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DETERMINING ASSOCIATIONS BETWEEN NONTRADITIONALLY
PREPARED AND TRADITIONALLY PREPARED CAREER AND
TECHNICAL EDUCATION TEACHERS IN CENTRAL PENNSYLVANIA

A Thesis in
Workforce Education and Development

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ABSTRACT

Our nation needs an educated and skilled workforce, but accomplishing this will require more than just visionary statements. Career and Technical Teacher Education is a complex issue, but improvements are necessary if the United States is to remain competitive in the global workforce. The constant scrutiny indicates there are inherent problems with the processes that are presently being used to prepare Career and Technical Education teachers.

Use of a pragmatic approach should be employed to investigate the present methods being used for those who enter the field. It is necessary to do this type of research because the number of four-year institutions that provide Career and Technical Teacher Education continues to decline. So, it is necessary to provide more insight into the methods that are being used to prepare, train and certify these teachers in order to determine if the methods need to be revised.

It is also vital to provide factual information that can be useful to the remaining Career and Technical Teacher Education programs. Most of the research has focused on those Career and Technical Education teachers that possess a four-year degree and the colleges and universities that provide the traditional preparation programs. However, scant amounts of data exist for the teachers who enter the profession through the other routes. It is essential to look at all aspects of Career and Technical Teacher Education in order to determine what may be useful to assist, prevent, or stop the further demise of the remaining programs. Viable alternatives must be developed because what has worked in

the past does not appear to be producing the number of Career and Technical Education teachers that are needed – degreed or not.

Researchers have indicated that this is necessary because the number of teachers entering the field through the various alternative methods continues to increase across the country. Since there is a need for Career and Technical Education teacher to have a higher level of knowledge of the trade area and an understanding on future employment trends, it would seem logical that there should be more Career and Technical Teacher Education programs being implemented; instead the exact opposite continues to occur.

The present study focused on nontraditional and traditional Career and Technical Education teachers who possessed similar types of certification in the central region of Pennsylvania. It is necessary to determine how these teachers are using their professional development and if there are other elements that can provide a better understanding of the teachers once they are teaching. This study may also help to establish certain measures that could be useful in future studies and of some assistance to the remaining Career and Technical Teacher Education programs.

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Chapter 1

INTRODUCTION

President Bush summarized that our nation presently needs a “highly skilled and highly educated workforce.” Congressman John Peterson - PA (2003) avowed, “One of the best ways to ensure that our young people receive a great education and a chance for a bright future is to provide our teachers with quality education and training opportunities” (¶ 2). Unfortunately, this requires more than just visionary statements; it will require trained Career and Technical Education (CTE) teachers who can provide the skills and elements of education that are necessary to accomplish such goals.

Twomey (2002) assessed “without career and technical education teachers; fewer and fewer new technical workers will be trained” (p. 9). Even though this is a problematic situation, there are other elements that are undercutting Career and Technical Teacher Education (CTTE). Prosser and Quigley (1949) formulated that teacher-training programs are the “weakest link” in the vocational system (p. 310). As profound as their statement may sound, this continues to be the most complex issue in CTTE training. No prevalent methodology has emerged as a prominent pathway, even though writers are continually trying to establish a resolution for this issue.

So, it is necessary to look at how CTE teachers in central Pennsylvania are receiving their training and the methods used in obtaining the necessary certification for teachers. For the purpose of this study, the focus will be on the CTE teachers that enter the fields of Trade and Industrial (T&I) and Health Occupations (HO) education, which

comprises about 20% of the secondary vocational teaching force; however, 45% of those teaching T&I have less than a bachelor's degree (Lynch, 1997, p. 15). Unfortunately, this method has continued to be scrutinized, which indicates perceived problems in the processes presently used in CTTE programs and a need to improve the educational level of those teachers in the T&I area. Perhaps, a framework should be established to assist in developing a better knowledge and understanding about the methods in how CTE teachers are prepared, trained and certified before trying to determine if the training methods need to be (or should be) revised.

In order to assess this assumption, it is necessary to look at those entering the field through the traditional pathway and those who enter through other methods, usually viewed as “alternative” or “in-service” routes to certification. Rojewski (2002) indicated that the purpose and mission of CTE has been debated since its inception (p. 3). He also pointed out that a coherent and articulated philosophy for CTE can provide a better view of programs and any changes necessary to improve the field (p. 8), indicating that a realistic approach is warranted while looking at the present methods being used in CTTE.

There is a need to disseminate the methods in use for training CTE teachers, which should be an imperative because the number of four-year institutions that provide CTTE continues to decline (Dykman, 1993, p. 24; Plawin, 1993, p. 4; Lynch, 1996, pp. 11, 22; Gordon 1999, p. 141; Bruening & Scanlon, 2001, p. 3; Walter & Gray, 2001, p. 13; Hyde, 2002, p. 53).

Need for the Study

Ruhland and Bremer (2003) concluded that exemplary CTTE programs needed to be identified and studied (pp. xii-xiii). They also surmised that additional research was warranted on the relationship (and/or certification) between traditionally trained and alternatively prepared CTE teachers (p. 50). Rojewski (2002) indicated that the mission and standards used by CTTE programs should coincide with those in use within the field (p. 31). Feistrizer and Chester (2002) concluded that alternative certification for a CTE teacher does have inherent problems (§ 5).

Even though there have been numerous calls to reform CTTE programs, there is little evidence that indicates changes have occurred. Since the need to continue training CTE teachers has predominance, it is imperative to provide factual and representational evidence that is vital to continue and maintain remaining CTTE programs. Past efforts have focused on the four-year colleges and universities that provide these programs and the graduates from these programs.

Data for teachers who enter the profession through routes other than the traditional CTTE method of training are almost nonexistent. Since a portion of the teachers enter CTE through other avenues, it is equally important to look at all aspects of CTTE in order to determine what the best alternatives are and how they may assist to prevent or stop the further demise of CTTE training programs--whether traditional or any other type.

Development of viable alternatives must be accomplished because what has worked in the past is not producing a significant number of CTE teachers. Evidence

indicates that the number of CTE teachers entering the field through the various alternative methods continues to increase across the country (Feistrizer & Chester, 2002, p. 13). Prosser and Quigley's (1949) assessment on the "weakest link" is even more astute now than when it was written. Perhaps, there are serious problems in regard to the methods presently being used in CTTE programs.

The present study evolved around the professional development aspects presently being used in the CTTE program in Workforce Education and Development at The Pennsylvania State University. While the necessity to continue training technical teachers there remains a lack of clarity on who these teachers are and how they enter the field of teaching. Lynch (1996) asserted "there is no agreed-upon conceptual framework or knowledge-base related to education for the workplace and workforce development that professionals or professional associations have codified as important in the preparation of teachers" (p. 8).

The Problem

The purpose of this study was to determine if there are any differences between traditionally trained CTE teachers and the nontraditional CTE teachers who enter the field through an "alternative" or "in-service" method. Certification of Career and Technical Education teachers continues to be a problematic situation throughout this nation, which has created a dilemma about the preparation and training methods used to train these teachers. Many reports have been written on how to improve the training, and plausible methods have been outlined, with some being implemented. However, there has

not been a precise solution delivered. Feistrizer and Chester (2004) believe this is because “there is a paucity of research on alternative teacher certification routes” (p. 13).

Attempts to find pertinent research on this subject has lead to little factual information on the teachers who are certified, but do not possess a four-year degree.

Writers have concentrated on the traditional baccalaureate CTTE program approach, which appears to be a significant oversight (Bruening & Scanlon, 2001; Rojewski, 2002; Ruhland & Bremer, 2003). Jorger and Bremer (2001) appraised “it is important to develop and disseminate (a) knowledge about the needs of beginning teachers and (b) effective programming for supporting and assessing the performance of beginning teachers” (p. 7). It is imperative to know and understand what methods are used for CTE teachers in regards to the preparation, training and certifying before trying to determine if the training methods need to be (or should be) revised. In order to assess this assumption, it is necessary to look at those entering the field through the traditional pathway and those that enter through other methods, usually considered as “alternative” or “in-service” routes to certification.

Literature suggesting that attainment of a four-year degree is the most prevalent approach for entry into the field is fairly abundant (Bruening & Scanlon, 2001; Jorger & Bremer, 2001; Rojewski, 2002; Ruhland & Bremer, 2003). Yet, using such a viewpoint eliminates an important aspect of research. Attempting to provide a better understanding of the processes being used to prepare, train and certify CTE teachers is essential if the training is to continue. Perhaps, this is why vocational teachers have remained the “invisible teacher due to the differences in the two worlds that exist between the

academic and vocational teachers” (Little, 1992, p. 49). Because the information on teachers that enter CTE through alternative certification measures is limited, a framework should be developed that will assist in clarifying what is meant when the terminology contains “alternative,” “nontraditional,” or other references for obtaining certification that does not fit into the traditional four-year degree pathway

Beginning in the 1980s and 1990s, many colleges and universities that provided occupational, industrial, or CTE teacher training experienced drastic reductions in funding (both federal and state). Enrollment figures continue to decline in the remaining CTTE training programs. The resolution to this problem is rather simplistic: either close or consolidate programs. Gordon (1999) addressed this issue, “... there will have to be substantial changes in the way that teachers are prepared in colleges and universities....” (p. 141). However, the situation continues and has led to proclamations that there is a shortage of CTE teachers (Bruening & Scanlon, 2001; Dykman, 1993; Gordon 1999; Gray & Walter, 2001; Hyde, 2002; Lynch, 1996; Plawin, 1993). With the closure of so many CTTE programs, it is logical to assume that there are relatively fewer CTE teachers being trained at the baccalaureate level.

The present call is for CTE teachers trained with a higher level of knowledge in their trade area and an understanding on what future employment trends will require. Rojewski (2001) stressed that teachers need to be highly qualified (p. 31). Lynch (2000) emphasized that CTE teachers should be “caring, knowledgeable, comfortable with constructivist approaches, who teach to high standards and help students achieve them and adjust instruction to learning styles of students” (p. 39). Instead of closing more

CTTE programs, it does appear that there should be more being implemented to assist with training more CTE teachers. Yet, the exact opposite continues to occur, which indicates that there is not only a mismatch in the applications, but also in how these programs are being administered.

In order to help substantiate this viewpoint, this study looked at some of the variables in the “alternative” or “in-service” avenues presently being used for nontraditional and traditional CTE teachers in central Pennsylvania. Development and implementation of a program that will assist in the production of “highly qualified” CTE teachers is an imperative that our colleges and universities must accomplish, and this should be guided through collaborative efforts. It should also focus on new directions for the future training needs of all CTE teachers. Other areas of education may also find some components to be beneficial in regards to the training of teachers to meet the demands of modern classrooms.

Significance of the Study

Contributions to the CTE field may be significant because the research can offer additional enhancements to the remaining CTTE programs. Increasing the information about CTE teachers is crucial because presently there is little information to assist with improving the CTTE training process. The research is important because there are indications that not enough CTE teachers are being produced to meet the demand. This study utilizes the inclusion of “alternative” or “in-service” trained CTE teachers because this group continues at an increasing rate throughout the nation.

Recent studies have focused on traditionally prepared CTE teachers in Agricultural Education, Business Education, Family and Consumer Sciences, Health Occupations, Marketing Education and Technology Education (Bruening & Scanlon, 2001; Jorger & Bremer, 2001; Rojewski, 2002; Ruhland & Bremer, 2003). Unfortunately, these programs have a degree requirement, which skews the data and thereby does not provide an accurate portrayal for all CTE teachers. The design of this study allows for all types of CTE teachers to be included in both the pilot study and full study, which will offer a better description of CTE teachers by eliminating this bias.

