an industry specific mentor from the CTE teacher’s advisory committee to assist with the technical obstacles of the beginning teacher (Osgood, 2001).

Summary

Literature related to low retention and high attrition rates of the novice teacher was reviewed in chapter two. Presented in this chapter was information concerning the magnitude of the teacher shortage problem and how the school climate is affected by high teacher attrition. Another aspect of education affected by the attrition problem is student achievement. According to the literature, as attrition rates improve, so does student achievement, and this is especially true in the area of CTE. Teacher preparation also has an effect on teacher retention and many educational systems are helping the beginning teacher through induction practices such as New Teacher Institutes, mentoring, and ongoing professional development. The literature also revealed the constructs of empowerment, support, additional time, increased pay, and help with student issues as ways to lower the attrition rate of the novice teacher. Research also noted that industry support was also very helpful to the beginning CTE teacher.

Discussed in Chapter Three is a description of the research design and methodology. This discussion includes research questions, population and sample, methods of data collection, and data analysis. The rationale for selecting a mixed-design for the study is described. In Chapter Four, the data findings and analysis of these findings are presented. Findings, conclusions, and recommendations for future research are described in Chapter Five.

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

Introduction

The quandary of retaining teachers is not a new problem facing our educational system. This is acknowledged by Bartell (2005) who stated “the need for well-qualified, highly competent teachers has never been greater” (p. 4) and buttressed by Ingersoll, (2001a) who argued that “the failure to ensure that all classrooms are staffed with qualified teachers is one of the most important problems in U. S. education” (p. 42). This is especially true for Career and Technology Education (CTE) programs as supported by Gray and Walter (2001) who reveal there is a general shortage of CTE teachers and “in some programs, such as technology education, the shortage is so severe that it threatens the program of study’s very existence” (p. 15).

Overview of Purpose and Problem

Research has shown there is a shortage of quality teachers in classrooms across America. The National Commission on Teaching and America’s Future (NCTAF) (2003) announced that teacher retention was a national crisis (p. 8). Although some research has been done on the recruitment and retirement of the teacher workforce, new research suggests this is the wrong diagnosis for the more significant problem of retention and attrition (Ingersoll, 2002a; Ingersoll & Smith, 2003; Merrow, 1999). Additionally, many studies have specialized their research in the areas of mathematics, science, or special needs teachers which are in high and critical demand in the secondary school system (Billingsley, 2004; Boyer & Gillespie, 2000; Feistnitzer, 2005; Ingersoll, 2003, McLeskey, Tyler, & Flippin, 2004; Rosenberg & Sindelar, 2005), but very few studies

have been done on the retention and attrition of CTE teachers, especially in the high labor demand area of the construction industry. There have been numerous studies (Bartell, 2005; Berry, 2004; Billingsley, 2006; Bradley & Loadman, 2005; Cochran-Smith, 2004; Darling-Hammond, Berry, Haselkorn & Fideler, 1999; Dove, 2004; Gray & Walter, 2001; Hull, 2003; Ingersoll, 2001; Woullard & Coats, 2004) done promoting the understanding of why teachers leave their profession during their first years of teaching on a national level, but research is deficient concerning CTE teacher retention and attrition on the state level. "...The experiences of career and technical education teachers have been relatively ignored in the broader educational reform literature" (Scribner, Truell, Hager, & Srichai, 2001, p. 46). This is supported by McCaslin and Parks (2002) who stated "There needs to be more research done for career and technical teacher education" (p. 10) and buttressed by Cohen and Besharov (2002) who pointed out "More research needs to be done on how schools... retain good CTE faculty" (p. 40).

It was the intent of the author to examine the dominant factors that caused Missouri construction CTE teachers to leave the profession during their first five years in the profession, or if they have stayed, what were the dominant factors that caused them to consider leaving and the factors helping them to stay. Additionally, the factor of industry support was investigated as it relates to teacher attrition.

Research Questions

Within the context of this study, the following research questions were addressed:

1. Are there differences in the retention rates of construction CTE teachers receiving their four-year teaching degree from a college or university and construction CTE teachers coming directly out of industry with a two-year alternative certificate?

2. Are there differences in the reasons four-year teacher certified construction CTE educators are leaving the profession and those having a two-year alternative certification are leaving the teaching profession?
3. Are there differences in the reasons four-year teacher certified construction CTE educators have considered leaving the profession and those having a two-year alternative certification have considered leaving the teaching profession?
4. What are the widespread and dominant reasons why construction CTE teachers are leaving the profession during their critical first five years?
5. What are the dominant reasons current construction teachers would consider leaving the profession?
6. What are the factors causing CTE teachers who have been teaching more than three years to stay in the teaching career field?
7. What effect has mentoring had on the beginning construction CTE teacher?
8. What is industry doing or what could industry do in the future to help in the retention of qualified construction teachers in Missouri's secondary school system?

Research Hypotheses

In order to answer the preceding research questions, the following null hypotheses were explored in this study:

Hypothesis 1. There is no statistically significant difference between the retention rates of construction CTE teachers receiving their four-year teaching degree from a college or university and construction CTE teachers coming directly out of industry with a two-year alternative certificate.

Hypothesis 2. There are no significant differences in the reasons four-year teacher certified construction CTE educators are leaving the profession from those having two-year alternative certification.

Hypothesis 3. There are no significant differences in the reasons four-year teacher certified construction CTE educators have considered leaving the profession from those having two-year alternative certification.

Population and Sample

The population for this study included all construction CTE teachers in the Missouri public school system, both in the comprehensive High School and the Career and Technology Centers. Missouri institutions that had construction related teachers were identified from the Missouri Department of Elementary and Secondary Education (MODESE) Report of Trade and Industrial Teachers 2007-08. There were 22 current teachers identified in 22 comprehensive High Schools and 94 current teachers identified in 51 Career and Technology Centers in the 2007-08 school year. Each of these institutions were contacted for verification of contact information on existing construction CTE teachers and any construction CTE teachers who were teaching during the 2003-04 school year through the 2007-08 school year, but were not teaching at the beginning of the 2008-09 school year.

The teachers who have been teaching for three or more consecutive years were considered stayers for the purpose of this study. The teachers who taught and left before having three years of consecutive teaching experience were classified as leavers. The researcher identified five construction CTE teachers that would be considered leavers for the purpose of this study. The teachers who began teaching after the 2006 school year and

were still teaching at the beginning of the 2008-09 school year were by definition neither stayers or leavers and therefore their data were not used for the purposes of this study.

The researcher differentiated 12 existing construction CTE teachers that met these criteria.

In addition, as the researcher contacted all 74 of these teaching institutions, it should be noted that three of the schools had CTE teachers retire in the 2007-08 school year and did not find replacements for them in the 2008-09 school year and were no longer offering a construction CTE curriculum. Also, three institutions did not want their CTE faculty participating in the research study. After removing the teachers that did not qualify, removing the teachers that had retired or were on extended medical leave, and removing the teachers that could not participate due to conflicts with their administration, it left a total of 92 potential stayer candidates and five leaver candidates for the purposes of this study. Out of the 92 stayer candidates, 18 were located in the comprehensive high school setting. The sampling was two-phased, using a quantitative/qualitative mixed-method design for phase one of the study. An electronic call for participation letter was distributed to every leaver and stayer who taught in the construction CTE field in the state of Missouri during the 2003-04 through 2007-08 academic years. The letter contained a short background and reason for the study, how the participants were selected, and a description of the potential benefits gained for Missouri CTE by participating in the study (see Appendix A). The participants were then asked to go to a Web-link where they could find the informed consent form (see Appendix B) and take the online questionnaire, one for the leavers (see Appendix C) and one for the stayers (see Appendix D). Participants were asked at the end of the questionnaire if they would be interested in

participating in an interview to gather additional information for the study. Phase two participants were selected from a positive response to this question.

Phase two of the study involved a purposeful sampling of those participants who indicated they would be interested in participating in an interview. This purposeful sampling was based on the premise that to gain rich insights and have a full understanding of the data, a select sampling must be determined from which the most can be learned (Merriam, 1998; Seidman, 2006). The sampling intended to include eight participants: (a) one teacher from the comprehensive High School setting who was 4-year certified and was a leaver, (b) one teacher from the comprehensive High School who was alternatively certified and was a leaver, (c) one teacher from the comprehensive High School who was 4-year certified and was a stayer, (d) one teacher from the comprehensive High School who was alternatively certified and was a stayer, (e) one teacher from the Career and Technology Center who was 4-year certified and was a leaver, (f) one teacher from the Career and Technology Center who was alternatively certified and was a leaver, (g) one teacher from the Career and Technology Center who was 4-year certified and was a stayer, and (h) one teacher from the Career and Technology Center who was alternatively certified and was a stayer. However, only two leavers volunteered to interview, so there was not a four-year leaver from the High School or Career and Technology Center who participated in this study. The researcher did choose the other participants with these varied backgrounds and experiences so rich, descriptive data could be produced to allow for an insightful study.

Research Design

In choosing a research design, the researcher must consider what will be accepted and considered appropriate for their study. According to Patton (1997), “a paradigm is a worldview built on implicit assumptions, accepted definitions, comfortable habits, values defended as truths, and beliefs projected as reality” (p.267). Therefore, a research paradigm would be a model of how to seek out information or facts which has been tested, used, and accepted to the point it does not need any epistemological or ontological consideration. The two broad methodological perspectives are quantitative and qualitative. The quantitative/experimental paradigm was the dominant choice for research prior to the mid 1970s (Patton, 1997). Evaluation and research were dominated by the applied and natural sciences and the researchers preferred quantitative measures, experimental design, and statistical analysis which became the tenets of positivism (Patton). As anthropology and the social sciences began wanting to do more studies of human subjects, a new paradigm began to take shape. This research paradigm was under-girded by the philosophical beliefs of phenomenology and includes research methods such as in-depth case studies, open-ended interviewing, and personal observations (Patton).

Multiple Methods Approach to Research

These two research paradigms, quantitative and qualitative, are at opposite ends of the spectrum in their methodology. The quantitative methodology uses numbers and data in a deductive approach and relies on absolutes and what they consider absolute truth. As researchers, they are detached from the project and use standardized, uniform procedures and fixed designs. The qualitative methodology, however, uses narratives, descriptions, and observations in an inductive approach which are more subjective in

design. The researcher is close to and sometimes immersed in the research and they use holistic, emergent and flexible designs (Patton, 1997).

In recent years, a new research method has emerged that recognizes the attributes of both of these paradigm designs and it is called mixed methods research or mixed-design. According to Johnson and Onwuegbuzie (2004), the goal of this mixed method “is not to replace either of these approaches but rather to draw from the strengths and minimize the weaknesses of both in single research studies and across studies” (p.15). Mixed methods research attempts to “fit together the insights provided by qualitative and quantitative research into a workable solution” (Johnson & Onwuegbuzie, p.16). Qualitative research is known to produce thick, rich descriptive data and is usually applied to small, nonrandom samples (Merriam, 1998). Conversely, quantitative research bases statistical significance on large, representative, heterogeneous sampling methods using an appropriate number of participants to reduce biases in the data collected (Field, 2005; Heppner & Heppner, 2004; Merriam, 1998). A mixed-design takes advantage of both of these research methods and will be employed in this study.

Combining quantitative and qualitative methods was realistic for this study “because each approach provides a different perspective on the topic” (Hammond, 2005, p. 241) of how to better retain our construction CTE teachers. Even though some researchers believe qualitative methods should only be used when quantitative data are limited (Heppner & Heppner, 2004), by incorporating the qualitative phase of personal interviews of CTE teachers, the findings helped to validate the quantitative theories while also providing the rich insight of dialogue, discussion, and additional information not

discovered in the quantitative survey (Heppner & Heppner, 2004; Johnson & Onwuegbuzie, 2004; Merriam, 1998; Plewis & Mason, 2005).

Triangulation

Triangulation is “used when a researcher wants to directly compare and contrast quantitative statistical results with qualitative findings or to validate or expand quantitative data” (Creswell & Clark, 2007, p. 62). Follow-up interviews of those completing the survey were used to triangulate results from the quantitative statistical procedures because when “using multiple methods of data collection and analysis, triangulation strengthens reliability as well as internal validity” (Merriam, 1998, p. 207). Maximum variation sampling (Creswell & Clark; Seidman, 2006) was used to ensure all aspects of the respondents were selected in location (High School or Career and Technology Center), education (4-year undergraduate certified or alternatively certified) and both stayers and leavers. This provided “the most effective basic strategy for selecting participants for interview studies” (Seidman, p. 52). The interview protocol was semi-structured with constructs relating to the review of literature and data obtained from the electronic survey instrument. One interview was developed for leaving teachers (see Appendix E) and the other interview was constructed to gain insight from the stayers (see Appendix F). The interviews were recorded on audiotape with permission of the participants and were commercially transcribed and converted to Microsoft Word files. These files were placed into qualitative data analysis software (Wordstat 5.1 & QDA Miner) where the emerging themes were identified from the analysis of the holistic data. This method helped facilitate the “naming of categories, determining the number of categories, and figuring out systems for placing data into categories” (Heppner &

Heppner, 2004, p. 197). The trustworthiness and validity of the study's findings were obtained by triangulating the constructs of the literature review, the data from the mixed-design survey, and the categorical data of the personal interviews.

Data Instrumentation and Collection

To facilitate the questions to discover how to better retain construction CTE teachers in the secondary school system, a literature review was undertaken by the researcher to develop the main constructs of retention and attrition of beginning teachers. This review yielded information to help the researcher in the construction of the survey instrument. The survey was a validating quantitative data model (Creswell & Clark, 2007) and the researcher validated and expanded on quantitative findings from the survey by including open-ended qualitative questions that provided the researcher with interesting quotes and constructs that were used to validate and enrich the quantitative findings and helped in the development of the semi-structured interview questions. Two separate mixed-design surveys were constructed. One for construction CTE teachers who were leavers, Mixed-design Survey of Former Construction CTE Teachers (MDLS), (see Appendix C) and the other for the stayers, Mixed-design Survey for Current Construction CTE Teachers (MDSS), (see Appendix D). The researcher then used the explanatory design (Creswell & Clark) to explain and expand on statistically significant or unexpected results originating from the validating quantitative data model by utilizing a semi-structured interview. The strengths of the explanatory design are that it is straightforward to implement and can be done by an individual researcher and it is straightforward to write and provide a clear delineation for the reader (Creswell & Clark).

Survey

The surveys were formulated electronically using Simple Form and Survey Builder v2.1. The MDLS was created for leavers and the MDSS for stayers. Each instrument had several demographic questions so comparisons could be made between the comprehensive High School setting and the Career and Technology Centers and whether the teacher was four-year teacher certified or two-year alternatively certified. The Likert type scale is commonly used in research to measure attitudes and perceptions (Fraenkel & Wallen, 2003). Therefore, the MDLS asked questions regarding the level of importance of why the teacher left the profession and the MDSS asked questions about the level of dissatisfaction in the profession if the teacher was a stayer. The respondents were asked to rate the level of importance on a five point Likert-type scale ranging from not at all important to extremely important.

The Likert-type scale items represented the elements of interest gleaned from the review of literature on the retention and attrition of beginning teachers. If a leaver responded on the MDLS that dissatisfaction with teaching as a career was at least somewhat important in their decision to leave, they were asked to complete a second Likert-type scale with more discriminate items so the researcher could view a more in depth study of the significant reasons construction CTE teachers are leaving the profession.

The respondents were then asked five open-ended qualitative questions on the MDLS and six open-ended questions on the MDSS to validate the quantitative theories while also providing the richer insight and additional information not discovered in the Likert-type scale quantitative survey (Heppner & Heppner, 2004; Johnson &

Onwuegbuzie, 2004; Merriam, 1998; Plewis & Mason, 2005). Since pilot testing bolsters both reliability and validity (Fink, 2006), both surveys were pilot tested in the presence of the researcher. The participants were given the instructions on how to complete the survey and asked to provide feedback on the clarity of the directions, clarity, format, and appropriateness of the questions, and length of the survey. The appropriate changes were made to the surveys before they were issued to the study population. Through the use of this mixed-design questionnaire, participants were able to answer the questions without the direct presence of the researcher and they could take the time necessary to think about their responses and the impact each construct had on their teaching experience. In addition, the questionnaire responses provided the researcher with additional background to tailor the semi-structured interview questions to further triangulate the findings. The survey ended by asking the respondents if they would be willing to participate in a follow-up interview.

Both surveys were field tested and judged by a sample population to ensure the survey's face and content validity (Fraenkel & Wallen, 2003) and clarity. The researcher made changes to the surveys as directed by the judges until they believed the instrument format was appropriate, clearly presented, and of adequate length to ensure content related validity (Fraenkel & Wallen). The field test also helped determine the length of time required to complete the survey. The researcher ensured generalizability by sending the survey to the entire population of construction CTE teachers in Missouri from the school years 2003-08. Reliability was established through the test-retest method (Field, 2005; Fraenkel & Wallen; Heppner & Heppner, 2004) with a sample group of teachers completing the survey on two separate occasions and a period of approximately two

weeks separating the settings. The test-retest reliability of the survey instrument was assessed using bivariate correlations (Field, 2005) for each individual question. The Pearson correlation ranged from .564 to .967; all the question correlations were significant beyond the required .05 significance level.

Interview Protocol

To further answer research questions four through seven, follow-up interviews were conducted by the researcher. The semi-structured interview served as a probe of the questionnaire responses and provided the purposeful sampling of participants with the opportunity to extend their written answers and further consider related issues of retention and attrition of construction CTE teachers. The semi-structured and open-ended protocol allowed the individual participants to establish and engage in richer dialogue with the researcher and establish additional insight into the study by providing a wider latitude of potential responses from the respondents (Merriam, 1998). The researcher met with each individual interviewee at a convenient time and location of their choosing.

Two different interview protocols were developed, one for the leavers (see Appendix E), and one for the stayers (see Appendix F). Both of these provided deeper insight into reasons why four-year certified teachers left the teaching profession versus the reasons why two-year alternative certified teachers left the teaching profession. They also both provided insight into what industry was doing or could do to help retain construction CTE teachers in the secondary school system. However, the leaver protocol sought to gain insight into the dominant reasons construction CTE teachers were leaving the profession while the stayer protocol was used to interview current construction CTE teachers and allow the researcher to gain insight into the concerns and reasons a current

teacher would consider leaving the profession and the positive factors that are causing the teacher to stay in the career field.

Interviews began with an overview of the study and a brief explanation of what the researcher was trying to accomplish through the interview process. The role of the interviewee was explained and the University of Missouri's Institutional review Board rights as a human subject was discussed and signed by the participants (see Appendix G). Each interview was recorded with the participant's permission and the researcher took field notes to record information not reflected from the audio recording. A commercial entity that did not have any vested interest in the results of this study professionally transcribed the recordings into Microsoft Word files.

Data Collection

116 current construction CTE teachers were identified from MODESE core data as currently teaching in the Missouri secondary school system in the 2007-08 school year. The researcher received contact information from MODESE for the 22 comprehensive High Schools and 51 Career Technology Centers involved in construction CTE. As legitimate gatekeepers (Seidman, 2006), the superintendents and directors of these facilities were contacted with an explanation of the study (see Appendix H) and an informed consent form (see Appendix I) granting permission for the researcher to contact the construction educator(s) at their facility for the study. Three of the institutions did not want their teachers participating in the study, and three schools had teachers retire in the 2007-08 school year and did not find replacements for them in the 2008-09 school year. After removing the teachers who were retired, did not qualify into the stayer or leaver category, or could not participate, there were a total of 92 potential candidates. The

researcher asked the participating schools to verify the most recent addresses, telephone numbers, and email addresses for the 92 qualifying teachers. The researcher contacted each of the participants, explaining the research effort and that their participation was important and their responses would be confidential. All participants were asked for their current email addresses and were provided an informed consent form (see Appendix B) before completing the mixed-design survey instrument.

The researcher also asked the participating schools about teachers who were teaching in the 2003-2007 school years, but not currently teaching in the current school year. There were five teachers that were qualified as leavers for the purpose of this study. The researcher found contact information on three of these leaving teachers and personally contacted each of them, asking them to participate in the study. The final question on both the MDLS and the MDSS surveys asked the respondents if they were willing to be involved in a follow-up interview.

The follow-up interview utilized maximum variation sampling (Creswell & Clark, 2007; Seidman, 2006) to ensure all of the different categories of construction CTE teachers were covered. One teacher from each category was interviewed that participated in the study. The sample included participants from both the comprehensive High School and the Career and Technology Center, both stayers and leavers, and both traditionally four-year certified and alternatively certified teacher accredited. The interviews were semi-structured using an open-ended interview protocol and were taped with the permission of the participants.

Data Analysis

The researcher used the mixed-method design to study retention and attrition of construction CTE teachers in Missouri's secondary school system. The goal of this mixed method was to draw from the strengths and minimize the weaknesses of both research studies and gain insights that would not be available by using only qualitative or quantitative research alone (Johnson & Onwuegbuzie, 2004). Data analysis methods selected to evaluate and reconcile the results produced through the mixed-design survey and semi-structured interviews are described below.

Quantitative Analysis

To make comparisons between the retention rates of CTE teachers with a four-year teaching degree and those who are two-year certified the researcher collected the demographic data from the surveys and also analyzed the historical data provided by MODESE core data personnel. Those respondents who began teaching in the 2003, 2004, or 2005 school year and were still teaching at the end of the 2008 school year were considered stayers. If the teacher was instructing prior to 2003, the researcher found out what year the teacher started teaching and this became their total years of service. The data were then placed in the *Statistical Package Social Science* (SPSS) version 16.0 and the means were computed and incorporated into the Mann-Whitney test to evaluate if a significant difference existed between the number of years retained with the four-year teaching degreed graduates and the two-year certified teachers. The .05 level of confidence was used to determine the statistical significance.

To establish if a significant difference existed between the reasons four-year teacher certified construction teachers were leaving the profession and those who were

two-year alternatively certified, the five point ordinal scale Likert-type questions were given a value from one to five and arithmetic means were computed to determine the most prominent reasons the teachers were leaving the profession. This comparison was done for each individual item of the survey that had compatible items. The means for the two groups were going to be placed in the Mann-Whitney test using SPSS, however, the sampling of leavers was so small, a valid comparison could not be made.

To establish if a significant difference existed between the reasons four-year teacher certified construction teachers have considered leaving the profession and those who were two-year alternatively certified, the five point ordinal scale Likert-type questions were given a value from one to five and arithmetic means were computed to determine the most prominent reasons the teachers were leaving the profession. This comparison was done for each individual item of the survey that had compatible items. The means for the two groups were then incorporated in the Mann-Whitney test using SPSS, which compares two independent conditions between different participants to find if there is a statistical significance between the two groups (Field, 2005; Fraenkel & Wallen, 2003). The .05 level of confidence was used to determine the statistical significance.

Qualitative Analysis

“Qualitative analysis begins with coding the data, dividing the text into small units (phrases, sentences, paragraphs), and assigning a label to each unit” (Creswell & Clark, 2007, p.131). Therefore, the researcher had the interviews commercially transcribed and converted to Microsoft Word files suitable for analysis.

The researcher ensured credibility of the data by applying a two-part coding system, open and axial (Strauss & Corbin, 1990), which were used to sort and assign unique identifiers to the data making them easily manageable during the analysis process (Merriam, 1998). To facilitate the coding process, WordStat 5.1 and QDA Miner analysis software were applied to the personal interview transcript data. Thus, the aggregate data were open coded to reveal articulate themes. Through the second phase of the analysis, the identified themes were labeled and then reassembled by the software using axial coding to connect emerging themes while conceptualizing the phenomena they represented (Heppner & Heppner, 2004). These themes and groupings were put into perspective to provide answers to the qualitative research questions. The data produced through the open-ended survey questions, field notes, and raw data produced through the semi-structured interviews were triangulated to strengthen reliability and internal validity of the study (Creswell & Clark, 2007; Merriam, 1998). The researcher further established credibility of the results through the process of member checking (Creswell & Clark, 2007; Merriam, 1999), where several participants in the study were asked to review the findings and make sure they were an accurate reflection of their experiences.

Summary

In Chapter 3, the research design and methodology for studying the retention and attrition of construction CTE teachers in the secondary school system were described. The statement of the problem, research questions and hypothesis, and the population and samples for the quantitative and qualitative phases of this study were also identified. A multiple methods approach to research was explained and the purpose of triangulation was discussed. Data instrumentation, data collection, and data analysis were detailed to

assist in the understanding and replication of the study. A discussion of the data analysis accompanied by interpretation and research findings will be presented in Chapter 4 and a discussion of the results, findings, and conclusions will be found in Chapter 5 along with implications and recommendations for future research.

CHAPTER FOUR

PRESENTATION AND ANALYSIS OF DATA

Introduction

The intent of this study was to examine the reasons construction Career and Technology Education (CTE) teachers were leaving during their critical first five years of service. Research has shown that educators, education stakeholders, and policymakers have been challenged with the quandary of how to deal with the teacher shortage and retain the novice teacher in their profession for decades (Bartell, 2005; Berry, 2004; Billingsley, 2006; Bradley & Loadman, 2005; Cochran-Smith, 2004; Darling-Hammond, Berry, Haselkorn & Fideler, 1999; Dove, 2004; Gray & Walter, 2001; Hull, 2003; Ingersoll, 2001; Woullard & Coats, 2004). Moreover this is not a localized problem because according to the National Commission on Teaching and America's Future (NCTAF), (2002), "an alarming and unsustainable number of teachers are leaving teaching during their first few years of teaching" (p. 3).