The research addresses the training issues in a timely and orderly fashion because it examines the methods presently being used in training CTE teachers, whether it is traditional or another type. The future directions necessary to continue CTTE training must include provisions for alternatively prepared teachers. The efficacy of the remaining CTTE programs must be enhanced so the next generation of CTE teachers will be able to provide the correct elements to their students. It is also important to provide a better understanding of why people choose a non-traditional pathway to become CTE teachers.

Research Questions

This study seeks to find the answers the following research questions:

1. What associations exist between the education and certification levels of Career and Technical Education teachers in central Pennsylvania?

2. What elements of professional development offered by the Professional Personnel Development Center at The Pennsylvania State University do Career and Technical Education teachers in central Pennsylvania use?

Limitations

The need to understand what is necessary for CTE teachers to be successful as they enter a classroom led to the focus of this study on CTE teachers in central Pennsylvania, which can be viewed as a limitation. Research and articles indicate that a majority of CTE teachers possess a four-year degree (Bruening & Scanlon, 2001, p. 33; Rojewski, 2002, p. 31; Ruhland & Bremer, 2003, p. 50). The problem with this depiction was that it does not provide a complete picture of CTE teachers who are entering the classrooms and laboratories of the CTE programs in central Pennsylvania.

Results from Ruhland and Bremer's (2003) nationwide study indicated that 75% of current CTE teachers hold a bachelor's degree (p. 28). However, Walter (2000) reported 85% of the Trade and Industrial (T&I) teachers in Pennsylvania enter their classroom through alternative methods (p. 37). Unfortunately, the picture being presented as though the vast majority of CTE teachers obtain a degree to teach is convoluted, which was why the focus of this study is fashioned to obtain information on the current CTE teachers in central Pennsylvania.

Several programs under the CTE umbrella do require those who enter as teachers to possess a degree. However, this study focused on the CTE teachers in central Pennsylvania who traditionally have not been required to obtain a degree to teach.

Thereby, it may primarily be limiting the study to the health occupation and T&I teaching focus areas. This in itself creates interest, but providing a distinct and untainted picture of who these teachers are and how they obtain the necessary elements for them to be successful inside a classroom may hold a prominent solution, which may assist in alleviating the continuing declining and faltering of CTTE programs.

In order to help substantiate the idea that the vast majority of CTE teachers possess a degree was why the decision was made to limit this study to the geographic location as chosen because there was a need in developing a starting point in which to test the assumption that most CTE teachers are degreed (Bruening & Scanlon, 2001; Rojewski, 2002; Ruhland & Bremer, 2003). It will be even harder to document this assumption without taking into consideration that CTE teachers are prepared by other methods. A large portion of those enrolled in the Competency Based Teacher Education (CBTE) program at The Pennsylvania State University do not possess a degree, so this was an appropriate place to begin such a study. However, it could be possible that the CTE teachers that did respond may be different than those that did not respond so this could also be viewed as a limitation.

Definition of Terms

Alternative Certification (AC) – is the term applied to policies and programs designed to certify teachers who have not completed an undergraduate degree in the field of education (Ruhland & Bremer, 2003, p. 4).

Career and Technical Education (CTE) – formally known as vocational education, Career and Technical skills are the focus of the curriculum that is experientially based to demonstrate how education relates to the workplace and life (Bruening & Scanlon, 2001, p. 2).

Career and Technical Teacher Education (CTTE) – should be guided by the overall mission(s) and standards established by the field. Ideally, emerging teachers will be highly qualified – “caring, knowledgeable, comfortable with constructivist approaches, who teach to high standards and help students achieve them, and adjust instruction to learning styles of students (Lynch, R. L., 2000, p. 39)

Classification of Instructional Programs (CIP) – is to provide a taxonomic scheme that will support the accurate tracking, assessment, and reporting of fields of study and program completions activity (U.S. Department of Education, National Center for Educational Statistics, n.d.).

Professional Personnel Development Center (PPDC) - was established, and continues to function, as an integral component of the university's CTE teacher preparation units rather than as a separate entity. Penn State is committed to the operation of an effective, efficient, comprehensive program of professional development for CTE. That commitment is fulfilled through the delivery of services that produce knowledgeable, skilled, engaged, and flexible CTE educators who are engaged in preparing Pennsylvania's workforce with the knowledge and skills needed by business and industry (Walter, R., n.d.).

Assumptions

In past studies and literature, most authors presented the idea that CTE teachers tend to possess a four-year degree. Their concept is that most of these teachers were attending and completing a degree program at a university that provided CTTE. While the focus of the study is limited to the central region of Pennsylvania, it is an assumption that the CTE teachers in this region will be representative to the entire population of CTE teachers in Pennsylvania, thereby, creating a need to determine if this is a correct assumption and that the data collected will assist with this determination.

Conceptual Framework

If there are fewer CTE teachers being trained at the baccalaureate level, then theoretically there should be a decrease in the number of graduates from these programs. However, there appears to be a mismatch of applying theory to practice within the field of CTTE. If a better trained, or more “highly qualified” teacher is mandated then the production of this type of teacher should be seeing an increase - not a decrease.

Another relevant factor is that CTE teachers are now expected to be “change agents” and “help students develop knowledge, skills, and attitudes” of the trade area and what the future employment needs will be like (Finch, 1999, p. 204). Interestingly, if fewer CTE teachers are being produced at the baccalaureate level, then there is a need to substantiate if there is an issue within the remaining CTTE programs, which reinforces the necessity for this and further studies.

The present model that assists Pennsylvania with production of CTE teachers has been prevalent for over 25 years. Modifications have occurred over the years; the most prominent was the creation of the three Professional Personnel Development Centers at Indiana University of Pennsylvania, The Pennsylvania State University and Temple University by the Pennsylvania Department of Education. These three centers are instrumental in inducting new “pre-service” CTE teachers into the system. The centers also continue to provide “in-service” CTE teachers with the college level classes, which further develops the teaching abilities of these individuals. It also provides further insight into the complexities of differentiating between traditional and nontraditional, or “pre-service” and “in-service” methods also being used.

Chapter 2

REVIEW OF RELATED LITERATURE

The purpose of this study was to determine if there are differences between traditionally trained CTE teachers and those entering the field through an “alternative” or “in-service” method. Contributions to the CTE field may be significant because the research can offer additional enhancements to the remaining CTTE programs and will also increase the information about CTE teachers because there is presently little information to assist with improving the CTTE training process. The research is important because there are indications that not enough CTE teachers are being produced to meet the demand. The study utilizes the inclusion of “alternative” or “in-service” trained CTE teachers because this group continues at an increasing rate throughout the nation. Literature was reviewed for the following topical areas: development of a viable alternative; alternative certification; alternative pathways; changes to the teaching workforce; number of teachers needed; alternative teacher certification and similar or related research. The chapter concludes with a summary of the literature review.

Development of a Viable Alternative

Many writers have made the following proclamation, “Our nation is facing a severe shortage of teachers.” However, Kwiatkowski (1999) quoted Kerchner; “A teacher shortage is measured by lack of credentialed applicants rather than the lack of highly qualified persons” (p. 15). As the years pass, there continues to be little progress to

ensure that enough qualified CTE teachers are being trained. Eminence should be given to the production of CTE teachers because our world of work continues toward prominent changes that now affects people more profoundly than in the past.

While the origin of vocational education (now commonly referred to as Career and Technical Education) began with the Morrill Act of 1862, it was not until the industrial revolution of the early 20th century that it was introduced into this nation's public education system. Prosser and Quigley (1949) concluded that a state Board of Vocational Education usually controlled the training of vocational teachers (p. 307). They also assessed that vocational teachers were being forced to make their way to the institutions for training, which was "seriously interfering, preventing or otherwise making it impossible to successfully train" this type of teacher (p. 309). They also contended that the usage of "itinerant teacher training" was being successfully used during this timeframe by the "distinct characteristics" offered to teachers through this type of teacher training courses because the courses were usually developed under the direct control of state vocational boards (p. 309). These points help to illustrate that the elements of change have been present for an extended period of time, but resistance to changes in how CTE teachers receive their training seems to be an ongoing problem.

In 1996, Gray argued that the original, new and emerging forms of vocational instruction are all periods of promise to the nation's youth because of the employability aspects (p. 86). Even though the concept of vocational education has been commonplace for almost a century, it is still an exceedingly problematic issue within the educational community. Teachers of CTE programs need training, but without accessible programs to

assist them in developing the necessary elements for success in the classroom, their future and the future of CTE become challenged.

Traditionally, many CTE teachers have not been required to possess a college degree in order to teach; this was under the auspice of the Smith-Hughes Vocational Act of 1917. The Vocational Education Act of 1963 created a new need for CTE teachers; vocational schools were being built, but there were not enough teachers to fill the positions (Hyde, 2002, p. 52). Hyde assessed this with the following explanation:

The lack of trained CTE teachers led to the development of the Performance Based Teacher Education (PBTE) module series that was developed by the National Center for Research in Vocational Education (NCRVE) when it was located at The Ohio State University. Fact-finding studies were implemented by the U. S. Office of Vocational Education and carried out during the 1960s & 1970s. Pilot programs were completed in several locations between 1968 and 1972. The NCRVE followed the recommendations of the studies and implemented the components necessary to assist CTE teachers with developing their classroom skills.

(p. 52)

Unfortunately, with a demonstrated need to improve and expand the area of training technical teachers, it is perplexing to see the number of colleges that provide this type of training diminishing (Hyde, 2002, p. 53). This information contains valuable insights into why pragmatic programs are needed in order to deliver the necessary elements of classroom practice to novice, or “nontraditional,” teachers as they entered the classrooms.

Ruhland and Bremer (2003) concluded that exemplary programs should be identified and studied (p. 50). Hyde (2002) appraised the situation:

In the 1970s high schools in Pennsylvania struggled to hire teachers in vocational areas. To assist high schools with their problem, The Pennsylvania State University implemented a Competency Based Teacher Education (CBTE) program. Their CBTE program is a variation of the Performance Based Teacher Education (PBTE) program, because not all of the modules are used. (p. 53)

Interestingly, the program is still in use and continues to provide elements of education to non-degree and degree teachers as they enter the CTE classrooms in central Pennsylvania. This speaks highly of the university's commitment to the field of CTE, especially since other colleges and universities have chosen to reduce this type of training. Walter and Pellock (2004) estimated that even with a 79-year history of providing this type of training there are still inherent problems with training a CTE teacher (p. 7). Additionally, because of the continual decline in this type of training, it appears that CTE does need a method that will provide assistance in attempting to alleviate a shortage of CTE teachers. As Lynch (2000) suggested, "We need to outline what the expectations are for teacher education programs so that there is some consistency across each state" (p. 55).

Most writers seem to possess a convergent idea that the declines are manifested because there are not enough students enrolling in these teacher-training programs. Gray and Walter (2001) theorized the decline of CTE teacher preparation programs has

continued and has created a shortage of CTE teachers (p. 15). Others have parlayed this same suggestion over the years, but little progress has been seen in stopping the demise of these training programs. In order to transcend the issue, it is necessary to develop a better understanding of the CTE teacher(s) are, the methods being used to train them and how they obtain their certification (or licensure).

According to the Pennsylvania Bureau of Career and Technical Education (PA BCTE) in the present Crosswalk listing (1990-2000) of CTE programs in Pennsylvania, a total of 109 CTE programs identified by Classification of Instructional Programs (CIP) codes are being offered throughout Pennsylvania. Of these programs, 25 require a teacher to possess a four-year degree to teach. However, 84 of these programs fall into categories that do not require a teacher to possess a four-year degree in order to teach as shown in Table 1.