The CTE field has not been immune to the teacher shortage problem. CTE teachers going into education and not staying long enough to become an established, viable asset to the program is one of the main problems facing programs today (McCaslin & Parks, 2002; Osgood & Self, 2002). Research done by Gray and Walter (2001) revealed there was a general shortage of CTE teachers and "in some programs, such as technology education, the shortage is so severe that it threatens the program of study's very existence" (p. 15). McCaslin and Parks (2002) argued "There needs to be more research done for career and technical teacher education" (p. 10) and buttressed by Cohen

and Besharov (2002) who pointed out “More research needs to be done on how schools... retain good CTE faculty” (p. 40).

Many educational institutions have responded to the high attrition rate of beginning teachers by providing induction programs (Blair-Larsen & Berick, 1992). While Ingersoll and Smith (2004) referred to induction programs “as a bridge from student of teaching to teacher of students” (p.29), Portner (2005) defined induction as a comprehensive, coherent, and sustained professional development process that is well organized to train, support, and retain novice teachers while seamlessly guiding them into a lifelong learning process. The induction programs could include mentoring with an experienced teacher (Brown, 2003), professional development activities such as collaborative networking, coursework, or conferences and employer sponsored program such as workshops and specific training (Olebe, 2005), and time to collaborate with colleagues (Vail, 2005).

Therefore, the purpose of this study was to investigate the reasons construction CTE teachers were leaving during their beginning years of service, or if they stayed, what were the dominant factors causing them to consider leaving the profession and the factors helping them to remain in the CTE field in Missouri. In addition, the study examined the retention rates of teachers with a four-year educational degree in comparison with construction CTE teachers coming directly out of industry with two-year alternative certification. Finally, the researcher examined how industry could encourage educators to stay in the teaching profession.

Data for the investigation were gathered through an electronic researcher-created survey. The literature review developed main constructs of retention and attrition of

beginning teachers and this yielded information which helped the researcher construct the survey instrument. The survey was a validating quantitative data model (Creswell & Clark, 2007) and the researcher validated and expanded on quantitative findings from the survey by including open-ended qualitative questions that provided the researcher with interesting quotes and constructs that were used to validate and enrich the quantitative findings and helped in the development of the semi-structured interview questions. Two separate mixed-design surveys were constructed. One for construction CTE teachers who were leavers, Mixed-design Survey of Former Construction CTE Teachers (MDLS), (see Appendix C) and the other for the stayers, Mixed-design Survey for Current Construction CTE Teachers (MDSS), (see Appendix D). The data from the survey were then placed in the *Statistical Package Social Science* (SPSS) version 16.0 and the Mann-Whitney test was performed to evaluate if a significant difference existed between the number of years retained with the four-year teaching degreed graduates and the two-year certified teachers. The .05 level of confidence was used to determine the statistical significance. The researcher could not do quantitative analysis to establish if a significant difference existed in the reasons why four-year certified teachers were leaving the profession compared to two-year certified because there were only two leavers who participated in the study. However, to establish if a significant difference existed between the reasons four-year teacher certified construction teachers were considering leaving the profession and those who were two-year alternatively certified, the five point ordinal scale Likert-type questions were given a value from one to five and arithmetic means were computed to determine the most prominent reasons the teachers were considering leaving the profession. This comparison was done for each individual item of the survey that had

compatible items. The means for the two groups were then incorporated in the Mann-Whitney test using SPSS, which compares two independent conditions between different participants to find if there is a statistical significance between the two groups (Field, 2005; Fraenkel & Wallen, 2003). The .05 level of confidence was used to determine the statistical significance. The researcher then used the explanatory design (Creswell & Clark) to explain and expand on statistically significant or unexpected results originating from the validating quantitative data model by utilizing a semi-structured interview.

These semi-structured follow-up interviews were conducted utilizing maximum variation sampling (Creswell & Clark, 2007; Seidman, 2006) to ensure all of the different categories of construction CTE teachers were covered. The researcher intended to include participants from both the comprehensive High School and the Career and Technology Center, both stayers and leavers, and both traditionally four-year certified and alternatively certified teacher accredited. However, only two leavers would participate in an interview and therefore not every leaver category was covered because there was not a leaver who would participate that had their four-year teaching degree. The interviews were semi-structured using an open-ended interview protocol and were taped with the permission of the participants. The interviews were transcribed and by applying a two-part coding system, open and axial (Strauss & Corbin, 1990), the data were sorted and assigned unique identifiers and themes (Merriam, 1998) which were put into perspective to provide answers to the qualitative research questions four through seven.

The foregoing data were used in this study to answer the following research questions guiding this study:

1. Are there differences in the retention rates of construction CTE teachers receiving their four-year teaching degree from a college or university and construction CTE teachers coming directly out of industry with a two-year alternative certificate?
2. Are there differences in the reasons four-year teacher certified construction CTE educators are leaving the profession and those having a two-year alternative certification are leaving the teaching profession?
3. Are there differences in the reasons four-year teacher certified construction CTE educators have considered leaving the profession and those having a two-year alternative certification have considered leaving the teaching profession?
4. What are the widespread and dominant reasons why construction CTE teachers are leaving the profession during their critical first five years?
5. What are the dominant reasons current construction teachers would consider leaving the profession?
6. What are the factors causing CTE teachers who have been teaching more than three years to stay in the teaching career field?
7. What effect has mentoring had on the beginning construction CTE teacher?
8. What is industry doing or what could industry do in the future to help in the retention of qualified construction teachers in Missouri's secondary school system?

Presented in this chapter are a description of the sample population, including demographic data, and a description of the data collection instruments. In addition, analysis of the research questions and hypotheses are included, followed by a summary of the findings.

Data Analysis

Population

The population for this study included all construction CTE teachers in the Missouri public school system, both in the comprehensive High School and the Career and Technology Centers. The Missouri institutions that had construction related teachers were identified from the Missouri Department of Elementary and Secondary Education (MODESE) Report of Trade and Industrial Teachers 2007-08. There were 22 current teachers identified in 22 comprehensive High Schools and 94 current teachers identified in 51 Career and Technology Centers during the 2007-2008 school year. Each of these institutions were contacted for verification of contact information on existing construction CTE teachers and any construction CTE teachers who were teaching during the 2003-04 school year through the 2007-08 school year, but were not teaching at the end of the 2007-08 school year.

The teachers who have been teaching for three or more consecutive years were considered stayers for the purpose of this study. The teachers who taught and left before having three years of consecutive teaching experience were classified as leavers. The teachers who began teaching after the 2006 school year and were still teaching at the end of the 2007-08 school year were by definition neither stayers or leavers and therefore their data were not used for the purposes of this study. There were 12 existing teachers that met these criteria.

In addition, as the researcher contacted all 74 of these teaching institutions, it should be noted that three of the schools had CTE teachers retire in the 2007-08 school year and did not find replacements for them in the 2008-09 school year and were no

longer offering a construction CTE curriculum. The researcher also differentiated five construction CTE teachers that would be considered leavers for the purpose of this study, but contact information could only be found on three of them. After removing the teachers that were not by definition either a stayer or leaver, removing the retired teachers or teachers on extended medical leave, and removing the teachers that could not participate because their administration did not want them to spend the time to complete the survey, there were 92 potential stayer respondents. Of the 92 stayer surveys that were sent out for participation in this study, 42 were returned, yielding a return rate of 45.7%. All three leavers were contacted and two filled out the survey and were interviewed. The third leaver was contacted three times and each time agreed to fill out the survey, but never complied and when contacted four additional times to try and get information over the telephone, would not acknowledge or return the researcher's call. The following demographic data were established through the survey instrument.

Demographics

Table 1

Demographic Information of All Construction CTE Teachers Responding to Survey

Demographic	Characteristic	Frequency	Percentage
Gender	Male	44 (6)	100.0%
	Female	0	0.0%
Age	20-30	1 (1)	2.3%
	30-40	7 (1)	15.9%
	40-50	15 (1)	34.1%
	50-55	10 (1)	22.7%
	55+	11 (2)	25.0%
Years of Experience	1-2 years	2 (2)	4.6%
	3-5 years	11 (1)	25.0%
	6-10 years	8	18.2%
	11-15 years	9 (1)	20.4%
	16+ years	14 (2)	31.8%
Average number of students in class	10-15	28 (4)	63.6%
	16-20	16 (2)	36.4%

Note: Numbers in parentheses indicate number of interview participants in that category.

The average age of the respondents is 48 with an average of 13 years of teaching experience. It should also be noted that 25% of the teachers answering the survey are at least 55 years old and several stated they would be retiring in the next three years.

Table 2

Teaching Location and Certification Information of Teachers Responding to Survey

Demographic	Characteristic	Frequency	Percentage
Teaching Location	Comprehensive H. S.	10 (2)	22.7%
	Career & Tech. Center	34 (4)	77.3%
Teaching Certification	4-year teaching degree	12 (2)	27.3%
	4-year BS & 2-year cert.	4 (2)	9.1%
	2-year certificate	28 (2)	63.6%

Note: Numbers in parentheses indicate number of interview participants in that category.

In addition to a four-year Bachelor of Science degree in Industrial Technology, two respondents had advanced degrees in education, one with a Master's in Industrial Education and one with an Ed. Specialist in Industrial Education. The four degreed teachers who were two-year certified had degrees in Construction Management, Elementary Education, Forestry, and Environmental Design.

Data Collection Instrumentation

Survey

The mixed-design surveys were formulated electronically using Simple Form and Survey Builder v2.1. One was created for leavers and the other for stayers. Each

instrument had several demographic questions so comparisons could be made between the comprehensive High School setting and the Career and Technology Centers and whether the teacher was four-year teacher certified or two-year alternatively certified. The surveys were created by the researcher based on information gleaned from a review of related literature ((Bradley & Loadman, 2005; Darling-Hammond, 2003; Dove, 2004; Guarino, Santibanez, & Daley, 2006 , Hull, 2003; Ingersoll, 2002a; Johnson, Berg, & Donaldson, 2005; Whisnant, Elliott, & Pynchon, 2005). The Likert-type scale is commonly used in research to measure attitudes and perceptions (Fraenkel & Wallen, 2003). Therefore, items relating to retention and attrition were placed into a five point Likert-type scale ranging from not at all important to extremely important and the respondents were asked to rate their level of importance of why the teacher left the profession if the teacher was a leaver and about the level of dissatisfaction in the profession if the teacher was a stayer.

The stayer survey was pilot tested and retested by a group of teachers in the construction CTE profession and then asked to take the survey again within a two week time period. Feedback was solicited from the teachers regarding appearance of the instrument, clarity of instructions, ease of comprehension of the survey, and ease of comprehension of the individual items so the survey could be refined prior to its administration to the entire construction CTE population.

Reliability was established by comparing the response of the members of the focus group by using the test-retest method (Field, 2005; Fraenkel & Wallen, 2003; Heppner & Heppner, 2004). The test-retest reliability of the survey instrument was assessed using bivariate correlations (Field, 2005) for each individual question. The

Pearson correlation ranged from .564 to .967; all the question correlations were significant beyond the required .05 significance level.

Table 3

Test-Retest Reliability of Survey Instrument by Question

Question	<i>r</i>	Sig. (2-tailed)
Poor salary	.564	.029
Inadequate support from administration	.961	<.001
Student discipline problems	.580	.024
Lack of influence over school policies	.798	<.001
Lack of control over own classroom	.814	<.001
Challenges caused by special needs students	.910	<.001
Not given enough time	.671	.006
Poor student motivation to learn	.643	.010
Inadequate mentoring	.731	.002
Poor opportunities for advancement	.842	<.001
Class size too large	.967	<.001
Sometimes do not feel suited for teaching	.658	.008
Preparation for teaching inadequate	.798	<.001

The leaver survey was not pilot tested or tested for reliability. It was very similar to the stayer survey; therefore any changes made to the stayer survey were also incorporated into the leaver survey for clarity and ease of use by the participants. Also,

the researcher only found five teachers that qualified as leavers for the purpose of this study and the researcher could not find contact information on two of them. Therefore, with a prospective sampling of only three, a test-retest reliability study would not be very meaningful.

Interview Protocol

To further answer research questions four through seven, follow-up interviews were conducted by the researcher. The semi-structured interview served as a probe of the questionnaire responses and provided the purposeful sampling of participants with the opportunity to extend their written answers and further consider related issues of retention and attrition of construction CTE teachers. The leaver protocol sought to gain insight into the dominant reasons construction CTE teachers were leaving the profession while the stayer protocol was used to interview current construction CTE teachers and allow the researcher to gain insight into the concerns and reasons a current teacher would consider leaving the profession and positive factors causing the teacher to stay in the career field. Also, the interviews sought to provide insight on how industry could help in the retention of construction CTE teachers. By triangulating the interview data with the quantitative survey data and the qualitative open-ended questions, the researcher was able to elaborate on and produce more in-depth data which would not have been possible to achieve strictly through the use of a quantitative survey (Creswell & Clark, 2007; Fraenkel & Wallen, 2003).

Research Questions: Analysis of Data

Responses from the two surveys, one for construction CTE teachers who were leavers, Mixed-design Survey of Former Construction CTE Teachers (MDLS), (see

Appendix C) and the other for the stayers, Mixed-design Survey for Current Construction CTE Teachers (MDSS) (see Appendix D), were entered into SPSS 16.0. Data were analyzed and the mean scores were incorporated in the Mann-Whitney test to compare the independent conditions between the two participant parties to find if a statistical significance existed between the two groups (Field, 2005; Fraenkel & Wallen, 2003). These resulting data were used to answer research questions one through three.

These quantitative data, written, open-ended comments from the mixed-design surveys, and follow-up interviews were then triangulated to answer research questions four through seven. The follow-up interviews were constructed from data received from the survey. The survey was a validating quantitative data model (Creswell & Clark, 2007) and the researcher validated and expanded on quantitative findings from the survey by using the quotes and comments included in the open-ended qualitative questions from the survey to develop the semi-structured interview questions and validate and enrich the quantitative findings from the survey instrument. The recorded interviews were transcribed and coded so the researcher could extract significant statements, formulate meaning, and cluster emerging themes so major themes and categories could be established to help with the study's findings (Heppner & Heppner, 2004; Merriam, 1998). These data from the quantitative survey, the qualitative open-ended questions, and the interviews guided the researcher in addressing the following research questions:

Research Question 1

Are there differences in the retention rates of construction CTE teachers receiving their four-year teaching degree from a college or university and construction CTE teachers coming directly out of industry with a two-year alternative certificate?

The means were computed and incorporated in the Mann-Whitney test using SPSS to evaluate the differences between the retention rates of construction CTE teachers with their four-year teaching degree and construction CTE teachers with two-year alternative certification. The test showed two-year alternatively certified teachers differed significantly in the number of years they stayed in the teaching profession compared to four-year teaching degreed teachers. The four-year teaching degreed teacher had a better retention rate, $U = 102.000$, $p = .010$, $r = .387$.

Research Question 2

Are there differences in the reasons four-year teacher certified construction CTE educators are leaving the profession and those having a two-year alternative certification are leaving the teaching profession?

This research question could not be evaluated quantitatively because there were only two leavers who responded to the survey and were willing to be interviewed. Both of the leavers interviewed had their four year degree, but they were not secondary teaching degrees; they were both alternatively certified.

Research Question 3

Are there differences in the reasons four-year teacher certified construction CTE educators have considered leaving the profession and those having a two-year alternative certification have considered leaving the teaching profession?

The means for the differences in importance of reasons why teachers were considering leaving the teaching profession between two-year certified and four-year teaching degreed teachers were assessed using a series of Mann-Whitney tests. Only one reason had a significant difference, “poor opportunities for professional advancement.”

The two-year alternatively certified teachers ranked this as a consideration for leaving significantly higher than the four-year teacher, $U = 104.50$, $p = .019$, $r = .363$. The following table illustrates no other significant differences were noted (see Table 4).

Reasons Teachers Have Considered Leaving the Teaching Profession

Table 4

Reason	Z	Sig. (2-tailed)
Poor salary	-.440	.660
Inadequate support from administration	-1.341	.180
Student discipline problems	-.897	.370
Lack of influence over school policies	-.281	.779
Lack of control over own classroom	-.371	.710
Challenges caused by special needs students	-.153	.878
Not given enough time	-.480	.631
Poor student motivation to learn	-.266	.790
Inadequate mentoring	-.786	.432
Poor opportunities for advancement	-2.350	.019
Class size too large	-.881	.378
Sometimes do not feel suited for teaching	-.334	.739
Preparation for teaching inadequate	-.145	.885

Note. N = 42

Research Question 4

What are the widespread and dominant reasons why construction CTE teachers are leaving the profession during their critical first five years?

One of the open-ended survey questions for the stayers addressed this issue. There were 42 stayer participants, and 29 of them gave responses to the open-ended questions. Of the 29 respondents, 21 or 72.4% stated they believed low pay and “salary that is not competitive with the industry setting” was the number one reason teachers were leaving the profession. When speaking of the salary issues with the stayer teachers, one interviewee commented “Oh yeah, it’s definitely salary. I mean, salary, is it – you can’t compete with industry and another stayer said “I would agree salary is the issue because you could go out, you know into the profession, and make a lot more than you can teaching.” However, the leavers surveyed stated that poor salary issues were “not at all important” when asked to indicate the level of importance salary had on their decision to leave the teaching profession.

The second reason current teachers thought CTE teachers were leaving the profession was due to student issues. Student discipline and attitude problems were cited by 55.2% of those responding to the open-ended questions. Five current teachers believed student discipline problems were a primary concern. One teacher stated that new teachers “do not realize the student discipline problem would be such an issue” and one remarked that the “frustration with the lack of discipline of students is a major concern.” This is supported by the leavers because on the five point Likert scale, student discipline problems ranked the highest (4.5) for reasons why they had left the teaching profession.

Another stayer comment was, “I spend more time teaching common courtesies and manners than sometimes I do subject material.”

An additional student issue addressed was the challenges caused by special needs students. Three of the current teachers responded they believed dealing with behavior disorder (BD) students and students with individualized education plans (IEP) were major factors in teachers deciding to leave the profession. This ranked second on the leavers five point Likert scale with a 3.5 or falling between somewhat to very important as a reason for leaving the profession. One of the leavers interviewed stated:

If the counselors had to spend a week in my class, that would change everything. You know, I tried to tell them, if you would be afraid to leave this kid alone that you’ve assigned to my class with a power tool or a blow torch or a framing hammer for 5 minutes would you put them, you know, if you’re afraid to leave them alone, don’t put them in my class.

However, one of the stayer interviewees said:

I think they need to do a better job in placement. I don’t think the IEP students are the problem because a lot of the IEP students are hands on type people. So they excel in these classes – more so than they do in a classroom setting.

A leaver interviewee agreed when he said, “I didn’t mind a kid that was maybe not at the same level mentally as other kids. I had a kid like that and he was wonderful...it was just those kids that were, I don’t know, behavioral kids.”

The third student issue dealt with poor student motivation. Six current teachers believed this was a concern. One stayer said he believed teachers were leaving because they “had a hard time with students’ lack of participation and effort” and another stated

“the kids have a tendency to not have a good work ethic or care about how they do their work.” Another current teacher believed the leavers were “not prepared to handle the poor student attitude and the poor student respect for the teacher”. This was buttressed by the individual interviews. One stayer commented:

Motivation can be the number one problem...I have a country group and a city group...Motivation is totally different. One has a work ethic and – the country one has the work ethic, the city one hasn’t had any kind of work ethics taught to him, or discipline or chores or anything like that.

One teacher summarized it by stating “students are always looking for the easy way out and it’s really easier to just go out and work for yourself.” The leavers agreed with this because poor student motivation tied for second with a 3.5 on the five point Likert-type scale of reasons they decided to leave the teaching profession. One leaver stated he was shocked at the poor student motivation. He said:

I would use the term if all you wanna do is learn how to sweep the floor, you don’t need to take a class to learn to sweep a floor. And that was all the more interest that they would show in anything.

The last major dominant reason mentioned by the current teachers of reasons they believed teachers were leaving their profession were poor administrative support and too many extra duties not directly related to teaching. Nine current teachers mentioned poor administrative support as a reason why teachers were leaving the profession. One stated that “administrative support is terrible in some situations” and another said there is “too much stress from the administration”. In addition, eight stayer teachers mentioned the paperwork and “jumping through the hoops” as reasons they thought teachers were

leaving the profession. This was supported by the leavers who only ranked one other category with a 3 or higher on the Likert scale. Lack of influence over school policies was somewhat important in their decision to leave the CTE teaching profession. One leaver stated that one of the main reasons he left was because the administrator talked about the liability issues of the students working with power equipment in an uncontrolled environment so much he became so concerned about it he decided to leave and pursue a different career. One stayer commented, “why don’t they let them teach what they are trained to teach and leave the BS out.” One of the stayer interviewees said, “Fighting discipline issues have been a real problem for quite a while. I believe that stems from our administrators...you have to have backing. Another stayer interviewee stated:

Administrative support comes in many fashions, whether it be out and out discipline backing or leadership of what is expected of you. I think that most administrators today are afraid to take a stand on anything because of the liability lawsuits. I’ve had 17 administrators in my career, And I’ve had good, I’ve had medium, and I’ve had poor. The good ones will support you in getting you materials you need to teach with and will also back you on discipline, so long as you are reasonable with your discipline...I respect the ones that stand for something and the ones that just condone it and wanna be the student’s best buddy, I have no respect for them.

Research Question 5

What are the dominant reasons current construction teachers would consider leaving the profession?

Overall, on the Likert-type five point scale, only four issues ranked higher than a three on the scale, placing the problems between somewhat and very important as reasons they would consider leaving the profession. The highest ranked problem, having an average of 3.7 was poor salary. Over 62% of those responding to the open-ended questions stated that low pay and salary issues were a primary concern. One teacher stated that the “salary is low, and there is not much prospect for improvement in income” and another wrote, “I need better pay for the field I’m in. This is the last year that I will be teaching.”

The second highest ranked problem was inadequate administrative support with a 3.4 average on the Likert-scale. Eight teachers wrote a response that lack of administrative support was a crucial concern. One teacher wrote he had a major concern for the “lack of motivation in the students and behavior problems that are not addressed by the administration” which brings us to the next two problems, student discipline problems and poor student motivation.

These student issues ranked 3.3 and 3.4 on the Likert-type five point scale, the only other items ranking between somewhat and very important as reasons CTE teachers have considered leaving the profession. Over 55% of the current teachers had written comments about student issues and some were very animate with their response. One wrote, “my class is a dumping ground for unmotivated students” and another stated “too many counselors in the sending schools have used our Technical Center as a dumping ground for their problem students.” One teacher took the time to write:

I actually had a counselor from out at the Tech Center change a grade on an IEP student who had failed miserably in my program, even with all the

accommodations being met by me. The student simply would not or could not participate. At the end of the first quarter this student had a total participation score of 24 points out of a possible 100. Zero for a project score and a zero for attendance. I gave the student an “F”. The counselor changed the grade to a “C”. There were also some very strong comments from the stayer interviewees. One commented, “Fighting discipline issues have been a real problem for quite a while” and another said, “[Student] motivation can be the number one problem.”

Research Question 6

What are the factors causing CTE teachers who have been teaching more than three years to stay in the teaching career field?

The overwhelming response given by the current teachers for staying in the field was their enjoyment of working with the students who wanted to learn and seeing students learn and become skillful in the construction craft. Over 75% of the stayer teachers who responded wrote they were staying because of the students. One wrote, “I enjoy having my students being able to learn something they were having a hard time wrapping their minds around” and another commented they had a “belief in the need for students to know a skill that will/can provide a living for them”. One stated there is “the reward of how it feels when I make a connection with students that have traditionally been cast off as worthless by academic teachers, and then they excel in my program.”

Additionally, one of the stayer interviewees said “I love the construction industry and love watching the students learn.” and another commented, “if you don’t like kids you shouldn’t be a teacher in the first place.”

The other main factor causing CTE teachers to stay in the construction teaching profession is the benefits of the job. The benefits, retirement, and a work schedule allowing more family time was given by 38% of the stayer teachers. One stayer said “I stayed in teaching because of the retirement system.”

Research Question 7

What effect has mentoring had on the beginning construction CTE teacher?

The data collected gave a wide divergence of responses. Many of the responding teachers were hired before the mentorship program was established. Of the 26 teachers who responded to the mentoring open-ended question, seven did not have an official mentor. Of the remaining 19 comments, 63% were positive and 37% were negative. Most of the positive comments were short and to the point. “It was excellent”, “Very helpful”, and “It was very positive.” One teacher wrote that his mentor “helped in many situations” and one stated “My mentor helped me stay calm when I was ready for a meltdown.”

The negative responses included comments such as “mentor did nothing”, state mentor had little affect”, and “not much.” One teacher wrote:

I only saw my mentor twice the first year when he stuck his head in the door and asked me how I was doing and then just continued to walk down the hall before I could even give an answer. I do not even remember his name.

Another commented, “My first year mentoring was a disaster. My personal mentor called me by telephone one time during the entire year. He did not even bother to show up at the year-end meeting with DESE.”

During the interviews, one stayer commented:

It's not working – I don't think it is – I did it. I don't think it's working out real great because they don't have enough money and you don't get the release time you need to do – go down there and spend time and then come up here and spend more time. So, they need to put more time and effort into it other than e-mails, you need one-on-one.

One of the leavers stated, “The one they assigned me was – didn't work out. He was, I don't even know how far away he was, three or four hours away. Hard to get hold of him, I was busy, he was busy, you know...”

One leaver teacher commented that his official mentor was too far away to really be of any benefit, but that the agriculture teacher down the hall from him had been a tremendous help.

Research Question 8

What is industry doing or what could industry do in the future to help in the retention of qualified construction teachers in Missouri's secondary school system?