Table 1. *Classification of Instructional Programs for CTE in Pennsylvania*

Career Field	Number of Programs
Agriculture Science	11
Family and Consumer Science	1
Business Education	9
Marketing and Distributive Education	3
Occupational Home Economics Education	10
Health Occupations	11
Trade and Industrial	61
Not otherwise classified	<u>3</u>
Total	109

Source: Pennsylvania Bureau of Career and Technical Education (2004)

Much of the literature written exhibits a prepossession toward CTE teachers that possess a four-year degree, which creates a need for understanding how CTE teachers enter the profession. Logical thinking also beseeches that a better knowledge about these teachers and the method(s) of entry should bolster the significance of knowing more about them. Since most technical occupations do not require a four-year college degree, there should be an emphasis on the importance of having trained teachers in our CTE programs. Hyde (2002) pronounced, “The future workforce of the United States, currently our secondary and postsecondary students must be able to obtain the technical skills they need to be competitive in a global workforce” (p. 56). Naylor (1997) summarized that teachers of technical programs are now expected to know more than ever before (ED407572).

Jorger and Bremer (2001) concluded that to maintain a “well-educated” population, it is necessary to have an abundant supply of “well-prepared” teachers (p. 2). Teachers are expected to be “change agents” for a society, which requires them to possess strong skills in many areas including diversity; they must also continue to develop professionally (Finch, 1999, p. 204). With the advancements and rapid changes in technologies, today’s CTE teachers must continuously improve the level of instruction that is being provided because as the technologies change, the skills must be taught to match the current and emerging occupations. Gray and Herr (1998) summarized this emphatically; “Of 147 million jobs by the year 2005, only 32 million, or 21% will require a college degree” (p. 84). This places an even larger responsibility on the field of CTE

and this objective will continue to increase as more countries move further toward a global economy.

Alternative Certification

Alternative Certification (AC), a method used to hire teachers, is not something new; as previously mentioned it has been a common practice in use with CTE teachers since 1917. However, there has been a tremendous growth in the usage of AC and there are now so many variations of it that no one really knows what “alternative” means when it is stated. Using the AC method to certify all types of teachers will do little to assist colleges and universities with identifying what type of changes are needed in the teacher training programs.

Roth and Swail (2000) affirmed that, because there are other deep-seated problems, teacher shortages should be dealt with in greater detail rather than simply placing a “warm body” in a classroom (p. 6). Unfortunately, this is often seen as a solution for decreasing the shortage, but in reality it is only a stopgap measure. Allowing schools to hire personnel through an AC method does not assure that “highly qualified” teachers are being placed in the classrooms.

Most new CTE teachers possess industry-specific training, which is a necessity to teach in many of these areas. Those CTE teachers who enter through alternative methods are usually hired under provisional conditions and have to conform to various rules and regulations required for their employment, which places them under strict timelines for obtaining the necessary components for certification (or licensure). Unfortunately, some

hold the viewpoint that CTE teachers who are hired through other methods are “less than adequate.” While this stereotype may be applicable to a few, it is unfair to categorize everyone not traditionally prepared in such a manner.

Alternative Pathways

Bruening and Scanlon (2001) reported that the bachelor’s degree remained the prominent model for certification of CTE teachers in most programs (p. 33). However, their scope was not all-inclusive because it only included programs that required teachers to complete a four-year degree before they receive their teaching certification. This is a concern to this study because these teachers receive an Instructional certificate to teach. In Pennsylvania the AC method usually culminates in CTE teachers receiving a Vocational Instructional teaching certificate, which is not the same as the Instructional certificate and will be explained in further detail later.

A Vocational Instructional certificate is the predominant type of certificate issued to the majority of CTE teachers in central Pennsylvania. Since the numerous alternatives from state to state were previously mentioned, it would be time consuming and repetitive to replicate all of these methods. Additionally, because the focus of this research is on CTTE, it is important to emphasize the options that are available through the non-traditional approach. The requirements necessary to become a CTE teacher in Pennsylvania are controlled and established by the Department of Education and these options are indicated in Table 2.

Table 2. *Pennsylvania Bureau of Career and Technical Education Certification Levels*

Level	Length	Renewable
Emergency	1 calendar year	No
Intern	3 calendar years	No
Vocational Instructional I	6 calendar years	No
Vocational Instructional II	5 calendar years	Yes

Source: Pennsylvania Bureau of Career and Technical Education (2004)

Intern certificates can be issued after successful completion of an Occupational Competency Assessment (OCA) test. Intern, Vocational-Instructional I, Vocational-Instructional II certificates all carry mandated amounts of college credits that must be completed during the timeframes of that certificate. Typically a teacher that enters without any formal education will have the opportunity to complete 61 hours of college credits that are applicable towards a four-year degree. As previously mentioned the CBTE program that is in use at The Pennsylvania State University should be considered an exemplary program; not only because of its longevity, but also due to the opportunities it continues to provide CTE teachers.

There are other programs like the one used at The Pennsylvania State University and most are providing an alternative pathway for CTE teachers. These programs are not only a necessity; they are now the only avenues for some to enter the profession. It is also important to stress that not all of the teachers that enter through an alternative pathway

are non-degreed; many do possess a degree, but the degree is usually not related to the CTE instructional area.

Changes to the Teaching Workforce

Both the House and the Senate of the U.S. government have addressed improvement of students' employability skills as a necessary element for the U.S. to remain globally competitive, yet there has been little done to improve CTE teacher training to assure that "highly-qualified" teachers are produced. Gordon (1999) addressed the issue: "... there will have to be substantial changes in the way that teachers are prepared in colleges and universities...." (p. 141).

In the 1980s and 1990s many colleges and universities that provided CTE (or occupational) teacher training experienced drastic reductions in funding (both federal and state). Enrollment figures continued to decline in many of the CTTE (previously known as Vocational or Occupational) programs. So many colleges and universities were forced to either close or consolidate their CTE teacher training programs. The situation has led to the proclamation that there is a shortage of CTE teachers (Gray, 1999; Goldberg & Proctor, 2000; Gray & Walter, 2001; Jorger & Bremer, 2001; McCaslin & Parks, 2002; McCaslin & Parker, 2003; Feistritz, 2004; Walter & Pellock, 2004). Unfortunately, there are fewer CTE teachers being trained today at the baccalaureate level, which seems astonishing, especially since CTE teachers must possess a greater knowledge of their trade area and how future employment trends will affect the emerging workforce (Finch, 1999, p. 204).

Supply and Demand for CTE Teachers

The current demand for CTE teachers does pose some problems to the secondary education system. Exactly how many CTE teachers are presently (or will be) needed throughout this decade would be difficult to determine accurately. Lynch (1999) concluded that if elements like birth rate, number of vocational subjects taught, number of teachers needed through turnover rate and retirement are known then it will be possible to predict the demand. One of these items could make a negative shift and the result could be devastating for CTE (§ 53).

Providing an accurate number on the supply side of the system will again be difficult because of the continual decline of CTTE programs at colleges and universities. Lynch (1999) ascertained this is due to the fact that many colleges and universities have stopped providing vocational programs that lead to an undergraduate degree in career/trade related fields (§ 57). Interestingly, if the demand side needs highly qualified individuals with specific training, it would appear that this would be a mandate on the supply side.

The difference in the supply and demand of CTE teachers is also attributable to the changes in certification methods and the number of students entering the traditional method of teacher training. This has had a clear effect on the number of alternatively certified CTE teachers. According to the 2003 report *Alternative Teacher Certification: A State-by-state Analysis 2003*, from 2000 through 2002 an additional 25,000 teachers were certified through alternative methods (§ 5). However, it cannot be determined how many of these teachers were academic or vocational.

There are further complications in the supply and demand issue. Unfortunately, the federal and state governments only offer loan forgiveness to teachers who enter an area that is identified as a shortage area (Finch, 1999; Goldberg & Proctor, 2000). In order to alleviate (or prevent) the growing “teacher shortage” all teachers should be eligible to receive loan forgiveness. This is a fair and equitable solution, which may also help some of the new entrants to continue to stay in teaching and not worry about how they are going to make the student loan payments on a low salary.

Number of Teachers Needed

Lynch (1998) asserted, “Unless there are significant changes made in our nation’s colleges and universities relative to producing more vocational teachers, states will not be able to depend upon them as a major supply source in the future” (p.28). Thurow (1999) theorized that teachers have to be paid enough to make it possible to recruit good college students into teaching (p. 266). Goldberg and Proctor (2000) found that the beginning salary does discourage qualified individuals and is a large obstacle in attracting potential teachers (p. 6). In an article that appeared in *Techniques* (“A Declining Number of Education Majors,” 2002) American College Testing (ACT) President Richard L. Ferguson was quoted, “It is clear that something must be done to make teaching positions more attractive to young people” (p. 11).

The confusion on projecting, or predicting the number of teachers needed by a specific year was evident through the research of articles that are related to this issue. Some writers appeared to add importance through the use of huge numbers for headlines

or text. One article quoted that an additional 2.5 million additional teachers would be needed throughout remainder of the present decade (Abramson, 2001). Others cited figures that appear to be just as grossly exaggerated. In 2002, the National Education Association (NEA) stated there would be a need for an additional 2 million teachers by 2010. An explanation on how they arrived at this figure could not be found, but their estimate does contradict the 571,000 cited by the U. S. Department of Labor (DOL) in 2002. The U. S. Department of Education's (DOE) 1999 estimate placed the need to be around 500,000 additional teachers through the year 2011. However, in 2001 the National Center for Educational Statistics (NCES) projected the need to be between 310,000 to 380,000 (p. 73). The actual amount of teachers needed should be within the high and low estimates of the NCES, which would be around 345,000 additional teachers.

Searching for a Solution

As Lynch (1996) stated, "there is no agreed upon conceptual framework or knowledge base related to education for the workplace and workforce development that professionals or professional associations have codified as important in the preparation of teachers" (p. 8). Presently, there are a variety of methods being used to certify CTE teachers, and these methods tend to change frequently. Typically each state decides how to handle their certification process, which has lead to a quagmire when trying to determine what type of credentials a CTE teacher possesses from one state to another. So, Lynch's assumption was more than accurate, it was precise. Nationally there has not been a common system in use for the purpose of certifying, or credentialing, CTE teachers.

Rojewski (2002) proposed that a framework needed to be established for Career and Technical Education (p. 2). However, this does not look into the “shortage of teachers,” in CTE. Since there is a continuing need to provide the nation’s youths with an appropriate education, it may well be that it is also time to look at establishing a national framework for CTE and CTTE. With this in mind, it is easy to formulate that if all fifty states and the territories of the U.S. are factored in, along with the different terminologies in use, then it is even more confusing and difficult to understand all of the various programs. Since there is not a precise model used there is even more confusion about the different options pertaining to how CTE teachers are certified, or licensed. Additionally, because the certification methods vary so much, it was important to look at the educational level(s) of CTE teachers as they enter the classroom and at how they pursue their professional development as their careers progress.

Many writers seem to view the educational attainment of a CTE teacher as a secondary element. However, by establishing and connecting certain elements, a framework will begin to appear and it will become easier to establish some type of uniformity regarding CTE teachers and how they obtain certification. Establishing such a framework will also enrich other areas of education. If the “shortage of teachers” really has grown, then having clearly defined pathways that assists with employing and placing the best qualified teachers into a classroom should not be as difficult as it currently appears to be. In 2003, there were 7,700 certified CTE teachers in Pennsylvania according to the Pennsylvania Department of Education. Of this number 6,865 teachers (slightly over 89%) completed a Bachelor’s degree or higher as indicated in Table 3.