Several of the teachers commented that industry is not involved in their programs at this time. One stated, “I have no idea what industry is doing in my area of Missouri” and another wrote, “In our section of the state industry is doing little to nothing.” One teacher even commented “Industry is not currently doing anything to help retain qualified construction teachers.” And another wrote “The industry as a whole is unaware of CTE. There is a real need to market CTE students to the construction industry.”

Some of the suggestions of what could be done included “help students job shadow”, “help subsidize pay and give teacher bonuses or incentives to stay in the

teaching field”, “partner with classes and provide opportunities for teachers to remain abreast of new technology”, and “create a unified certification process for students and then make it a priority to hire those students.” Several suggestions included educational support on new advances in technology and equipment and help provide newer and more advanced equipment to the program. This was reinforced by an interviewee who stated “yeah, financially, I’d like to see ‘em financially step up to the bat – and support a little bit” and another who said, “Locally here and today we have very little support...they don’t make the donations of material or donations. They wanna tell us what they need, but they won’t listen to us when we ask them can you make donations...”

The only two organizations mentioned as giving any support to the programs were the Associated Builders and Contractors, Inc. and the Associated General Contractors of America.

Statement of Research Hypotheses

Research Hypothesis 1. There is no statistically significant difference between the retention rates of construction CTE teachers receiving their four-year teaching degree from a college or university and construction CTE teachers coming directly out of industry with a two-year alternative certificate.

Based on the analysis and data presented by incorporating the Mann-Whiney test using SPSS to evaluate the differences between the retention rates of construction CTE teachers with their four-year teaching degree and construction CTE teachers with two-year alternative certification, this hypothesis is rejected at the .05 level of significance. The test showed two-year alternatively certified teachers differed significantly in the number years they stayed in the teaching profession compared to four-year teaching

degreed teachers. The four-year teaching degreed teacher had a better retention rate, $U = 102.00$, $p = .010$, $r = .387$.

Research Hypothesis 2. There is no significant differences in the reasons four-year teacher certified construction CTE educators are leaving the profession from those having two-year alternative certification.

This question could not be answered quantitatively because there were only two leavers who participated in the study and they were both alternatively certified.

Research Hypothesis 3. There are no significant differences in the reasons four-year teacher certified construction CTE educators have considered leaving the profession from those having two-year alternative certification.

Based on the analysis and data presented in Table 4, this hypothesis is rejected at the .05 level of significance. Only one reason had a significant difference, “poor opportunities for professional advancement.” The two-year alternatively certified teachers ranked this as a consideration for leaving significantly higher than the four-year teacher, $U = 104.50$, $p = .019$, $r = .363$. No other statistical differences were found in the mean statistics between the difference in the reasons four-year teacher certified construction CTE educators and two-year alternatively certified construction CTE teachers are considering leaving the teaching profession.

Summary

Analyses of the data collected from the mixed-design leaver survey (MDLS), the mixed-design stayer survey (MDSS), and the semi-structured follow-up interviews of selected participants provided data for the research questions. From the data, it was concluded there was a significant difference between the retention of two-year

alternatively certified and four-year teaching degreed construction CTE teachers. The data also revealed there was a significant difference in the concern of how current two-year certified teachers viewed opportunities for professional advancement over their four-year teacher degreed counterparts. The stayer teachers believed that salary issues would be the number one reason CTE teachers would leave the profession, however, leaver data disclosed student discipline problems, challenges caused by special needs students, and poor student motivation as the primary reasons they left the CTE teaching profession. Data gathered through the open-ended qualitative survey questions and the semi-structured interviews provided triangulation to support these findings and supplied descriptive information to answer the qualitative research questions. In Chapter Five, an overview of the design and procedures employed for this study are described. A discussion of the findings of the study with limitations and design control are included. In addition, implications for practice and recommendations for further research are presented.

CHAPTER FIVE

FINDINGS, RECOMMENDATIONS, AND CONCLUSIONS

Introduction

The researcher investigated the dominant reasons teachers in the Career and Technology Education (CTE) field were leaving the profession during their beginning years of service. Leaving teachers were asked to identify the prevailing reasons they had left the teaching profession and the stayers were asked what were the dominant factors causing them to consider leaving the profession and the positive considerations causing them to stay in the construction teaching career field. Provided in this chapter are the purpose of the study and the design and procedures employed throughout the study. Findings and limitations are also discussed, along with implications for practice and recommendations for future research.

Purpose of Study

The purpose of this study was to examine the reasons construction teachers in the CTE field left the teaching profession in their first five years of service, or if they stayed, what were the dominant factors causing them to consider leaving the profession and what were the factors causing them to remain in the CTE field in the state of Missouri. Also examined in this study were the former and current construction teachers' perceptions on how industry has encouraged or could encourage these educators to stay in the profession and become an even greater asset to the student and educational community.

It was revealed through the review of literature that few educational problems have received more attention than how to retain qualified teachers and properly staff our schools (Ingersoll, 2001). The CTE field is not immune to this problem (Gary & Walter,

2001) and research is deficient concerning CTE teacher retention and attrition (Cohen & Besharov, 2002; McCaslin & Parks, 2002; Scribner, Truell, Hager, & Srichai, 2001).

Therefore, the study's rationale emerged from an examination of research literature on how beginning teachers are prepared for the teaching profession and how the induction practices of proper school climate, mentoring, and professional development has helped in the retention of beginning teachers. Also, teacher attrition was investigated and workplace conditions such as empowerment, support, time, and student issues were examined to see the effects of these issues on the beginning teacher. In addition, industry support was considered to see if outside industry support influenced the beginning CTE construction teacher to remain in the teaching profession.

The research questions guiding this study were as follows:

1. Are there differences in the retention rates of construction CTE teachers receiving their four-year teaching degree from a college or university and construction CTE teachers coming directly out of industry with a two-year alternative certificate?
2. Are there differences in the reasons four-year teacher certified construction CTE educators are leaving the profession and those having a two-year alternative certification are leaving the teaching profession?
3. Are there differences in the reasons four-year teacher certified construction CTE educators have considered leaving the profession and those having a two-year alternative certification have considered leaving the teaching profession?
4. What are the widespread and dominant reasons why construction CTE teachers are leaving the profession during their critical first five years?

5. What are the dominant reasons current construction teachers would consider leaving the profession?
6. What are the factors causing CTE teachers who have been teaching more than three years to stay in the teaching career field?
7. What effect has mentoring had on the beginning construction CTE teacher?
8. What is industry doing or what could industry do in the future to help in the retention of qualified construction teachers in Missouri's secondary school system?

The hypotheses related to the aforementioned quantitative research questions were evaluated in an effort to answer the quantitative aspect of the research questions.

Hypothesis 1. There is no statistically significant difference between the retention rates of construction CTE teachers receiving their four-year teaching degree from a college or university and construction CTE teachers coming directly out of industry with a two-year alternative certificate.

Hypothesis 2. There are no significant differences in the reasons four-year teacher certified construction CTE educators are leaving the profession from those having two-year alternative certification.

Hypothesis 3. There are no significant differences in the reasons four-year teacher certified construction CTE educators have considered leaving the profession from those having two-year alternative certification.

Design and Procedures

A mixed methods design was utilized in this study because it attempts to “fit together the insights provided by qualitative and quantitative research into a workable solution” (Johnson & Onwuegbuzie, 2004, p. 16) and the qualitative data can be used to

enrich and explain the quantitative results in the words of the participants (Creswell & Clark, 2007). Two data collection methods were employed for this study. The first phase was a mixed-design survey using demographic questions, Likert type scale questions, and open-ended qualitative questions. Two separate mixed-design surveys were constructed. One for construction CTE teachers who were leavers, Mixed-design Survey of Former Construction CTE Teachers (MDLS), (see Appendix C) and the other for the stayers, Mixed-design Survey for Current Construction CTE Teachers (MDSS), (see Appendix D). The MDLS asked Likert type scale questions regarding the level of importance of why the teacher left the profession and the MDSS asked questions about the level of dissatisfaction in the profession if the teacher was a stayer. The respondents were asked to rate the level of importance on a five point Likert-type scale ranging from not at all important to extremely important. The respondents were then asked five open-ended qualitative questions on the MDLS and six open-ended questions on the MDSS to validate the quantitative theories while also providing the richer insight and additional information not discovered in the Likert-type scale quantitative survey (Heppner & Heppner, 2004; Johnson & Onwuegbuzie, 2004; Merriam, 1998; Plewis & Mason, 2005). The surveys took approximately 20 minutes to complete and the results were placed into *Statistical Package Social Science* (SPSS) version 16.0 and the means of the years of service were calculated and incorporated in the Mann-Whitney test to see if a significant difference existed between the number of years retained with the four-year graduates and the two-year certified teachers. The .05 level of confidence was used to determine the statistical significance.

To establish if a significant difference existed between the reasons four-year teacher certified construction teachers were leaving the profession and those who were two-year alternatively certified, or if a significant difference existed between the reasons four-year teacher certified construction teachers have considered leaving the profession and those who were two-year alternatively certified, the five point ordinal scale Likert-type questions were given a value from one to five and arithmetic means were computed to determine the most prominent reasons the teachers were leaving the profession. This comparison was done for each individual item of the survey that had compatible items. The means for the two groups were then incorporated in the Mann-Whitney test using SPSS, which compares two independent conditions between different participants to find if there is a statistical significance between the two groups (Field, 2005; Fraenkel & Wallen, 2003). The .05 level of confidence was used to determine the statistical significance.

Phase two of the investigation involved follow-up interviews to further answer research questions four through seven. The semi-structured interview served as a probe of the questionnaire responses and provided the purposeful sampling of participants with the opportunity to extend their written answers and further consider related issues of retention and attrition of construction CTE teachers. The semi-structured and open-ended protocol allowed the individual participants to establish and engage in richer dialogue with the researcher and establish additional insight into the study by providing a wider latitude of potential responses from the respondents (Merriam, 1998). The researcher met with each individual interviewee at a convenient time and location of their choosing.

Two different interview protocols were developed, one for the leavers (see Appendix E), and one for the stayers (see Appendix F). Both of these provided deeper insight into reasons why four-year certified teachers left the teaching profession versus the reasons why two-year alternative certified teachers left the teaching profession. They also both provided insight into what industry was doing or could do to help retain construction CTE teachers in the secondary school system. However, the leaver protocol sought to gain insight into the dominant reasons construction CTE teachers were leaving the profession while the stayer protocol was used to interview current construction CTE teachers and allow the researcher to gain insight into the concerns and reasons a current teacher would consider leaving the profession and the positive factors that are causing the teacher to stay in the career field.

The interviews were recorded, transcribed, and converted to Microsoft Word files suitable for analysis. The transcript data were placed into WordStat 5.1 and QDA Miner analysis software to facilitate the coding process. The data were open coded to reveal articulate themes and then axial coding was used to connect the emerging themes and groupings into perspective to provide answers to the qualitative research questions. The data produced through the open-ended survey questions, field notes, and raw data produced through the semi-structured interviews were triangulated to strengthen reliability and internal validity of the study (Creswell & Clark, 2007; Merriam, 1998). The researcher further established credibility of the results through the process of member checking (Creswell & Clark, 2007; Merriam, 1999), where several participants in the study were asked to review the findings and make sure they were an accurate reflection of their experiences.

Findings of the Study

Forty four teachers participated in the study by completing and submitting their mixed-design survey. Of the forty four respondents, thirty one teachers wrote answers to the open-ended questions on their surveys and six were interviewed, providing the data to support the findings of the research questions. From the data, it was concluded there was a significant difference in the retention of two-year alternatively certified and four-year teaching degreed construction CTE teachers. A difference was also detected in how the two-year certified teachers viewed professional advancement opportunities compared to their four-year teaching degreed colleagues.

Current teachers believed salary issues, student issues, and administrative issues were the main reasons CTE teachers were leaving the profession, however, salary issues were not even slightly important in the decision to leave for the leaving teachers. The leavers' main concerns were student discipline problems, challenges caused by special needs students, poor student motivation, and lack of influence over school policies. The discussion that follows will report the findings of this study in detail.

Discussion of the Findings

Finding 1

There was a significant difference in the retention rate of four-year teaching degreed teachers compared to their two-year alternative certified counterparts. The four-year degreed teachers had a higher retention rate. It should be noted that this is in agreement with the literature review because according to the review of literature on a national level, alternatively certified teachers have a lower retention rate compared to four-year teaching degreed teachers (Berry, 2001; Darling-Hammond, 2000a; Darling-

Hammond, Berry, & Thoreson, 2001). It should also be noted the two leavers who participated in the study were both alternatively certified and had attended the New Teacher Institute (NTI), which is a program that is “designed to be a sort of teacher boot camp” (Cochran & Reese, 2007, p.25) and helps individuals receive preparation for teaching when coming directly out of the industry. However, one of the leavers who did attend NTI commented that was the only preparation for teaching he had, and he did not enroll in any additional classes that are required to receive the two-year alternative teaching certificate.

Since over 70% of Missouri’s construction CTE teachers are two-year alternatively certified, the NTI program and mentoring are having a positive effect on teacher retention. However, the data would suggest the alternatively certified teacher should be given as much training and support as possible their critical first years to help them through the transition between the workforce and the classroom.

Finding 2

In looking at the differences in the reasons four-year teacher certified construction CTE educators have considered leaving the profession and those having a two-year alternative certification have considered leaving the teaching profession, only one reason had a significant difference between the two groups. A difference was detected in how the two-year certified teachers viewed professional advancement opportunities compared to their four-year teaching degreed colleagues. The two-year alternatively certified CTE teacher ranked poor opportunities for professional advancement significantly higher than their counterparts. Therefore, it can be concluded from the data the four-year teaching

degreed teacher believes they are in a better position for advancement than their two-year alternatively certified counterparts.

Finding 3

Current construction CTE teachers believed salary was the number one issue in teachers' decision to leave the profession. This is in agreement with the review of literature which stated that studies have shown salary issues are a prominent reason for teacher attrition (Berry, 2004; Billingsley, 2004; Ingersoll, 2002a; Woullard & Coats, 2004; Wutke, 2004) and that quality teachers will stay if they are paid well (Berry, 2004). This is supported by Billingsley who argued, "...salary should be a strategy that school systems consider to increase retention" (p. 45). However, the leavers contributing to this study revealed that salary issues were not at all important in their decision to change positions. The stayer teachers also noted student issues and poor support from administration as major concerns for the leavers. This was confirmed by the leavers who ranked student discipline problems as their highest concern with challenges caused by special needs students and poor student motivation, closely following. The only other issue indicated by the leavers as being somewhat important was the issue of lack of influence over school policies. This is in agreement with other reseachers because Hill and Wicklein (2000) argued the main concerns with new technology teachers are being prepared to deal with conflict, classroom management, and discipline problems and buttressed by Ingersoll (2001) who noted that lack of administrative support, lack of student motivation, and student discipline problems were factors in novice teacher attrition. The data suggest the beginning CTE teacher is aware of the salary issues

associated with the teaching field, but is unprepared for the complexity of student discipline and motivational problems.

Finding 4

Data from research question five indicated five concerns higher than somewhat important as reasons why current construction CTE teachers have considered leaving the teaching profession. These concerns ranked in order of importance were poor salary, inadequate support from administration, poor student motivation to learn, student discipline problems, and lack of influence over school policies. All of these issues were in agreement with other research studies. Therefore, this study suggests that even though strides have been made in teacher retention, there are still concerns that should be considered to help retain CTE teachers.

Finding 5

There were two very dominant reasons why current construction CTE teachers were staying in the profession. The overwhelming response given was their enjoyment of working with the students who wanted to learn and seeing students learn and become skillful in the construction craft. The other prevailing reasons were the benefits and the retirement that went with the job. Several teachers indicated they would have left the profession if it were not for the secure and excellent retirement package. Therefore, these positive factors should be addressed more frequently to help promote an optimistic school climate and encourage current CTE teachers.

Finding 6

Since mentoring is such a strong component of the induction process (Wong, 2004) and is such a good retention tool for the novice teacher (Bartell, 2005; Brown,

2003; Cochran & Reese, 2007; Darling-Hammond, 1997; Feiman-Nemser, 2003; Lee et al.; 2006; Igersoll & Smith, 2004; Vail, 2005; Wayne et al., 2005), it has been a part of the CTE induction program in Missouri since 1988. The researcher thought it would be advantageous to see how effective the mentoring program had been for the construction CTE program. The data were very divergent in response to this question. The respondents were either very positive or very negative in responding to their mentoring experience. The data would suggest that if the mentoring teacher took the position seriously and believed they had a part in the beginning teacher's success, then the experience was beneficial and positive for the mentee. If, however, the mentoring teacher did not take the time to properly guide and collaborate with the new teacher, it was perceived as a negative experience for the novice teacher. The data would also suggest that having a mentor in the building is more advantageous than having a mentor in the exact same CTE field if they are demographically too far away to be of any real assistance to the beginning teacher.

Finding 7

Data from research question seven on what is industry doing or what could industry do in the future to help in the retention of qualified construction teachers in Missouri's secondary school system was enlightening. Inman and Marlow (2004) stated, "Without the support of the community, beginning teachers will continue to leave the profession for other endeavors which afford them positive feelings of efficacy and accomplishment" (p. 612). In looking at the open-ended question and interview data, very little can be said for the positive affect industry is currently having on construction education in the secondary school system. The data would suggest that more needs to be

done to better liaison between the construction industry and the construction CTE community. The industry needs to be communicated with so they are better educated in the needs and opportunities that are present in the CTE field.

Finding 8 – Unanticipated Finding

The researcher did not know there was a potential problem facing Missouri's CTE teacher's retirement until data were collected for this study. Apparently, in October of 2008, the Social Security Administration informed Missouri's school districts that some employees who had previously been ruled as exempt from paying Social Security would be required to pay into both retirement systems beginning the summer of 2009. This would negatively affect the retirement benefits of thousands of school employees and it is very vague as to exactly who will be affected. The researcher contacted three Career and Technology Center directors and three Career and Technology Education professors and it seems to be very unclear if CTE teachers will be affected by this change.

In light of this information and without any prompting from any aspect of the survey, three of the construction CTE teachers who responded to the open-ended questions of the MDSS survey stated they would be leaving this year if their retirement was going to be affected by this Social Security change. Another teacher commented that he would probably be leaving and he already knew of two good educators who were taking retirement two or three years earlier than planned because of the impending implications of this change.

Limitations and Design Control

The mixed-method approach to research utilizes quantitative as well as qualitative methods to capture the best of both approaches (Creswell, 2003) and draw from the

strengths while minimizing the weaknesses of the individual studies (Johnson & Onwuegbuzie, 2004). However, with any study there are limitations and assumptions that need to be acknowledged to identify potential weaknesses of the study. The following limitations and assumptions related to this study were identified by the researcher:

1. The participants of this study were limited to four-year university CTE graduates and two-year alternatively certified construction teachers who entered the construction teaching profession in the state of Missouri from 2003-2007.
2. For the purposes of this study, there were only five construction CTE teachers that by definition were leavers. Of those five, the researcher could not find the contact information on two of them and of the remaining three, only two participated in the study. Therefore, the researcher based the study on the assumption the small sampling of leavers was representative of construction CTE teachers who left the profession during the 2003-2008 school years.
3. The survey instruments utilized in this study were created by the researcher.
4. This study was limited by the degree of reliability and validity of the survey instrument. Since pilot testing bolsters both reliability and validity (Fink, 2006), the surveys were pilot tested by the researcher. The participants were given the instructions on how to complete the survey and asked to provide feedback on the clarity of the directions, clarity, format, and appropriateness of the questions, and length of the survey. The appropriate changes were made to the surveys before they were issued to the study population. Reliability was established through the test-retest method (Field, 2005; Fraenkel & Wallen; Heppner & Heppner, 2004).

5. It was assumed that participants were honest in their responses and correctly interpreted the survey instrument.
- 6 It was assumed that participants based their responses upon their own experiences.

Implications for Practice

The study's findings have direct implications for administrators, counselors, school boards, state departments of education, post-secondary institutions, and the construction industry. Since 72.7% of the teachers responding had their two-year alternative teaching certificate, it is safe to say, alternative certification is not going away in the near future. In fact, if it were not for these teachers, construction CTE as we know it would not exist. Therefore, state departments of education should continue to strive to give these individuals the very best training possible in the shortest period of time to prepare them for their first year teaching experience. Since the review of literature and this study both indicate higher attrition rates for two-year certified teachers, it is imperative the educational system does everything it can to ensure the success of these individuals.

This training can begin with classroom management, student discipline preparation, and grounding in the areas of handling IEP and BD students. These beginning teachers need to be prepared for students' lack of motivation and lack of respect. One teacher said he thought teachers were leaving because the "instructors were thrown to the wolves by administration." The school counselors can also play an important role in making sure the students enrolling in the CTE programs are interested in the area they are being placed and that the program is not used as a "dumping ground"

for unwanted students. As noted earlier, the percentage of IEP and BD students is not the major concern, many of these students prove to be exceptional in these programs; however, when a student is placed by the counselor simply because they do not know what else to do with them, it can become a detriment to the entire program. As one teacher pointed out, “[I am] frustrated over a single student occupying a majority of my time.” Therefore, the counselors should be educated in the construction CTE program and what basic skills are necessary to make a successful student in that program so they can be placed accordingly.

In addition, because student discipline is such a major factor in the retention of construction CTE teachers, administrators need to take an active role in classroom and student discipline and support the teacher so the teacher does not feel like they are fighting the discipline battle alone. The educational community should also encourage CTE teachers who have a good understanding of CTE protocol to further their education and become administrators who have been in the CTE field and have empathy for the discipline issue. The Administrators can show tremendous support by taking the appropriate action with problem students and actively reinforce the concept that the teacher is not in this profession alone. One teacher commented “teaching is a lonely profession for some people” and this is reinforced by Erickson (2004) who stated teachers “often feel they are thrown into the classroom and are left alone” (p. 1).

Administrators can also take an active role in communicating why school policies are necessary that are not directly related to teaching. Several stayer teachers commented they were tired of jumping through the hoops and one succinctly wrote “There are too many hoops to jump through without proper support.” Another stayer commented

“There’s too much paperwork that means nothing and nobody looks at.” Therefore, administrators need to do a better job conveying the importance and reasoning behind federal and state paperwork and competency requirements. The teachers need to have a better understanding of why the extra work needs to be completed and the usefulness it will serve. Teachers need to be able to openly communicate with their administrator and believe that their voice is heard. Earlier research revealed that teachers who perceive themselves having high levels of autonomy report lower levels of intent to leave the teaching profession (Dee, 2004) and teachers “...are happiest when they have some control over their work environment” (Vail, 2005, p. 7). This researcher would agree with Bolman and Deal (2003) who argued that one of the best resource strategies for retaining quality employees is to empower them by providing information and support, encouraging autonomy, and fostering teamwork and participation.

Administrators, school boards, and the surrounding community and industry can also bolster the retention of construction CTE teachers by giving them positive reinforcement at every opportunity. Many of these teachers have left prominent, high paying jobs because they wanted to become teachers. The data suggest that many of these alternatively certified teachers are thinking about leaving because of the pay and there is no opportunity for advancement in their field. Inman and Marlow (2004) stated that the teacher most likely to leave the profession is the secondary male who has not been teaching very long and they communicate the professional prestige of the profession is not as good as they originally perceived it would be. Therefore, these teachers need to be encouraged at every opportunity and shown they are needed and supplying a valuable service to the student, the school, and the community.

In addition, since the data indicated the number one reason teachers were staying in the field was their enjoyment of seeing students learn and seeing the students becoming successful and skillful in their field, it would be advantageous for the educational community to convey these success stories to the CTE teaching profession. It can sometimes take several years before a teacher has these positive affirmations to look back on, and the beginning teacher needs to hear about the success stories of other colleagues. Therefore, it would be an asset to the CTE teaching community if a newsletter or website could be established where teachers could communicate their accomplishments, projects, and students' success stories to help strengthen and encourage other CTE teachers across the state.

Along with the additional encouragement of other teachers, the new teacher's mentor needs to give encouragement and support. This is very difficult to do if the mentor is not in the same building or school district. If at all possible, mentoring teachers should be physically accessible and the department of education needs to be diligent in hiring mentoring teachers who have a heartfelt commitment to share insights with the new teacher and see the beginning teacher succeed.

Finally, the construction industry should take an active role in the construction CTE teacher and their program. The industry is always in need of qualified workers, and there are many ways they could support construction programs. Industry personnel could come and give demonstrations, take the students on field trips, encourage students to job shadow and give them summer employment. Also, materials and equipment could be donated to the program to help augment the program's resources. In addition, post

secondary CTE personnel and industry liaisons should work collaboratively to support and encourage construction CTE teachers in the future.

Recommendations for Future Research

Further research should be done on the number of CTE programs that have closed because a teacher could not be found to continue the program. The researcher found two construction CTE programs that had been offered in the past, but were not offered in the 2008-09 school year because the existing teacher retired and the school system did not find a replacement. In addition, the researcher found an average size centrally located High School that had five CTE type programs offered in the 1999-2000 school year and by following up for current data, the researcher was informed all of the previous programs had been closed due to teacher retirements and there was no longer any hands-on CTE classes being offered at the school. This is a problem that needs to be investigated to ensure future classes are not closed because an adequate replacement cannot be found.

In addition, further comparisons should be made between construction CTE teachers who are leavers and stayers in other states (e.g., Kansas, Illinois, Oklahoma) in the areas of retention and attrition of previous and current CTE teachers. This study could be replicated in other states and successful retention programs could be shared across state lines to better retain and support our construction CTE teachers. There is also a need to continue to investigate how industry has been successful in intervening and collaborating with construction CTE teachers in other states with programs that have been incorporated into the schools to help retain our teachers and facilitate students' achievement and success.