Table 3. *Career and Technical Teachers in Pennsylvania*

Education Level	Number of Teachers
High School or GED	33
< B.S.E.	802
Bachelor's Degree	4,049
Master's Degree	2,761
Doctorate	<u>55</u>
Total	7,700

Source: Pennsylvania Department of Education (2003)

Alternative Teacher Certification

Feistritzer (2004) assessed there are at least 43 states, plus the District of Columbia using Alternative Certification methods for certifying teachers (p. 5). Unfortunately, there is still a lot of controversy over what actually qualifies as an Alternative Certification (AC) method. It is important for states that use AC methods to work closely with their colleges and universities to assist in identifying if changes are necessary, or needed in the teacher training programs.

In Pennsylvania, 85 percent of the Trade and Industrial (T&I) teachers enter their classroom through the AC method (Walter, 2000, p. 37). To do this, a candidate must provide proof for two years of wage-earning experience past the internship/apprenticeship level in order to qualify to teach in the subject area along with passing an Occupational Competency Assessment (OCA) examination (Walter, 2000, p. 37).

The methods being employed improve the professional development of the beginning CTE teachers in Pennsylvania by enhancing the endeavors and commitments they must make. The program also provides new CTE teachers with additional elements that will assist them in becoming a more informed and better-prepared teacher, which is the type of teacher needed in every classroom.

Goldberg and Proctor (2000) determined that 60% of those who chose to become teachers usually identify this as their career choice very early (p. 25). Their viewpoint does indicate that studies need to be done on the use of the AC process to determine if these methods are effectively producing teachers who are competent in the classroom and laboratory environments, especially if the comparison is to be made against a college prepared/degreed teacher.

Similar or Related Research

There is little research related to this focus, which helps to emphasize the need for the study. Brannan and Reichardt (2002) emphasized that the varying viewpoints between the terminologies used in relation to preparing teachers often creates confusion (p. 2). McCaslin and Parks (2002) summarized that very few studies have been conducted on the teachers who obtain certification through alternative methods (p. 20). McCaslin and Parker (2003) suggested that recruitment efforts could be enhanced and improved by seeking stronger candidates, which will assist in elevating the status of CTE teachers (p. 9). Twomey (2002) related that any solution to the teacher crisis would be plagued because of the long-standing separation between academic and vocational aspects of

educating teachers (p. 9). Bartlett (2002) assessed that the empirical information to help guide CTE administrators, college faculty and policymakers is lacking, but his emphasis was on the training of postsecondary CTE teachers (p. 1).

Chapter Summary

Our educational system may indeed be facing a teacher shortage, so it is necessary to look at and assess the methods that are used in preparing teachers. Career and Technical Education must implement and address changes as they are needed because the newer technologies and production methods continue to transform our methods of work into those of the global workforce. Technical teachers must possess a high knowledge level and have the ability to stay abreast of newer technologies within their trade areas in order to increase the opportunities for their students.

Allowing teachers to enter the profession by alternative methods has been of some assistance in avoiding the predicted shortage of teachers. Schools and states are finding that, by expanding the alternative certification process, it has become easier to place teachers inside classrooms, which seems to have allowed these avenues to outpace the traditional methods for preparing CTE teachers. Declining enrollment in the remaining CTTE programs indicates that more of those programs may be forced to close, consolidate or downsize. Additional incentives should be afforded and offered so that a beginning teacher will be able to repay their debt burden and be able to have adequate resources for improving their quality of life.

Chapter 3

METHODOLOGY

The purpose of this study was to determine if there was an association between traditionally prepared CTE teachers and the nontraditional CTE teachers who enter the field through an “alternative” or “in-service” method. Contributions to the CTE field may be significant because research can offer additional enhancements to the remaining CTTE programs and increase the information about how nontraditional CTE teachers are prepared. At the present time there is little information to assist with improving the CTTE training process.

Research also becomes important because there are indications that there are not enough CTE teachers being prepared to meet the demand. Including “alternative” or “in-service” trained CTE teachers is necessary because this group continues to grow at an increasing rate throughout the nation. The study holds prominence because some CTE teachers do not have a degree and many that do possess a degree are often educated in another field. Additionally, the transition from a workplace into the classroom poses many challenges to a new CTE teacher. As a result, it is necessary to understand if the alternative methods being used are helping CTE teachers to enhance or improve their professional development.

The Problem

Certification of Career and Technical Education teachers continues to be a problematic situation throughout the nation and creates concerns in the preparation,

training and certification of these teachers. There have been reports outlining methods on how to improve this issue, but so far there has not been a precise solution delivered. The literature suggests that the attainment of a four-year degree is the most prevalent approach for entry into this field. Yet, little research exists on new CTE teachers or the methods used for preparing them as they enter the profession. This is an important aspect that needs to be researched to provide a better understanding of the processes being used to prepare, train and certify the CTE teachers in central Pennsylvania. Unfortunately, this appears to be a significant oversight.

It is imperative to know and understand what methods are used for CTE teachers while they are being prepared, trained and certified before trying to determine if the training methods used need to be revised. In order to assess this assumption, it will be necessary to look at those who are entering the field through the traditional pathway and those who are entering through the nontraditional pathway, which is often referred to as an “alternative” or “in-service” method.

Our colleges and universities must begin to develop and implement changes in the methods presently used in training future CTE teachers if the imperative of providing students with a “highly qualified” teacher is to be achieved. Accomplishing this will require collaborative efforts from different agencies, colleges and universities involved with CTTE programs and any new methods in training teachers should be shared with the other areas of education.

Research Questions

This study seeks to find the answers the following research questions:

1. What associations exist between the education and certification levels of Career and Technical Education teachers in central Pennsylvania?
2. What elements of professional development offered by the Professional Personnel Development Center at The Pennsylvania State University do Career and Technical Education teachers in central Pennsylvania use?

Population

The population for this study was current CTE teachers employed at schools throughout the central Pennsylvania area serviced by the Professional Personnel Development Center (PPDC) at The Pennsylvania State University (PSU). These teachers were identified from information provided by the PPDC. Additional information for the study was obtained from the Pennsylvania Department of Education (PA DOE), the Pennsylvania Bureau of Career and Technical Education (PA BCTE), the Pennsylvania Bureau of Certification (PA BOC) and schools throughout the service area.

Participants in the population consisted of nontraditional teachers that possessed any of the following certificates: Probationary, Emergency, Vocational-Intern, Vocational-Instructional I, Vocational-Instructional II, Cooperative Education, Instructional I, Instructional II, and Other, which included Vocational Director, Vocational Supervisor. All participants were identified from the previously stated

databases. Additional efforts were made to eliminate those who possessed a dual listing (i.e. maiden and married names, nicknames, name changes, etc.).

Instrumentation

A quantitative descriptive research method was used to conduct this study. Data were collected through the survey instrument developed by the researcher with some elements patterned from the School and Staffing Survey (SASS), which is public domain. The survey instrument is shown in Appendix A. SASS was originally developed by the National Center for Educational Statistics (NCES) and was redesigned in 1995 to address teacher demand and shortage (NCES, 2004, SASS Overview ¶ 1).

Hill (2001) determined that attention should be given to how a questionnaire is packaged and delivered to participants (p. 216). Radhakrishna (2000) estimated that “questions are formulated to collect specific pieces of information related to the research questions or the problem the researcher or other evaluator is interested in” (p. 175). Additionally, the use of such a questionnaire offers the capability to obtain information that relates to the training of current CTE teachers and to the method of delivery they receive.

The study sought to answer the research questions by using descriptive statistics through the questions contained in the survey instrument. The pilot study instrument contained three sections, but was revised into two sections for the full study. These sections developed around the independent variables of certification and education. Questions in the first section focused on a CTE teacher’s certification and education level, while the second section concentrated on demographic information.

Reliability

Babbie (2004) related that reliability “gives consistent results” (p. 141). Hill (2001) estimated “reliability is the characteristics of producing consistent measurements over time” (p. 214). Radhakrishna (2000) determined “reliability is concerned with the precision of the questionnaire” (p. 189). De Vaus (1995) determined that a researcher would be wise to pilot test a survey instrument because it is beneficial in assessing the reliability (p. 54). Fraenkel and Wallen (2003) emphasized that a researcher should “try out or pre-test” a questionnaire to reveal ambiguities, poorly worded questions and unclear choices may indicate that the respondents did not understand the instructions (p. 352).

A few of the advantages in conducting a pilot test are that it can provide advanced warning about where the main research project could fail, where research protocols may have not been followed, and whether the proposed methods or instruments are inappropriate or too complicated. In the words of De Vaus (1993),

The advice to pilot test questionnaires is probably one of the most ignored suggestions regarding questionnaire design. The pressure to get things done, over-confidence combined with inexperience and practical difficulties all too often cause people to take the chance and skip the whole stage. It is a risk that is not worth taking (p. 104).

Baker (1988) theorized that pre-testing a questionnaire assists with determining its effectiveness and its problems (p. 176).

Validity

Babbie (2004) contended that validity is “a term describing a measure that accurately reflects the concept it is intended to measure” (p. 143). Radhakrishna (2000) appraised “validity is with the systematic or nonrandom error in collecting information” (p. 189). He also stated, “validity should assess if the instrument actually contains a good representation of the content, questions whether it measures other characteristics, appropriate for the population, when measuring does it look like what it is measuring and that both content and face validity are important” (p. 189). Tuckman (1999) related that for research to have internal validity, the research results being accepted should be based on the design of the study (p. 6).

Panel Review of the Instrument

Fraenkel and Wallen (2003) suggested use of experts in the field who know a great deal about what information is being sought (p. 5). Mangione (1995) explained that using colleagues to review an instrument would assist in determining clarity, content validity, formatting and wording (p. 24). The survey instrument and all mail sent to participants was reviewed by the Institutional Review Board at The Pennsylvania State University to ensure compliance and approval because human subjects are necessary to conduct the study. The research did meet the Exempt Determination Category 2 used by The Pennsylvania State University’s Office for Research Protections.

The instrument was reviewed by a panel of experts who were selected based on the panel’s knowledge of CTE, CTTE and research methods. The panel of experts reviewed the questionnaire for content and face validity.

Pilot Testing

The researcher used the following procedures as recommended by Peat, Mellis, Williams, & Xuan (2002):

1. Administer the survey to pilot subjects in exactly the same way it will be administered in the main study
2. Ask the subjects for feedback to identify ambiguities and difficult questions
3. Ask the participants to record the time it took to complete the survey and decide if it was reasonable
4. Discard all unnecessary, difficult or ambiguous questions
5. Assess whether each question gave an adequate range of responses
6. Establish that replies can be interpreted in terms of information that is required
7. Check to ensure that all questions are answered (p. 123).

Hill (2001) recommended that a pilot test would help to improve the validity and reliability of a questionnaire (p. 191). The recommended size between ten to thirty participants is a sufficient number to pilot test a research instrument (Isaac & Michael, 1997, p. 101). Best and Kahn (1993) estimated that a pilot study group should “be similar to the participants in the study” (p. 240).

Pilot Study

A pilot study was conducted using a CTC that was outside of the PPDC service area. The CTC chosen was selected from secondary data provided to the researcher from the PA Bureau of Certification and the PA BCTE because of it employed a high number

of CTE teachers. The researcher contacted the CTC administrator about conducting the pilot study and permission was granted. Materials were then sent to the school administration for distribution to the 38 CTE teachers during the spring semester of the 2004-2005 school year. The participants in the pilot study were similar because they are all current CTE teachers and possess one of the qualifying types of certification, which demonstrates that they were “representative” to the entire population (Isaac & Michael, 1997, p. 143). The results were tabulated in June 2005.

An invitation/informed consent letter informed the CTE teachers they were being asked to participate in a pilot study of the survey instrument and their participation would be through implied consent. If a survey instrument was completed and returned to the researcher then it was understood that the CTE teacher was providing implied consent to be participants and accepted the invitation for participation in the pilot study. Participants were also asked to denote the amount of time it took to complete the survey and to provide additional comments and any other type of feedback on the survey instrument.