Finally, there is an immediate need to investigate how the new Federal Social Security law is going to affect Missouri's CTE teacher retirement. There seems to be tremendous ambiguity on how and who this change will have an effect on, and the implications for the future of Missouri's construction CTE programs are enormous. Several teachers have already stated they are going to take retirement earlier than planned because they are not sure how this change would affect them personally and several others stated they would be leaving if the change had any adverse affect on their PSRS teacher retirement. The researcher believes if this change does affect current CTE teachers, research needs to be done and presented to the proper legislative authorities because it could having a devastating impact on the future of all CTE programs.

Summary

The purpose of this study was to investigate the reasons construction teachers in the CTE field left the teaching profession in their first five years of service, or if they stayed, what were the dominant factors that caused them to consider leaving the profession and what were the factors that caused them to remain in the CTE field in the state of Missouri. This was done through the triangulation of mixed-design surveys with open-ended questions and semi-structured interviews.

The data revealed there was a significant difference in the retention rate of two-year alternatively certified teachers and four-year teaching degreed teachers. The four-year teaching degreed teacher had a higher retention rate which was also supported by other researchers (Berry, 2001; Darling-Hammond, 2000a; Berry & Thoreson, 2001). The data also revealed the only significant difference in why two-year certified and four-year teaching degreed teachers had considered leaving the profession was that the two-

year certified teachers were considering leaving because of poor opportunities for professional advancement.

The main reason the stayer teachers thought teachers were leaving their profession was because of the low salary issues; however, the leavers stated that salary was not at all important in their decision to leave the CTE teaching profession. They stated their main concerns were student discipline problems, dealing with special needs students that were not interested in the program, poor student motivation, and lack of influence over school policies. Considerations of stayer teachers to leave the profession included low salary, inadequate support from administration, and student issues, especially discipline and poor motivation.

The data were overwhelming in the reasons teachers were staying in the profession. Over 75% of the stayer teacher responses dealt with enjoyment of working with the students and seeing student success in their field followed by teacher benefits and a strong teacher retirement program.

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APPENDIX A

Information Letter – Teacher

Appendix A

Information Letter – Teacher

Dear Colleague:

I am a doctoral student at the University of Missouri-Columbia and I am currently completing my dissertation entitled, “Retention of Construction Teachers Engaged in Missouri’s Secondary School System”. As part of the research study, former and current teachers from comprehensive High Schools and Career and Technology Centers in Missouri are being surveyed regarding their experiences and perceptions of the retention of construction Career and Technology Education (CTE) teachers. The survey should take approximately 15 minutes to complete.

I am seeking your permission to conduct the survey, providing that you voluntarily agree to participate. Would you please take a moment and read the informed consent form? If you agree to take the survey, you are agreeing with the consent form by opening up and taking the survey instrument. I truly appreciate your participation because limited information is available regarding the retention and attrition of construction CTE teachers in Missouri.

Your confidentiality will be protected throughout the study. No participant will be identified in reporting results. While I do hope that you decide to participate, participation is voluntary. You may withdraw at any time without penalty. Individual responses to the survey are confidential.

If you have any questions about this research project, please feel free to contact me at my office (660) 543-4789, or dmccandless@ucmo.edu. You may also contact my Faculty Advisor, Dr. Barbara N. Martin, at (660) 543-8823, or bmartin@ucmo.edu. Thank you in advance for your assistance with this project.

Sincerely,

David McCandless
Doctoral Candidate
University of Missouri-Columbia

FAX (660) 543-4431

APPENDIX B

Informed Consent – Survey

Appendix B

Informed Consent – Survey

PROJECT BACKGROUND: This project involves gathering data through a survey questionnaire investigating the retention of construction Career and Technology Education (CTE) teachers. The data will be collected for analysis and may be published. You must be at least 18 years of age to participate.

PURPOSE: The purpose of this study is to investigate the retention and attrition of construction CTE teachers in Missouri.

VOLUNTARY: The survey is voluntary. You may refuse to answer any question or choose to withdraw from participation at any time without any penalty or loss of benefits to which you are otherwise entitled.

WHAT DO YOU DO? When you mark the box to open up the electronic survey you are agreeing with the stipulations in the informed consent. The survey should not take more than 15 minutes to complete.

BENEFITS: Your participation in this research project will enrich the information base. A clearer understanding of how to retain CTE teachers and lower attrition will expand the educational knowledge base. The findings could serve to retain teachers in the profession, reducing the cost and time required to recruit new teachers and improve student achievement.

RISKS: This project does not involve any risks greater than those encountered in everyday life.

CONFIDENTIALITY: Your confidentiality will be maintained in that a participant's name will not appear on any survey analysis or in the published study itself. A code number may be assigned so that responses may be grouped for statistical analysis. The data will only be reported in aggregate form.

INJURY: It is not the policy of the University of Missouri to compensate human subjects in the event the research results in injury. The University of Missouri does have medical, professional and general liability self-insurance coverage for any injury caused by the negligence of its faculty and staff. Within the limitations of the laws of the State of Missouri, the University of Missouri will also provide facilities and medical attention to subjects who suffer injuries while participating in the research projects of the University of Missouri. In the event you suffered injury as the result of participating in this research project, you are to immediately contact the Campus Institutional Review Board Compliance Officer at (573) 882-9585 and the Risk Management Officer at (573) 882-3735 to review the matter and provide you further information. This statement is not to be construed as an admission of liability.

Thank you for your assistance in providing current information regarding the possible relationship between collaboration and beginning teacher attrition. Your efforts are greatly appreciated. If you have any questions regarding the study, please contact me at work (660) 543-4789, or dmccandless@ucmo.edu. You may also contact my Faculty Advisor, Dr. Barbara N. Martin, at (417) 836-8823, or bmartin@ucmo.edu. If you have questions regarding your rights as a participant in research, please feel free to contact the Campus Institutional Review Board at (573) 882-9585. Thank you in advance for your assistance with this project.

Sincerely,

David McCandless

Doctoral Candidate, University of Missouri-Columbia

FAX (660) 543-4431

APPENDIX C

Mixed-design Survey of Former Construction CTE Teachers – Leavers (MDLS)

Appendix C

Mixed-design Survey of Former Construction CTE Teachers – Leavers (MDLS)

Section One: Demographics

Sex: M ____ F ____ Age ____ Years Teaching ____ Ave. No. of students in class ____

Teaching location: Comprehensive High School ____ Career and Technology Center ____

4-year teaching degree ____ Name of Degree _____

2-year alternative certification ____

Section Two: Using the following scale, indicate the level of importance EACH of the following played in your decision to LEAVE THE TEACHING PROFESSION.

Mark (X) one box on each line.

	Not at all Important	Slightly Important	Somewhat Important	Very Important	Extremely Important
a. Pregnancy/Child rearing					
b. School staffing action (ex. Contract not renewed)					
c. To take a break from teaching					
d. For better salary or benefits					
e. To pursue a different career					
f. Family relocation					
g. To take courses or get experience to improve career opportunities in education					
h. Dissatisfaction with teaching as a career					
i. Other family or personal reasons					

If in the previous section (h) “Dissatisfaction with teaching as a career” was at least **somewhat important** in your decision to leave the teaching profession, please continue with **Section Three** if you have a four-year teaching certificate from an accredited university. If you were hired out of industry and **Do Not** have a four-year teaching certificate from an accredited university please continue with **Section Four**. If in the previous section (h) “Dissatisfaction with teaching as a career” was **NOT** at least **somewhat important** in your decision to leave the teaching profession, please STOP and return the survey.

Section Three: (For those having a four-year teaching degree) Using the following scale, indicate the level of importance EACH of the following played in your decision to LEAVE THE TEACHING PROFESSION.

Mark (X) one box on each line.

	Not at all Important	Slightly Important	Somewhat Important	Very Important	Extremely Important
a. Poor salary					
b. Inadequate support from administration					
c. Student discipline problems					
d. Lack of influence over school policies					
e. Lack of control over own classroom					
f. Challenges caused by special needs students					
g. Initial placement as a new teacher too demanding, not given enough time					
h. Poor student motivation to learn					
i. Inadequate mentoring or induction program					
j. Poor opportunities for professional advancement					
k. Class size too large					
l. I personally was not suited for teaching					
m. College preparation for teaching inadequate					

Please go to Section Five

Section Four: (For those being hired out of industry) Using the following scale, indicate the level of importance EACH of the following played in your decision to LEAVE THE TEACHING PROFESSION.

Mark (X) one box on each line.

	Not at all Important	Slightly Important	Somewhat Important	Very Important	Extremely Important
a. Poor salary					
b. Inadequate support from administration					
c. Student discipline problems					
d. Lack of influence over school policies					
e. Lack of control over own classroom					
f. Challenges caused by special needs students					
g. Initial placement as a new teacher too demanding, not given enough time					
h. Poor student motivation to learn					
i. Inadequate mentoring or induction program					
j. Poor opportunities for professional advancement					
k. Class size too large					
l. I personally was not suited for teaching					
m. Inadequate preparation for teaching from the industry setting					

Please go to Section Five

Section Five: Open-Ended Questions

Is there any factor which, if altered, would have affected your decision to leave teaching?

No___ Yes___ N/A___ Please Specify_____

Why do you think construction CTE teachers are leaving the profession during their critical first five years? _____

What affect did your first year mentoring experience have on your teaching profession?

What is industry doing or could do in the future to help in the retention of qualified construction teachers in Missouri's secondary school system? _____

Other Comments: _____

If you would like an executive summary of the results of this study, please check here. Yes _____

Would you be willing to participate in a forty minute semi-structured interview? It would be comprised of open-ended questions at a time and location convenient to you. Our time together will be informal, and may seem more like a discussion about your teaching

experiences. Your confidentiality will be protected at all times. It would be a great help in the development of the findings for this study. Please check here if you are willing to participate. YES _____

Thank you for your participation in this important study.

APPENDIX D

Mixed-design Survey for Current Construction CTE Teachers – Stayers (MDSS)

Appendix D

Mixed-design Survey for Current Construction CTE Teachers – Stayers (MDSS)

Section One: Demographics

Sex: M ____ F ____ Age ____ Years Teaching ____ Ave. No. of students in class ____

Teaching location: Comprehensive High School ____ Career and Technology Center ____

4-year teaching degree ____ Name of Degree _____ **Go to Section 2**

2-year alternative certification ____ **Go to Section 3**

Section Two: (For those having a four-year teaching degree) Using the following scale, indicate the level of importance EACH of the following played if you have considered leaving the teaching profession.

Mark (X) one box on each line.

	Not at all Important	Slightly Important	Somewhat Important	Very Important	Extremely Important
a. Poor salary					
b. Inadequate support from administration					
c. Student discipline problems					
d. Lack of influence over school policies					
e. Lack of control over own classroom					
f. Challenges caused by special needs students					
g. Initial placement as a new teacher too demanding, not given enough time					
h. Poor student motivation to learn					
i. Inadequate mentoring or induction program					
j. Poor opportunities for professional advancement					
k. Class size too large					
l. Sometimes do not feel suited for teaching					
m. College preparation for teaching inadequate					

Please Go to Section Four

Section Three: (For those being hired out of industry) Using the following scale, indicate the level of importance EACH of the following played if you have considered leaving the teaching profession.

Mark (X) one box on each line.

	Not at all Important	Slightly Important	Somewhat Important	Very Important	Extremely Important
a. Poor salary					
b. Inadequate support from administration					
c. Student discipline problems					
d. Lack of influence over school policies					
e. Lack of control over own classroom					
f. Challenges caused by special needs students					
g. Initial placement as a new teacher too demanding, not given enough time					
h. Poor student motivation to learn					
i. Inadequate mentoring or induction program					
j. Poor opportunities for professional advancement					
k. Class size too large					
l. Sometimes do not feel suited for teaching					
m. Inadequate preparation for teaching from industry setting					

Please Go to Section Four

Section Four: Open-Ended Questions

What are the dominant reasons you have considered leaving the teaching profession?

If you have been teaching in the construction CTE profession for more than three years, what are some of the factors causing you to stay in the teaching career field?

Why do you think construction CTE teachers are leaving the profession during their critical first five years?

What affect did your first year mentoring experience have on your teaching profession?

What is industry doing or could do in the future to help in the retention of qualified construction teachers in Missouri's secondary school system?

Other Comments:

If you would like an executive summary of the results of this study, please check here. Yes ____

Would you be willing to participate in a forty minute semi-structured interview? It would be comprised of open-ended questions at a time and location convenient to you. Our time together will be informal, and may seem more like a discussion about your teaching experiences. Your confidentiality will be protected at all times. It would be a great help in the development of the findings for this study. Please check here if you are willing to participate. YES _____

Thank you for your participation in this important study.

APPENDIX E

Interview Protocol - Leavers

Appendix E

Interview Protocol – Leavers

Thank you for participating in my study today. The purpose of this study is to investigate the retention and attrition of construction CTE teachers in Missouri's secondary school system. Through the performance of this study, I hope to establish any differences in retention rates of four-year degreed teachers compared to two-year alternatively certified teachers, the dominant reasons CTE teachers are leaving the profession during their first five years, and what could industry do to improve retention of construction CTE teachers.

Before we go any further, I want you to know your rights as a participant in my study. You are not required to answer any questions you are uncomfortable with and you may leave the interview at any time. We will protect your confidentiality by using false names (pseudonym codes). Your personal identity will not be linked to individual responses or used in any future manuscripts or publications. Given these understandings, are you willing to sign an informed consent form to participate in this study and consent to electronic tape recordings of this interview to be used as data for this research?

Informed Consent: Allow participant time to read, discuss, and sign consent form.

The findings revealed by this research will be used to complete my dissertation and potentially be edited into a manuscript suitable for publication in a peer-reviewed journal.

First we have a short demographics form to confirm the personal contact information I have and I would like to know how you prefer to be addressed during this interview.

How would you like to be addressed during this interview_____?

To begin, I am going to ask some general questions about you; then I would like to talk about your thoughts, perceptions, and experiences regarding your teaching experience.

1. Would you please tell me a little about yourself and what courses you have taught?
2. What were the dominant reasons causing you to leave the teaching profession?
3. What role did student issues and the salary scale have in your decision?
4. How successful was your mentoring experience?
5. Many teachers commented they thought teachers were leaving due to poor administrative support. How was your support system?
6. What are the reasons you believe cause construction CTE teachers to leave during their first five years of teaching?

7. Did you have any industry support while you were an educator?
8. Is there anything that industry could do to help in the retention of beginning construction CTE teachers?

Thank you...ask participant if they would like to add any comments that have not been discussed...closure.

APPENDIX F

Interview Protocol – Stayers

Appendix F

Interview Protocol – Stayers

Thank you for participating in my study today. The purpose of this study is to investigate the retention and attrition of construction CTE teachers in Missouri's secondary school system. Through the performance of this study, I hope to establish any differences in retention rates of four-year degreed teachers compared to two-year alternatively certified teachers, the dominant reasons CTE teachers are leaving the profession during their first five years, and what could industry do to improve retention of construction CTE teachers.

Before we go any further, I want you to know your rights as a participant in my study. You are not required to answer any questions you are uncomfortable with and you may leave the interview at any time. We will protect your confidentiality by using false names (pseudonym codes). Your personal identity will not be linked to individual responses or used in any future manuscripts or publications. Given these understandings, are you willing to sign an informed consent form to participate in this study and consent to electronic tape recordings of this interview to be used as data for this research?

Informed Consent: Allow participant time to read, discuss, and sign consent form.

The findings revealed by this research will be used to complete my dissertation and potentially be edited into a manuscript suitable for publication in a peer-reviewed journal.

First we have a short demographics form to confirm the personal contact information I have and I would like to know how you prefer to be addressed during this interview.

How would you like to be addressed during this interview_____?

To begin, I am going to ask some general questions about you; then I would like to talk about your thoughts, perceptions, and experiences regarding your teaching experience.

1. Would you please tell me a little about yourself and what courses you have taught?
2. What are the dominant reasons that would cause you to consider leaving the teaching profession?
3. How successful was your mentoring experience?
4. Salary issues and student problems were two main concerns of leaving teachers. As a teacher in the profession for at least three years, can you elaborate on these concerns?
5. Many teachers commented they believed teachers were leaving due to poor administrative support. What do you think the concerns were in that area?

6. What are the dominant reasons causing you to stay in the teaching profession?
7. Several teachers commented on the benefits and retirement as reasons to stay in the profession. What do you believe will be the affect on teachers if Social Security begins to intervene in the teacher retirement system?
8. Do you have any industry support as a construction CTE teacher?
9. Is there anything that industry could do to help in the retention of beginning construction CTE teachers?

Thank you...ask participant if they would like to add any comments that have not been discussed...closure.

APPENDIX G

Informed Consent – Interview

Appendix G

Informed Consent – Interview

PROJECT BACKGROUND: This project involves gathering data through personal interviews investigating the retention of construction Career and Technology Education (CTE) teachers. The data will be collected for analysis and may be published. You must be at least 18 years of age to participate.

PURPOSE: The purpose of this study is to investigate the retention and attrition of construction CTE teachers in Missouri.

VOLUNTARY: The interview is voluntary. You may refuse to answer any question or choose to withdraw from participation at any time without any penalty or loss of benefits to which you are otherwise entitled.

WHAT DO YOU DO? I will ask you to sign two consent forms and you will keep one of them for your records

BENEFITS: Your participation in this research project will enrich the information base. A clearer understanding of how to retain CTE teachers and lower attrition will expand the educational knowledge base. The findings could serve to retain teachers in the profession, reducing the cost and time required to recruit new teachers and improve student achievement.

RISKS: This project does not involve any risks greater than those encountered in everyday life.

CONFIDENTIALITY: Tapes and transcripts will remain confidential, anonymous, and separate from any identifying information. A pseudonym will be assigned to responses for use by the researcher. Only the researcher and the dissertation supervisor will have access to identifiable data. Collected data will be kept locked and destroyed three years after completion of this study. Your identity and your building's identity will be confidential and remain anonymous in the reporting of results. I will not list any names of participants, or their corresponding institutions, in my dissertation or any future publications of this study.

INJURY: It is not the policy of the University of Missouri to compensate human subjects in the event the research results in injury. The University of Missouri does have medical, professional and general liability self-insurance coverage for any injury caused by the negligence of its faculty and staff. Within the limitations of the laws of the State of Missouri, the University of Missouri will also provide facilities and medical attention to subjects who suffer injuries while participating in the research projects of the University of Missouri. In the event you suffered injury as the result of participating in this research project, you are to immediately contact the Campus Institutional Review Board Compliance Officer at (573) 882-9585 and the Risk Management Officer at (573) 882-3735 to review the matter and provide you further information. This statement is not to be construed as an admission of liability.

Thank you for your assistance in providing current information regarding the possible relationship between collaboration and beginning teacher attrition. Your efforts are greatly appreciated. If you have any questions regarding the study, please contact me at work (660) 543-4789, or dmccandless@ucmo.edu. You may also contact my Faculty Advisor, Dr. Barbara N. Martin, at (417) 836-8823, or bmartin@ucmo.edu. If you have questions regarding your rights as a participant in research, please feel free to contact the Campus Institutional Review Board at (573) 882-9585. Thank you in advance for your assistance with this project.

Sincerely,

David McCandless

Doctoral Candidate, University of Missouri-Columbia

FAX (660) 543-4431

Informed Consent Form – Survey

I, _____ agree to participate in the study of the retention of construction CTE teachers in Missouri being conducted by David McCandless.

By signing this consent form and participating in the interview, I understand that the following safeguards are in place to protect me:

1. My responses will be used for dissertation research and potential future publications.
2. My participation is voluntary, and may be withdrawn at any point in the study prior to submission of the survey.
3. My identity will be protected in all reports of the research.
4. My consent or refusal to participate in this study will not affect my employment in any way.

Please keep the consent letter and a copy of the signed consent form for your records.

I have read the material above, and any questions that I have posed have been answered to my satisfaction. I voluntarily agree to participate in this study.

Participant's Signature

Date

APPENDIX H

Information Letter – Superintendent/Director

Appendix H

Information Letter – Superintendent/Director

Dear [Superintendent/Director name]:

I am a doctoral student at the University of Missouri-Columbia and I am currently completing my dissertation entitled, “Retention of Construction Teachers Engaged in Missouri’s Secondary School System”. As part of the research study, teachers from 22 comprehensive High Schools and 54 Career and Technology Centers in the state are being surveyed regarding their experiences and perceptions of Career and Technology Education (CTE) teacher retention and attrition.

The survey should take approximately 20 minutes to complete and will be sent out electronically. Using core data from the Missouri Department of Elementary and Secondary Education, I have found 127 teachers that have taught construction classes in the school years 2003-08 and I would like to contact these individuals to help with my data collection. Each school will be asked to provide the names and contact information of former and current CTE teachers between the years 2003-08. Each of these educators will be contacted and asked to complete a survey, one for the teachers that have left the profession, and one for the teachers that are currently teaching. The findings could serve to keep teachers in the profession, reducing the cost and time required to recruit new teachers and improve student achievement.

I am writing to seek your permission to conduct the surveys at your facility, providing the teachers voluntarily agree to participate. Would you please take a moment to sign the attached form, so that I may seek their involvement? I am requesting that you would inform the teachers of my purposes and of my intent to contact them. I truly appreciate your support because limited information is available regarding retention and attrition of beginning construction CTE teachers in the state of Missouri.

Confidentiality of the school and teachers will be protected throughout the study. No school or teacher will be identified in reporting results. While I do hope that you will allow the participation of teachers in your facility, participation is voluntary. Participants may withdraw at any time without penalty. Individual responses to the survey are confidential. Only aggregate data will be reported in the study results. Your signature on the attached form indicates your informed consent for teachers to participate in the study. You may fax the signed informed consent form to me at the FAX number listed below and keep the original signed copy for your records.

If you have any questions about this research project, please feel free to contact me at my office (660) 543-4789, or dmccandless@ucmo.edu. You may also contact my Faculty Advisor, Dr. Barbara N. Martin, at (660) 543-8823, or bmartin@ucmo.edu. Thank you in advance for your assistance with this project.

Sincerely,

David McCandless
Doctoral Candidate
University of Missouri-Columbia
FAX (660) 543-4431

APPENDIX I

Informed Consent – Superintendent/Director

Appendix I

Informed Consent – Superintendent/Director

I, (Name _____), (District _____), (Date ____/____/____) consent to participate in this research project and understand the following:

PROJECT BACKGROUND: This project involves gathering data through a survey questionnaire investigating the retention of construction Career and Technology Education (CTE) teachers. The data will be collected for analysis and may be published. You must be at least 18 years of age to participate.

PURPOSE: The purpose of this study is to investigate the retention and attrition of construction CTE teachers in Missouri.

VOLUNTARY: The survey is voluntary. Participants may refuse to answer any question or choose to withdraw from participation at any time without any penalty or loss of benefits to which they are otherwise entitled.

WHAT DO YOU DO? Sign this consent form and fax a copy to me at the FAX number below, thereby allowing participants in your facility to be involved in completing the survey.

BENEFITS: Your participation in this research project will enrich the information base. A clearer understanding of how to retain CTE teachers and lower attrition will expand the educational knowledge base. The findings could serve to retain teachers in the profession, reducing the cost and time required to recruit new teachers and improve student achievement.

RISKS: This project does not involve any risks greater than those encountered in everyday life.

CONFIDENTIALITY: Your confidentiality will be maintained in that a participant's name will not appear on the survey or in the published study itself. A code number may be assigned so that responses may be grouped for statistical analysis. The data will only be reported in aggregate form.

INJURY: It is not the policy of the University of Missouri to compensate human subjects in the event the research results in injury. The University of Missouri does have medical, professional and general liability self-insurance coverage for any injury caused by the negligence of its faculty and staff. Within the limitations of the laws of the State of Missouri, the University of Missouri will also provide facilities and medical attention to subjects who suffer injuries while participating in the research projects of the University of Missouri. In the event you suffered injury as the result of participating in this research project, you are to immediately contact the Campus Institutional Review Board Compliance Officer at (573) 882-9585 and the Risk Management Officer at (573) 882-3735 to review the matter and provide you further information. This statement is not to be construed as an admission of liability.

Thank you for your assistance in providing current information regarding the possible relationship between collaboration and beginning teacher attrition. Your efforts are greatly appreciated. If you have any questions regarding the study, please contact me at work (660) 543-4789, or dmccandless@ucmo.edu. You may also contact my Faculty Advisor, Dr. Barbara N. Martin, at (417) 836-8823, or bmartin@ucmo.edu. If you have questions regarding your rights as a participant in research, please feel free to contact the Campus Institutional Review Board at (573) 882-9585. Thank you in advance for your assistance with this project.

Sincerely,

David McCandless

Doctoral Candidate, University of Missouri-Columbia

FAX (660) 543-4431

VITA

David McCandless was born in Sedalia, Missouri on June 26, 1953. He attended elementary and high school in his home town of Smithton, Missouri and graduated from Smithton High School in 1971. He attended Central Missouri State College and received his two-year associate's degree in Industrial Drafting and went to work for an architectural firm and later became a general contractor and started his own construction company. After raising his four children, he went back to the university and completed his four-year educational degree in Industrial Technology.

David went into education at the Career and Technology Center at State Fair Community College where he taught for five years and earned his masters degree in Industrial Vocational Technical Education from Central Missouri State University. In 2003, he became a faculty member at the University of Central Missouri, teaching in the Construction Management department. While there he became the program coordinator and completed the requirements for his doctorate in Educational Leadership and Policy Analysis from the University of Missouri-Columbia.

David resides with his lovely bride of 34 years, Carol, in Sedalia, Missouri. They enjoy spending time with their children: Joshua David, Caleb Andrew, Jonah Nathanael, and Mary Elizabeth and their two granddaughters, Shelby and Kendyl.