Some misspellings and structural errors were noted by pilot study participants, which aided the researcher in making necessary changes. These changes also increased the internal validity of the survey instrument. The average time it took an individual to complete the survey was 15 minutes. After the researcher’s advisory committee reviewed results from the pilot study, it was decided that five of the original questions should be deleted. The committee also recommended that the researcher proceed with mailing the sealed teacher packets to the school administrator for distribution in an attempt to improve the return rate, especially since mail surveys tend to have a low return rate.

Sample Validation Technique

According to Krueger (2001) a minimum sample size of 341 is required to statistically represent the population with a 95% confidence interval of $p < .05$ (p. 250). In order to establish the total population for the region serviced by the PSU PPDC, the total population was obtained from the PA BCTE. According to the PA BCTE as of March, 2005 there was a total of 2,043 CTE teachers in central Pennsylvania. Due to the focus of this study the total population was narrowed to 578 potential participants.

Survey Administration

A final revision to the survey instrument (Appendix A) and letters for communication (Appendix B) was completed in September 2005. On October 7, 2005 the materials were delivered to the Multimedia and Printing Services of Penn State with an order for 600 surveys and postage-paid return envelopes. However, printing was not performed until November 5, 2005. The researcher finally received the printed materials on November 7, 2005 and packets were made for each identified CTE teacher in the central Pennsylvania region that is serviced by the PSU PPDC.

Dillman (2000) indicated that in order to establish trust with respondents a researcher can “offer a token of appreciation in advance,” which will help to influence their decision to participate in (p. 27). The researcher placed a Penn State memento with the materials as they were packaged and mailed to the school administrators on November 11, 2005. Because the Thanksgiving holiday was at the end of the second week, participants were allowed extra time for completing the survey and asked to return

the surveys by December 2, 2005. Unfortunately, on November 18th the researcher became aware that the return envelopes were sent out without return postage.

In an effort to alleviate the situation the researcher returned to the Multimedia and Printing Services on November 21st to discuss the situation. The Multimedia and Printing Services admitted that the return envelope had not been imprinted with the postage-paid indicia as had been requested when the order was placed. To alleviate the situation the Multimedia and Printing Services manager issued a letter on November 23rd to all school administrators and participants to inform them that the mistake was not made on the researcher's part and the researcher had not intended for anyone else to incur the postage for returning the surveys and they included a 60¢ stamp with each letter sent to cover the cost for the return of the survey (Appendix B).

Surveys were being received, but at a very low return rate. A first reminder postcard that included an apology and a reminder to participate was mailed to the entire population on December 02, 2005 (Appendix B). Two weeks later a second reminder postcard was mailed to the entire population (Appendix B).

Data Collection

By December 9, 2005 the return rate was below 10%. However, by December 23 the return rate had increased to over 40%, with some responses being received as late as January 13, 2006; the final response rate was slightly over 50%. As survey instruments were received, they were assigned a catalog number to ensure anonymity and confidentiality. Additionally, the researcher will maintain all survey instruments in a

locked file for a period of three calendar years and at the end of the time period all surveys will be destroyed.

Data Analysis

Table 4 provides a scheme for the data analysis in answering Research Questions 1 and 2.

Table 4. *Survey Source, Independent and Dependent Variables, Scale of Measurement and Method of Analysis in Answering Research Questions 1 and 2*

Research Question	Survey Question	Independent Variables and Scale of Measurement	Dependent Variables and Scale of Measurement	Method of Analysis
Question 1: What associations exist between the education and certification levels of Career and Technical Education teachers in central Pennsylvania?	Part I: 4, 6	Traditional Nontraditional Ordinal	Education level Certification level	Pearson Chi Square
Question 2: What elements of professional development offered by the Professional Personnel Development Center at The Pennsylvania State University do Career and Technical Education teachers in central Pennsylvania use?	Part I: 6, 7, 8, 9, 10, 11, 12 Parts I & II 2, 3, 5, 7, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25	Traditional Nontraditional		Frequency Median Mode Range Percentages

Chapter 4

FINDINGS

The purpose of this study was to determine if there were any associations between traditionally prepared CTE teachers and the nontraditionally prepared CTE teachers who enter the field through “alternative” or “in-service” methods in regard to their education level, certification held and services/resources used from the PSU PPDC. A total of 578 CTE teachers were identified to participate in the study. Potential participants were identified from current and secondary data available to the researcher. Four potential participants were eliminated because the school where the survey material was delivered returned the survey packet, and one additional teacher returned the survey uncompleted. After these cases were deleted, there were 573 potential participants.

Results for Research and Survey Questions

Of the 573 surveys (100% saturation level) mailed to the CTE teachers, a total of 290 (50.6% of the participants) surveys were returned for the study. Returned surveys included 234 (80.7% of the respondents) who were nontraditionally prepared CTE teachers and 51 (17.6% of the respondents) were traditionally prepared CTE teachers; there were five (1.7% of the respondents) surveys that were missing information and could not be used. The frequency distribution is displayed in Table 5.

Table 5. *Frequency Distribution by Type of CTE Teacher*

Type of Teacher Preparation	Frequency	Percent
Traditional	51	17.6
Nontraditional	234	80.7
Missing	<u>5</u>	<u>1.7</u>
Total	290	100.0

Research Question 1

What association exists between the education and certification levels of Career and Technical Education teachers in central Pennsylvania regarding educational attainment and certification level?

The analysis for research question one was preformed in two phases: (1) to determine if there was a difference between education attainment of the traditional and nontraditionally prepared CTE teachers, (2) to determine if there was an association in their certification level.

A Pearson Chi-square (χ^2) test was used to determine if there was an association between the type of teacher preparation program and the education level of the teacher. The results indicated a significant association ($p < .001$) existed in the education level of the traditionally and nontraditionally prepared CTE teachers (see Tables 6 and 7).

Table 6. *Educational Degree Status of Nontraditional and Traditionally Prepared CTE Teachers*

Degree Held	<u>Nontraditional</u>		<u>Traditional</u>	
	n	%	n	%
Yes, hold degree	131	60.6	54	96.4
No degree indicated	<u>85</u>	<u>39.4</u>	<u>2</u>	<u>3.6</u>
Total	216	100.0	56	100.0

Fisher Exact Chi square = 26.7, df = 1, $p < .001$, Phi coefficient = .31

Table 7. *Degree Level Held by Nontraditional and Traditionally Prepared CTE Teachers*

Degree Held	<u>Nontraditional</u>		<u>Traditional</u>	
	n	%	n	%
Associate Degree	50	38.2	—	—
Bachelor's Degree	59	45.0	25	47.2
Graduate Degree	<u>22</u>	<u>16.8</u>	<u>28</u>	<u>52.8</u>
Total	216	100.0	56	100.0

Chi square = 38.29, df = 2, $p < .001$, Cramer's V = .45

The second phase for research question one was to determine if any association existed in the certification level between traditionally and nontraditionally prepared CTE teachers. There were 51 traditional teachers who indicated they held an Instructional level certificate; six (12.2% of respondents) of the traditional teachers possessed an Instructional I level certificate and 38 (77.6% of respondents) traditionally prepared teachers possessed an Instructional II teaching certificate. Nontraditional CTE teachers represented the largest group of teachers as follows: 14 (6.3% of respondents) who indicated they possessed an Emergency teaching certificate. The association between traditionally and nontraditionally prepared CTE teachers was found to be statistically significantly ($p < .001$) in terms of the type of teaching certificate a participant held and the type of degree a teacher possessed, which was assessed through the use an independent t-test. The results are shown in Table 8.

Table 8. *Certification Level Held by Nontraditional and Traditionally Prepared Career and Technical Education Teachers in central Pennsylvania*

Certificate Level	<u>Nontraditional</u>		<u>Traditional</u>	
	n	%	n	%
Emergency	14	6.3	—	—
Intern	44	19.9	—	—
Vocational I	55	24.9	1	2.0
Vocational II	108	48.9	4	8.2
Instructional I	—	—	6	12.2
Instructional II	—	—	<u>38</u>	<u>77.6</u>
Total	221	100.0	49	100.0

Fisher's Exact Test Chi square = 196.24, $p < .001$, Cramer's V = .94

Research Question 2

What elements of professional development offered by the Professional Personnel Development Center at The Pennsylvania State University do Career and Technical Education teachers in central Pennsylvania use?

Many respondents indicated they were using their professional development to increase their salary (58.3% of nontraditionally and 73.7% of traditionally prepared teachers). About 72 percent of nontraditionally prepared teachers were required to participate in professional development to keep their current position (Table 9).

The respondents also indicated that the professional development program was above average in providing elements of teaching, information about certification, maintaining certification, improving their teaching abilities and that the program does assist them with developing and planning their future (Tables 10 and 11). The respondents rated the on-site methods certification and Local Resource Person as being an important part of the process. Most participants did report that they felt like they were not prepared for the classroom when they entered it and were not prepared to assist with special populations (Tables 12 and 13).

Table 9. *Distribution of Responses Teachers Provided Regarding how the Degree or Certificate they are Currently Pursuing will help them Personally*

Way in which degree or teaching certificate being pursued will help teacher.	Nontraditionally Prepared Teachers (n=127)		Traditionally Prepared Teachers (n=11)	
	Frequency	Percent	Frequency	Percent
Increase salary	74	58.3	8	72.7
Professional development in present field	12	9.4	3	27.3
Teach in a field different from the one in which currently teaching	51	40.2	8	72.7
Obtain a non-teaching position in secondary education	6	4.7	1	9.1
To find occupation outside of education	6	4.7	1	9.1
Required to keep current position	91	71.7	5	45.5

Note. The information reported in this table is limited to the respondents that indicated they were currently enrolled in some type of professional development program.

Table 10. Distribution of Responses Regarding Perceived Effectiveness of your Professional Development Program as Reported by Traditionally and Nontraditionally Prepared Teachers Currently Enrolled in any Type of Professional Development Program

Teacher Preparation Group and Item	Strongly Disagree		2		3		4		Strongly Agree	
	Count	%	Count	%	Count	%	Count	%	Count	%
Nontraditional										
Communicates elements of teaching well	2	1.6	19	15.4	48	39.0	41	33.3	13	10.6
Explains elements necessary for certification	7	5.7	23	18.7	41	33.3	37	30.1	15	12.2
Assists me in obtaining maintaining certification	11	9.0	19	15.6	37	30.3	34	27.9	21	17.2
Assists me in enhancing teaching abilities	9	7.3	15	12.2	36	29.3	45	36.6	18	14.6
Assists me in developing and planning professional development	9	7.3	22	17.9	47	38.2	30	24.4	15	12.2
Traditional										
Communicates elements of teaching well					3	27.3	5	45.5	3	27.3
Explains elements necessary for certification			1	9.1	3	27.3	5	45.5	2	18.2
Assists me in obtaining maintaining certification			1	9.1	3	27.3	3	27.3	4	36.4
Assists me in enhancing teaching abilities			2	18.2	1	9.1	5	45.5	3	27.3
Assists me in developing and planning professional development			2	18.2	2	18.2	3	27.3	4	36.4

Note. Response Scale: 1 = strongly disagree through 5 = strongly agree

Table 11. *Anova Results for Differences in Perceptions Regarding Elements of the Professional Personnel Development Center by Traditionally Prepared and Nontraditionally Prepared Teachers Currently Enrolled in any Type of Professional Development Program*

		Sum of Squares	df	Mean Square	F	Sig.
Communicates elements of teaching well Nontraditional (0) Traditional (1)	Between Groups	4.165	1	4.165	4.986	.027
	Within Groups	<u>110.260</u>	<u>132</u>	.835		
	Total	114.425	133			
Explains elements necessary for certification Nontraditional (0) Traditional (1)	Between Groups	2.359	1	2.359	2.092	.150
	Within Groups	<u>148.865</u>	<u>132</u>	1.128		
	Total	151.224	133			
Assists me in obtaining maintaining certification Nontraditional (0) Traditional (1)	Between Groups	3.906	1	3.906	2.814	.096
	Within Groups	<u>181.868</u>	<u>131</u>	1.388		
	Total	185.774	132			
Assists me in enhancing teaching abilities Nontraditional (0) Traditional (1)	Between Groups	1.849	1	1.849	1.517	.220
	Within Groups	<u>160.905</u>	<u>132</u>	1.219		
	Total	162.754	133			
Assists me in developing and planning professional development Nontraditional (0) Traditional (1)	Between Groups	4.340	1	4.340	3.617	.059
	Within Groups	<u>158.384</u>	<u>132</u>	1.200		
	Total	162.724	133			

Table 12. *Resources Used by CTE Teachers During Their First Year of Teaching*

Resource Used	<u>Nontraditional</u>			<u>Traditional</u>			t	p
	n	M	SD	n	M	SD		
Onsite Certification Methods	198	3.28	1.36	40	2.45	1.45	3.467	.001
Mentor	209	3.51	1.35	51	3.29	1.57	1.001	.318
Local Resource Person	207	3.34	1.31	42	2.55	1.40	3.521	.001
Preparation Time	203	3.73	1.28	50	4.18	1.16	-2.27	.024
Professional Development	206	3.36	1.12	50	3.36	1.38	-.004	.997
Teacher's Handbook	212	3.22	1.22	51	3.24	1.26	-.071	.943
School Policy Manual	212	3.39	1.18	51	3.41	1.20	-.135	.893

Note. Response scale: 1 = strongly disagree through 5 = strongly agree

Table 13. *Items Addressed by CTE Teachers During Their First Year of Teaching*

Item Addressed	<u>Nontraditional</u>			<u>Traditional</u>			t	p
	n	M	SD	n	M	SD		
Working with Special Populations	213	2.33	1.02	50	2.26	1.25	3.467	.001
Preparation Time	213	2.32	1.12	51	2.53	1.12	3.521	.001
Knowledge of CTSOs	211	2.53	1.11	49	2.37	1.18	-2.270	.024
Classroom Management Skills	213	2.80	1.06	52	2.96	1.00	-.004	.997
Assistance with Teaching Methods	213	2.79	1.09	52	2.88	1.02	-.071	.943

Note. Response scale: 1 = strongly disagree through 5 = strongly agree.

Results for Other Survey Questions

Survey question 2 asked participants to provide the four-digit teaching assignment code for the program they were teaching. Only 73 (25% of respondents) provided code, which indicates that most CTE teachers are not aware of how the programs are classified. Survey question 3 asked if the participant held a degree, a total of 89 (31% of respondents) indicated that they held a degree. However, in survey question 4 there was a total 194 (67% of respondents) who indicated they held a degree. In survey question 5, a total of 196 (67.5% of respondents) provided a year in which they obtained a degree.

Survey questions 6 and 7 were used to assess how many teachers were attending classes. The results for question 6 provided the following results; 103 (37% of respondents) were attending classes part-time, 78 (27% of respondents) were not attending classes at this time, 62 (22% of respondents) entered “no, I have a degree,” 35 (12% of respondents) entered “no, but earning credits” and 6 (2% of respondents) indicated that they were attending classes full-time. Question 7 provided the following results; 68 (23%) are working toward a bachelor degree, 18 (6%) are working toward an associate degree, 10 (3% of respondents) were working toward a master degree and 5 (2% of respondents) were working towards a doctoral degree.

Demographic Profile

The second portion of the survey included questions related to the demographic information of the CTE teachers. Survey question 13 asked the participants to indicate whether they were male, or female. A total of 285 (98% of respondents) provided the

following results on gender. About two-thirds were male 196 (68% of respondents) and one-third was female 94 (32% of respondents).

Survey question 14 asked to indicate which state the participant resided, which produced the following results; 284 (98% of respondents) resided in Pennsylvania, 1 (0.3% of respondents) resided in Maryland and 5 (1.7% of respondents) did not provide a response. Survey question 15 asked participants to indicate how long they had been teaching and provided the following results; 72 (25% of respondents) have been teaching 1-4 years, 67 (23% of respondents) have been teaching for 5-10 years, 42 (14.5% of respondents) have been teaching 11-15 years, 42 (14.5% of respondents) have been teaching 16-20 years, 36 (12% of respondents) have been teaching 21-25 years, and 26 (9% of respondents) have been teaching for more than 26 years and 5 (2% of respondents) were missing a response.

Survey question 16 asked how long a teacher was planning to continuing teaching and provided the following; 47 (16% of respondents) plan to continue teaching 1-4 years, 68 respondents (23% of respondents) will continue teaching 5-10 years, 53 respondents (18% of respondents) will continue teaching 11-15 years, 42 respondents (16% of respondents) will continue teaching 16-20 years, 32 respondents (14% of respondents) will continue teaching 21-25 years, 23 respondents (8% of respondents) will continue teaching 26-30 years, 12 respondents (4% of respondents) will continue teaching 31-35 years, 5 respondents (2% of respondents) will teach for more than 36 years; 8 (4% of respondents) surveys did not provide answers.

Survey question 17 asked the teacher what their age was when they entered their present teaching assignment. A total of 285 (98% of respondents) provided a response and 5 (2% of respondents) did not provide an answer. The average age that was represented by this question was 35. Survey question 18 asked how many years of technical experience the participant had in their field. A total of 268 (92% of respondents) provided a response and 22 (8%) did not supply an answer. The average amount of technical experience possessed was 12 years.

Survey question 19 asked if the teacher had remained in the same teaching position since beginning teaching and produced the following; 185 (65% of respondents) replied that they had remained in the same position and 100 (35% of respondents) did not provide an answer. Survey question 20 asked the participant to indicate how many times they had changed their teaching position in the past four years and provided the following; 43 had changed positions once, 13 had changed positions two times, 5 had changed positions three times and two had changed positions four times or more.

Survey question 21 asked about the participants ethnicity and provided the following; 6 respondents (2% of respondents) were African/American, 1 (0.3% of respondents) was American/Indian, 1 (0.3% of respondents) was Asian/Pacific Islander, 277 (95% of respondents) were Caucasian (non-Hispanic), and 2 (0.4% of respondents) were Hispanic/Latino; 5 (2% of respondents) surveys were missing information. Survey question 22 asked where the participant had obtained most of their technical experience and produced the following; 47 (16% of respondents) received postsecondary technical school training, 11 (4% of respondents) obtained it during their service in the military,

207 (71% of respondents) received on-the-job training, 11 (4% of respondents) indicated other and described it as college and 14 (5% of respondents) were missing responses.

Survey question 23 asked the participants the age that they decided to become a teacher and produced the following; 53 (18% of respondents) were younger than 19, 48 (16% of respondents) were 20-24, 41 (14% of respondents) were 25-29, 51 (18% of respondents) were 30-34, 38 (13% of respondents) were 35-39, 34 (12% of respondents) were 40-44, 14 (5% of respondents) were 45-49, 6 (2% of respondents) were 50 or over and 5 (2% of respondents) were missing a response. Survey question 24 asked participants about the education level of their dad and mother. For the dad's education the following results were observed; 9 (3% of respondents) did not know, 55 (19% of respondents) indicated < than high school, 136 (47% of respondents) indicate high school, 29 (10% of respondents) indicated some college, 10 (3% of respondents) indicated an associate degree, 20 (7% of respondents) indicated a bachelor degree, 21 (7% of respondents) indicated a master degree, 5 (2% of respondents) indicated a doctorate and 5 (2% of respondents) were missing responses. For the mother the following results were observed; 3 (1% of respondents) did not know, 32 (11% of respondents) indicated < high school, 175 (60% of respondents) indicated high school, 27 (9% of respondents) indicated some college, 11 (4.5% of respondents) indicated an associate degree, 23 (8% of respondents) indicated a bachelor degree, 13 (4.5% of respondents) indicated a master degree and 6 (2% of respondents) did not provide a response.

Survey question 25 asked about the teachers present salary range and the following results were observed; 0 indicated they earned less than \$20,000, 7 (2% of respondents) earned \$20,001 to \$30,000, 58 (20% of respondents) earned \$30,001 to \$40,000, 95 (33% of respondents) earned \$40,001 to \$50,000, 89 (32% of respondents) earned \$50,001 to \$60,000, 31 (11% of respondents) earned \$60,001 to \$70, 000, 5 (2% of respondents) earned \$70,001 to \$80,000 and 5 (2% of respondents) did not supply a response.

Chapter 5

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

This chapter provides a summary of the study, discussion, conclusions, findings and recommendations that are related to Career and Technical Teacher Education (CTTE) training. Past research has focused on the Career and Technical Education (CTE) teachers that receive a four-year degree. These teachers are commonly referred to as being traditionally prepared. Unfortunately, little information exists on the training aspects of the nontraditional CTE teacher, which is why this research project holds prominence.

To enhance the preparation of CTE teachers more research needs to be conducted on the alternative, or nontraditional pathway. The increased usage of alternative methods could also be an indication that there are problems with the traditional pathway. Finding, or implementing viable alternatives will require the nontraditional and traditional areas to work with each other to ensure that all CTE teachers are prepared in the same manner.

Summary

The Career and Technical Education (CTE) teacher population in central Pennsylvania was a starting point for looking into the differences that might exist between traditionally trained and nontraditionally trained CTE teachers. Even though many researchers have written about the looming shortage of CTE teachers, most of the available research has focused on how traditionally CTE teachers are prepared. Since

there is a disconnect between how the two groups receive training a framework needs to be established, which will assist with the overall development of better methods for how all CTE teachers are prepared for the classrooms.

Twomey (2002) assessed that “without career and technical education teachers; fewer and fewer new technical workers will be trained” (p. 9). Because there is a need to continue training CTE teachers, this is a valid evaluation. However, other elements undercut the CTTE process. It appears as though what Prosser and Quigley formulated in 1949 is still prevalent today; the teacher-training programs are the “weakest link” in the vocational system (Prosser & Quigley, 1949, p. 310). Since this continues to be a complex issue more research is warranted.

As Rojewski (2002) indicated the purpose and mission of CTE has been debated since its inception (p. 3). He also pointed out that a coherent and articulated philosophy for CTE can provide a better view of programs and any changes that are necessary to improve the field (p. 8). New methods and approaches may be the elements necessary if CTTE programs are to continue.

Statement of the Problem

Certification of Career and Technical Education teachers continues to be a problematic situation throughout the nation and creates concerns in the preparation, training of these teachers. There has been reports and research that have outlined methods on how to improve this issue, but so far a precise solution has not been delivered. The literature suggests that the attainment of a four-year degree is the most prevalent

approach for entry into this field. Yet, little research exists on nontraditional CTE teachers or the methods that are used in preparing them as they enter the profession, which is an important aspect and should be researched to provide a better understanding of the processes used to prepare, train and certification of all CTE teachers. In order to initiate research on the nontraditional CTE teachers the researcher's focused on central Pennsylvania by establishing a group of traditional and nontraditional CTE teachers that held similar types of certification.

All of the various methods should be reviewed before colleges and universities begin to develop, or implement changes in how CTE teachers are prepared; which will ensure that "highly qualified" teachers are entering the various areas of the CTE field. However, collaborative efforts from the different agencies, colleges and universities that are involved with CTTE programs will be a necessity and new methods in preparing teachers should be shared with the other areas of education.

The study focused on the educational level(s) and the elements of professional development that are offered through the Professional Personnel Development Center (PPDC) at The Pennsylvania State University (PSU) in an effort to answer the following research questions:

1. What associations exist between the education and certification levels of Career and Technical Education teachers in central Pennsylvania?
2. What elements of professional development offered by the Professional Personnel Development Center at The Pennsylvania State University do Career and Technical Education teachers in central Pennsylvania use?

Procedures

A quantitative descriptive survey instrument developed by the researcher titled *Career and Technical Education Teacher Survey for Central Pennsylvania 2005–2006* was developed around verified research methods for use in conducting this study. The survey instrument contained some elements that were patterned from the School and Staffing Survey (SASS), which is public domain.

The methods of research used were adopted from other researchers to improve areas, such as reliability, validity, panel review of the instrument, pilot study, sample validation technique, survey administration and data collection (Baker, 1988, p. 176; Best & Kahn, 1993, p. 240; De Vaus, 1995, p. 54; Mangione, 1995, p. 24; Isaac & Michael, 1997, p. 101, 143; Tuckman, 1999, p. 6; Dillman, 2000, p. 27; Radhakrishna, 2000, pp. 175, 189; Hill, 2001, pp. 191, 214, 216; Krueger, 2001, p. 250; Peat, Mellis, Williams, & Xuan, 2002, p. 123; DeVaus, 2003, p. 104; Fraenkel & Wallen, 2003, pp. 5, 352; Babbie, 2004, pp. 141, 143).

The population for the study was compiled from information provided by the PSU PPDC and the Pennsylvania Bureau of Career and Technical Education (PA BCTE). According to the PA BCTE, as of March 2005 there were a total of 2,043 CTE teachers in central Pennsylvania. The total population was narrowed to 578 potential participants due to the focus of the study.

Final revisions of the survey instrument and letters for communication were completed in September 2005. In October 2005 the materials were delivered to the

Multimedia and Printing Services of Penn State with an order for 600 surveys and postage-paid return envelopes. However, printing was not performed until early November 2005. The researcher finally received the printed materials on November 7, 2005.

Packets were prepared for each of the CTE teachers that were identified to be teaching in the central Pennsylvania region serviced by the PSU PPDC. The researcher placed a Penn State memento in with the materials as they were packaged and mailed to the school administrators on November 11, 2005. Since the Thanksgiving holiday was at the end of the second week, participants were allowed extra time for completing the survey and asked to return the surveys by December 2, 2005.

Unfortunately, on November 18th the researcher became aware that the return envelopes had been sent out without any return postage. In an effort to resolve the situation the researcher returned to the Multimedia and Printing Services (MPS) on November 21st to discuss the situation. The Multimedia and Printing Services admitted that the return envelope had not been imprinted with the postage-paid indicia as had been requested when the order was placed.

To alleviate the situation the MPS manager issued a letter on November 23rd to all school administrators and participants to inform them that the mistake made was not on the researcher's part and the researcher had not intended for anyone else to incur the postage for returning the surveys and MPS also included a 60¢ stamp with each participant letter to cover the mailing cost for returning the surveys.

On December 9 the return rate was below 10%. However, by December 23 the return rate had increased to over 40%, with some responses being received as late as January 13, 2006; the final response rate was slightly over 50%. As the survey instruments were received, they were assigned a catalog number to ensure anonymity and confidentiality. Additionally, the researcher will maintain all survey instruments in a locked file for a period of three calendar years after then all surveys will be destroyed.

Findings

Research question one was divided into two phases for analysis. The first phase provided results from a χ^2 , which did indicate that a significant difference ($p < .001$) existed in the educational level of traditionally and nontraditionally prepared CTE teachers. There was also a significant difference ($p < .001$) between traditional and nontraditional CTE teachers in obtaining education. Since the traditional teachers already possessed at least a four-degree the result was expected. Unfortunately, most of the traditional CTE teachers did not answer survey questions related to obtainment of additional education.

The second phase of research question one was to determine there was any association in certification level between the traditional and nontraditional CTE teachers. Traditional CTE teachers represented 18% of the respondents, with 3% possessing an Instructional I certificate and 15% possessing an Instructional II certificate. Nontraditional CTE teachers represented the largest portion of respondents at 82%. From the nontraditional CTE teachers, 4% indicated they possessed an Emergency teaching

certificate, 19% possessed an Intern teaching certificate, 19% possessed a Vocational-Instructional I certificate, and 40% possessed a Vocational-Instructional II teaching certificate.

Descriptive statistics were used for research question two through the use of survey questions by establishing how the respondents were using their professional development through the elements offered through the PSU PPDC. The most interesting finding was that the participants felt the professional development program was above average. The respondents also viewed the professional development program effective for providing elements of teaching, information about certification, maintaining certification, improving their teaching abilities and how that program did assist them with developing and planning their future.

The respondents rated the on-site methods and the Local Resource Person as being an important part of the process. Most respondents reported that they felt like they were not prepared when they entered the classroom and were not well prepared to assist with special populations. Respondents also indicated that they use their professional development primarily to increase their salary and that it is a requirement for their present teaching position.

Conclusions

There were some significant associations found to exist in the education level of the traditional and nontraditional CTE teachers. Interestingly, many of the nontraditional CTE teachers did indicate that they did possess a four-year degree. Exactly how many

were related to the field that the teacher was teaching was not determinable because the survey instrument did not include a related question. Results also indicated that the CTE teachers had 12 years of technical experience prior to entering teaching, which indicates that valuable skills and knowledge were brought into the CTE classrooms. The age that the respondents reported for deciding to become a teacher was aligned with Proctor and Goldberg's findings because many decided to enter teaching while in high school, or during mid-career (Proctor & Goldberg, 2000, p. 25). The average age reported was 35, so this finding and the related work experience did appear to be accurate.

Nontraditional teachers indicated that they felt like the on-site preparation methods and the LRP were the most useful aspects of their professional development. Other important areas were certification information and elements that assist them to improve their teaching capabilities. These elements should be beneficial to Penn State's PPDC and the Pennsylvania BCTE for the professional development of CTE teachers. Unfortunately, the traditional CTE teachers did not answer many of the questions that related to professional development in the survey.

While the researcher tried to anticipate how the survey instrument would be perceived, gaps did appear as the data was being entered. Since many of the traditional CTE teachers did not respond to questions, it appeared as though something was wrong with the survey instrument. Fortunately, the responses provided by the nontraditional CTE teachers did provide useful information that was helpful in determining that these teachers are continuing to work towards gaining additional certification(s) and that they

do use the elements of professional development that are offered to them through the Penn State PPDC.

The two groups in the study were chosen because they possessed the certification to be representative of other CTE teachers in Pennsylvania with the similar type of certification. Because most of the four-year degree areas of CTE were not assessed the groups were not representative to the entire population of CTE teachers in Pennsylvania. However, to understand more about the nontraditional CTE teachers and the type of preparation they receive, this was a good place to begin. Additional research may prove to be beneficial by providing more information on how nontraditional and traditional CTE teachers are being prepared.

Recommendations

1. Colleges and universities should include information on CIP codes in the existing coursework. Most respondents did not provide a four-digit code for their teaching assignment, which indicated they were not aware of the codes and how they are used to identify programs.
2. Elements like continuing education units, or other items that are legislated and pertain to certification should become more important issues for the CTE teacher, which could to improvements in how they use their professional development.

3. Local school administrators should assess how their CTE teachers are using the elements of professional development and determine if it promotes the overall development of CTE teachers and enhances the CTE programs.
4. Combining efforts of the remaining colleges and universities that provide CTTE could lead to further developments and enhance the preparation of CTE teachers.
5. Further research needs to be preformed in order to determine if the present methods for preparing CTE teachers needs to be modified, or revised.

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Appendix A
SURVEY INSTRUMENT

Conducted by:
The Pennsylvania State University
Learning and Performance Systems Department
Workforce Education and Development

**Career and Technical Education Teacher
Survey For Central Pennsylvania 2005-2006**



Advisor:

Edgar I. Farmer, Ed. D. - Professor
The Pennsylvania State University
Learning and Performance Systems Department
Workforce Education and Development

Principal Investigator:

William G. Hyde, Ed.S. - Instructor
The Pennsylvania State University
Learning and Performance Systems Department
Workforce Education and Development

This survey instrument has been reviewed and approved by the Office of Research Protection, 212 Kern Building University Park, PA 16802. Your answers will be kept strictly confidential. Results from this survey will only appear in a summary, or in statistical form so that individuals cannot be identified.

**Career and Technical Education Teacher
Survey For Central Pennsylvania 2005-2006**

Section I

**Your certification and assignments at your current school:
Conditions and experiences**

This section includes questions about aspects of teaching at your current school.

Please fill in the box with an [X]

1. What type of teaching certificate do you hold? **(Check all that apply)**

- Probationary Certificate
 Emergency Certificate
 Intern Certificate
 Vocational Instructional I Certificate
 Vocational Instructional II Certificate
 Cooperative Education
 Instructional I
 Instructional II
 Other: _____

(Please specify)

2. What is your teaching assignment code number?

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(Please specify)

3. Do you have a degree?

Yes
 No

4. If yes in #3, what level of degree is it?

- Associate degree
 Bachelor degree
 Master degree
 Doctorate degree

5. If you have a degree, in what year did you obtain it?

--	--	--	--

(Please specify)

6. Are you currently enrolled in any type of professional development program?

- Yes - as a full-time student
 Yes - as a part-time student
 No - but earning credits towards a degree
 No - no coursework at this time
 No - I have a degree

7. If yes in #6, what type of program is it?

- Associate degree
 Bachelor degree
 Master degree
 Doctorate degree

8. Using the following scale, indicate how effective your professional development program performs each of the following:

	<i>Mark an [X] in one box only</i>				
	Strongly Disagree	Average	Strongly Agree		
	1	2	3	4	5
a. Communicates elements of teaching well					
b. Explains the elements necessary for obtaining, or maintaining certification					
c. Assists me in obtaining, or maintaining my teaching certification					
d. Assists me with developing, enhancing and improving my teaching abilities					
e. Assists me with developing and planning my professional development					

9. How will the degree or teaching certificate that you are pursuing help you the most? *Please check only those that apply to you:*

- To increase salary
 For professional development in present field
 To teach in a different field than the one currently teaching
 To obtain a nonteaching position in secondary education
 For an occupation outside of education
 Required to keep present teaching position, or certification

10. Using the following scale to indicate the extent that you used the following resources during your first year of teaching.

	<i>Mark an [X] in one box only</i>				
	Strongly Disagree	Average			Strongly Agree
	1	2	3	4	5
a. On-site certification methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Mentor	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Local Resource Person (LRP)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Prep-time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Professional development	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Teacher's handbook	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
g. School's policy and procedure manual	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

11. How would you rate your first year of teaching?

	<i>Mark an [X] in one box only</i>				
	Strongly Disagree	Average			Strongly Agree
	1	2	3	4	5
a. I felt like I was not prepared for the classroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Very rewarding because I received the support I needed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

12. Using the following scale to indicate the extent that you feel the following statements, or issues were adequately addressed during your first year of teaching.

	<i>Mark an [X] in one box only</i>				
	Strongly Disagree	Average			Strongly Agree
	1	2	3	4	5
a. Assistance in working with special populations	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Enough preparation time	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Knowledge of Career and Technical Student Organizations (CTSOs)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Management skills for the classroom	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Provided assistance with teaching methods	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section II

This section includes questions about demographic elements like your gender , ethnicity, residence and future plans regarding your longevity in your teaching career. This information will be used only for data purposes, not to personally identify you.

Please check only the space that applies directly to you in each question

13. What is your gender?

Female Male

14. Where is your permanent residence located?

Maryland New Jersey
 New York Ohio
 Pennsylvania West Virginia
 Other: _____

(Please specify)

15. Please indicate how long you have been teaching.

1-4 years 16-20 years
 5-10 years 21-25 years
 11-15 years 26 years, or more

16. How long do you plan to continue teaching?

1-4 years 21-25 years
 5-10 years 26-30 years
 11-15 years 31-35 years
 16-20 years 36 years, or more

17. What was your age when you entered your present teaching assignment?

--	--

(Please specify)

18. How many years of technical (nonteaching) experience do you have in your field?

--	--

(Please specify)

19. Have you remained in the same teaching position since you began teaching?

Yes No

20. If you answered **No** to question #19, how many times have you changed in the past four years?

1
 2
 3
 4 or more

21. Which of the listings below best describes your ethnicity?

African-American
 American Indian
 Asian/Pacific Islander
 Caucasian (*Non-Hispanic*)
 Hispanic/Latino
 Other: _____
(Please describe)

22. Where did you receive most of your technical experience?

Postsecondary technical-school On-the-job experience
 Military training Other: _____
(Please describe)

23. What was your age when you made the decision to become a teacher?

Younger than 19 35-39
 20-24 40-44
 25-29 45-49
 30-34 50 or over

24. What is the highest level of education completed by each of your parents?

(D - Dad, M - Mom)

<input type="checkbox"/>	<input type="checkbox"/>	Do not know	<input type="checkbox"/>	<input type="checkbox"/>	Associate degree
<input type="checkbox"/>	<input type="checkbox"/>	Less than high school	<input type="checkbox"/>	<input type="checkbox"/>	Bachelor degree
<input type="checkbox"/>	<input type="checkbox"/>	High school graduate	<input type="checkbox"/>	<input type="checkbox"/>	Master degree
<input type="checkbox"/>	<input type="checkbox"/>	Some college, no degree	<input type="checkbox"/>	<input type="checkbox"/>	Doctoral degree

25. What is your present salary range?

<input type="checkbox"/>	Less than \$20,000	<input type="checkbox"/>	\$50,001 to \$60,000
<input type="checkbox"/>	\$20,001 to \$30,000	<input type="checkbox"/>	\$60,001 to \$70,000
<input type="checkbox"/>	\$30,001 to \$40,000	<input type="checkbox"/>	\$70,001 to \$80,000
<input type="checkbox"/>	\$40,001 to \$50,000	<input type="checkbox"/>	\$80,001 or higher

Thank you for completing this survey.

Your time and cooperation will contribute to a better understanding about the educational aspects that pertain to Pennsylvania CTE teachers. This will be beneficial in establishing a snapshot of the educational background for the current CTE teachers in Pennsylvania. The demographic portion of the survey instrument will also provide a view into the characteristics of CTE teachers in central Pennsylvania.

Your participation will be beneficial towards implementing improvements in the CTE teacher-training process in Pennsylvania. It is hoped that the results of this survey will assist not only The Pennsylvania State University's Workforce Education and Development program in improving the Competency Based Teacher Education program and the elements of professional development provided to teachers by the Professional Personnel Development Center, but that any developments will provide assistance to all CTE teachers in Pennsylvania. This is important because additional knowledge and other developments will begin to improve all elements regarding the training of CTE teachers.

Also by continuing to participate in a Professional Development Program, you as a CTE teacher will be making improvements in providing the best instruction inside of your classroom. This type of commitment is one of the most essential elements that any teacher can provide to their students. It is through continuing education that new discoveries are made. By combining the discovery of new techniques with prior knowledge, CTE teachers are helping to guide the present and the future of CTE education, which is a combination that may also lead to a broader understanding of the needs in continuing to improve the remaining CTE teacher training programs.

Please return the completed survey to your Career and Technical Education Director as promptly as possible. This will assist me in compiling the final results into usable information.

Thanks again.

William G. Hyde

Appendix B

CORRESPONDENCE

RECRUITMENT LETTER TO CTE SCHOOL ADMINISTRATORS

November 11, 2005

Dear (name of school administrator):

I am writing to request your assistance with the recruitment of participants for a research project that I am conducting as a doctoral student in Penn State University's Department of Workforce Education and Development. The project is titled *Career and Technical Education Teacher Survey for Central Pennsylvania 2005-2006*, and focuses on the certification, professional development and training aspects of nontraditional Career and Technical Education (CTE) teachers in central Pennsylvania.

I am specifically seeking assistance in helping to achieve a higher return rate. Most mail surveys have traditionally been known to produce poor response rates. Therefore, I would like to ask for your assistance in distributing the survey packets to your teachers. In particular, I would like to have you (or one of your staff members) distribute the teacher(s) packet(s) to your current Cooperative Education, Health Occupation and Trade and Industry teachers. Your cooperation is necessary because you are the closest source to assist with the delivery of the materials.

As the school administrator, you will only serve as a conduit in the distribution process. You should not **answer any questions related to the research project**. You will simply deliver the packet(s), ask potential participants to read the materials and consider completing and returning the enclosed survey instrument by **December 02, 2005**. Please, **direct any/all questions** that a participant might have to me, the Principle Investigator (PI) William Hyde.

The survey instrument should take about 15 minutes for a teacher to complete and place into a postage paid return envelope. As a participant, they may decline to answer a/any specific question(s). Their participation is completely voluntary; they may withdraw from the survey at any time; and all participants must be 18 years of age or older.

Once completed, the survey instrument and the answers provided will remain confidential. No information about an individual will be disclosed and there will not be any code numbers, or identifying markings to match a survey instrument to a respondent. The results will be reported in summary form only and a copy will be sent to each of the participating schools.

There are no known discomforts, or risks that will be experienced by a participant while participating in this study. Completing the survey instrument is considered to be their implied consent to participate. Questions about this research project may be directed to me, or Dr. Edgar Farmer through the contact information listed on the next page.

Principal Investigator
William G. Hyde, Instructor
The Pennsylvania State University
Workforce Education and Development
411-B Keller Building
University Park, PA 16802-1304
(814) 863-2592
E-mail: wgh1@psu.edu

Advisor
Dr. Edgar Farmer
The Pennsylvania State University
Learning and Performance Systems Department
411-D Keller Building
University Park, PA 16802-1304
(814) 863-3858
E-mail: eif1@psu.edu

Questions concerning participant's rights in this research may be addressed to: The Office for Research Protections, 212 Kern Graduate Building, University Park, PA 16802-3301, Telephone: (814) 865-1775.

Thank you for your time and assistance. It is through your generous help that this research project can be successful.

Sincerely,

William G. Hyde, Instructor and Principal Investigator
The Pennsylvania State University
Workforce Education and Development

INVITATION LETTER TO CTE TEACHERS

November 11, 2006

Dear (name of CTE teacher),

As a doctoral student in Penn State's Department of Workforce Education and Development, I am presently conducting a research project entitled *Career and Technical Education Teacher Survey for Central Pennsylvania 2005-2006*. Today, I am seeking volunteers to complete a questionnaire about the training, certification and professional development methods that pertain to CTE teachers in central Pennsylvania. The research meets the Exempt Determination Category 2 used by The Pennsylvania State University's Office for Research Protections.

The survey instrument should take about 15 minutes for you to complete and then return in the enclosed postage paid envelope. If you agree to participate, please return the survey materials **by December 02, 2005**. All participants must be 18 years of age or older, and your participation in this study is completely voluntary. You may decline to answer any questions, or withdraw from the survey at any time.

All responses will remain confidential and will be reported in summary form only. There will be no links made between an individual, their school district, or an individual's response. A copy of the results will be sent to each of the participating schools.

Your assistance is needed because you are the most valuable source for this occupational information. By completing the survey instrument, you will be providing important information regarding the current and future methods for certifying CTE teachers in Pennsylvania.

I am serving as the Principal Investigator for this research project and my advisor is Dr. Edgar Farmer. Questions about this research project may be directed to me, or Dr. Edgar Farmer through the contact information that is listed below. Questions concerning a participant's rights in this research project may be addressed to: The Office for Research Protections, 212 Kern Graduate Building, University Park, PA 16802-3301, Telephone: (814) 865-1775.

Your voluntary participation implies your informed consent. Please retain this document for your records.

Sincerely,

Principal Investigator
William G. Hyde, Instructor
The Pennsylvania State University
Workforce Education and Development
411B Keller Building
University Park, PA 16802-1304
(814) 863-2592
e-mail: wgh1@psu.edu

Advisor
Dr. Edgar Farmer
The Pennsylvania State University
Learning and Performance Systems Department
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University Park, PA 16802-1304
(814) 863-3858
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APOLOGY LETTER FROM MPC

November 22, 2005

Dear School Administrator:

The packet you received last week from William Hyde, instructor and principal investigator in Penn State's Department of Workforce Education and Development, was printed and mailed at the Penn State Multimedia & Print Center. The packet contained a survey titled "Career and Technical Education Teacher Survey for Central Pennsylvania 2005-2006" and an envelope for the return of the completed survey. However, due to an error on the part of the Multimedia & Print Center, the return envelope was not imprinted with the postage-paid indicia.

As it was never Mr. Hyde's intention that those completing the survey should pay for the postage themselves, we have enclosed a 60¢ stamp to cover the cost of returning the survey. If you have already returned the survey, please accept the stamp with our apologies.

Sincerely,

Gregg Ascitutto
Manager, Addressing & Mailing
Penn State Multimedia & Print Center

Cc: Dr. Edgar Farmer and William Hyde

FIRST REMINDER

December 02, 2005

Dear (name of CTE teacher),

Just a friendly reminder to ask you to participate in the research project entitled *Career and Technical Education Teacher Survey for Central Pennsylvania 2005-2006*. Unfortunately, the postage was not printed on the return envelope, so you will soon be receiving a letter from the **Multimedia & Print Center with a \$.60 postage stamp included**. For those that have sent the survey back, please return the postage to your school, or to yourself for the postage that was incurred.

Thank you,

SECOND REMINDER

December 21, 2005

Dear (name of CTE teacher),

Just a friendly reminder to ask you to participate in the *Career and Technical Education Teacher Survey for Central Pennsylvania 2005-2006* study that I am conducting. If you have participated, I would like to say “**Thank You**” because your contributions are beneficial to this research project.

William G. Hyde



VITA

William G. Hyde

The Pennsylvania State University
Workforce Education and Development
303 Keller Building
University Park, PA 16802-1304

Education

Doctor of Education
The Pennsylvania State University, University Park, PA
College of Education, Workforce Education and Development

Education Specialist, Adult Education
The University of Arkansas, Fayetteville, AR

Master of Arts in Teaching
The University of Arkansas, Fayetteville, AR

Bachelor of Science, Industrial Technical Education
The University of Arkansas, Fayetteville, AR

Professional Experience

The Pennsylvania State University, University Park, PA
Instructor 2001-present
Teach undergraduate and graduate classes in the Workforce Education and Development program. Serving as a Field Resource Person to deliver field-based instruction to Career and Technical Education teachers that are obtaining Pennsylvania Vocational-Instructional certification while they are enrolled in the program.

Northwest Technical Institute, Springdale, AR
Instructor 2001-1998
Taught courses in the Architectural Drafting Technology, Industrial Maintenance Technology and Licensed Practical Nursing Technology programs. Served on a variety of school committees; advisor to the National Technical Honor Society; SkillsUSA; and adjunct advisor to the Industrial Technical Education program at the University of Arkansas-Fayetteville. Worked with grants and developed the Student Incentive Program, which was a stipend offered to gain higher student participation in observing a senior technician in their chosen training area.

Publication:

Hyde, W. G. (2002). Building a case for expanding the use of the performance based teacher education (PBTE) module series. *Workforce Education Forum* 29(1), 51-57.