CTE Handbook:

A Survival Tool Kit for the CTE Instructor Seeking to Navigate the Changes and Reforms in the Field of Career and Technical Education

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Abstract

Remember the days when you would go to the local fair and play the midway games; remember that anxious feeling you had as you could not wait to win that large over stuffed animal or that special prize? Do you remember that disappointment of losing time after time and never understanding why? The purpose of this research is to assist in lessening a similar disappointment that is felt by so many in the field of Career Technical Education, especially CTE instructors. This research will address the history, trends, forecast and focus in regards to the field of Career and Technical Education in an effort to better prepare CTE instructors for the journey that lies ahead.

Keywords: Career and Technical Education, Trends and Issues in CTE, History of CTE, Education Standards,
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Introduction

Career and Technical Education can be defined as a program geared toward giving student options for entering the workforce. It will be used to show students’ skills for employment and furthering their education. It will also give structure and guidance in choosing a career. In a CTE program you can gain school and on the job training. In most cases it is to bridge the gap between education and work. CTE helps students, transitioning from high school to college and getting skills for the workforce. There have been several definitions formed over the past hundred years.

CTE consist of six program areas in P-12 levels, which include the following:

1. Agricultural education
2. Business education
3. Family and consumer sciences education
4. Health occupations education
5. Marketing education
6. Trade and industrial education (Public School of North Carolina).

Agricultural education will instruct students on learning about the science of plants and animal production. It will also consist of the environmental and natural resources. Student will be able to focus on choosing career in global agriculture, jobs ranging from production, financing and marketing all areas of agricultural products (Public School of North Carolina).

According to the Public School of North Carolina (2001) there are key components of the classroom instruction for agricultural education and it consist of classroom and laboratory instruction, supervised agricultural experience, and FFA student organization opportunities. Business education is usually taught more in middle and high school. The student will learn
about economics, business, and finance and information technology. This helps students understand financial situations and helps them to become better consumers. The classroom instruction for business is preparing students for the business world with the basic knowledge of a computer, the latest computer software and exploratory experiences. Public School of North Carolina (2001) also states Family and Consumer Sciences is education for students in the areas of consumer education, early childhood education, family and interpersonal relationships, food production, food nutrition, housing and interior design, parenting education and human development and textiles, apparel and fashion. The health occupation education is studying the needs for health care professional. It will prepare students in this health care field by learning natural and social science and humanities. The marketing education is the learning of marketing, communication, management merchandising and professional sales. (PSNC) says there are skills taught such as “reading, writing, math, critical thinking, problem solving and psychology” (p.1). The student can learn the multifaceted world of business. Lastly there is trade and industrial education. Students participate in learning all industry processes, layout, production, quality control and many others. They would learn this in the commercial and residential areas, the one listed round out the program areas involved in CTE.

In the educational system CTE is throughout high school, community college, and four-year colleges and under all other vocational or technical training schools. How CTE fits in the educational system has changed over the years. In past years the CTE or trade school education as it was called then had always been separate from the regular high school curriculum. Gordon (2008) indicated that in the early 1800’s school were divided for different reasons. The wealthy receive the best educational experience and the poorer communities received a lower standard of education, which the trade school curriculum was considered. In 2001 showed the way CTE fits
in the educational system by merging academics and CTE. Career and Technical Education helps to build a strong background for students to sustain gainful employment. The CTE program also helps any student enter into post-secondary education. The programs can give students an upper hand because they will have had experience in the field of study and as well as the academics to succeed. The CTE program enhances the educational system by adding actual work experience. CTE shows students different avenues that lead to success. It provides an additional tool to help guide student in making decision about what actual careers are out there and help to decide a career path. Finally, Career Technical Education has a long and successful history of enhancing student leadership, teamwork, and citizenship skills through Career and Technical Student Organizations. (2001, p. 3)

History

There was an early influence for the Europeans. Germany was the epicenter of the training. Jean Jacques Rousseau discovers that manual labor helped with learning, which led to a form of mental training that started the world of vocational education. Since the early 19th century there has been a form of training based on manual labor. Schools were divided by social status and Johann Heinrich Pestalozzi said that education should be open to all children. During the early 20th century the trade and vocational era truly broke out. Gordon (2008) says that CTE has roots as far back in ancient times. In the past hundred years CTE has evolved. There was an early apprenticeship but was strictly involuntary. It was to help a person tend to the basic needs of a family, such as providing food and shelter. It was learned from generation to generation, a father-shared information with their sons. Then the concept of “children learning by doing” can later in the 20th century and with the progressing of the industrial revolution there became a
demand for skilled workers. The era of being able to earn a living through farming, manufacturing and industry really began the push toward “vocational” training.

There were some significant people that helped to shape the area of CTE such as Booker T Washington, David Sneed, Charles Prosser, John Dewey and Major Dennis Mobley. These are some of the trailblazers that set vocational training into the 21st century. According to Gordon (2008) Washington believed that the African American community would thrive by having vocational skills. Washington also believed in motivating, meeting the needs of students and using material that have meaning. He allowed all students to have input about ideas and to share what was being learned. Snedden, Prosser and Dewey felt that vocational education was the catalyst for making schools more diverse. Prosser was all for the thinking and practicing the occupations they are interested in pursuing. John Dewey was more focus on the underlined process of work, the scientific aspect. Major Mobley wants vocational education for all people. These leaders helped to guide the vocational education into the curriculum of the educational systems.

There have been many legislative changes over the decades that helped mold CTE. According to Gordon (2008) gives some in-depth legislative acts and laws that can be discussed briefly:

1. Ordinance of 1785 – The division of land in the western part of the U.S and portion of the land is set aside for education.

2. Northwest Ordinance of 1787 – The Northwest was the area set aside for the use of education.
3. First Morril Act (1862) – Land was sold in order to foster the farming and agriculture, to be used for learning and also the states can make a profit off the sales to go toward institution that supported this initiative.


5. Second Morril Act (1890) – African American students benefitted based on the sales of land to be used in Institutions for African Americans and well as white institutions.

6. Davis and Dolliver-Davis Bill (1907) – Federal aid for industrial education. It would be used for teaching agriculture in high school and home economics.

7. Smith-Lever Agricultural Extension Act (1914) - Agriculture and home economics programs.


9. 1994 Land- Grant Institutions Grants Program – American Indians to utilize the same opportunities of the other two grant programs. It was to strengthen agriculture and the research of agriculture to meet the needs of the American Indians.

These early acts where designed to promote higher education, improve liberal education and help with the advancement of agriculture as a whole. According to Gordon (2008) listed and extensive breakdown of the acts of the 20th century these next act were established mostly about the amount of funds that will be given for the vocational programs and they are summarized as followed:

- Smith-Hughes Act (1917) was first for vocational education. It was to separate vocational education from the high school curriculum. The states had to implement a state board for vocational education.
• George-Reed Act (1929) – Increased the funds for vocational education by $1 million for the vocational education growth. There would be an allocation of funds for farming communities.

• George-Ellzey Act (1934) – A $3 million annually for agriculture, home economics, trade and industrial education.

• George-Dean Act (1936) – gives $14 million a year for vocational education. It also brought about funding for marketing occupations.

• George-Barden Act (1946) – Increase spending for vocational education to $29 million. George-Barden act (1956) allocated $5 million for nursing and added fishery for another $375,000.

• National defense Education Act (1958) Introduce science, mathematics and foreign languages. It added resources for youth and adults.

• Manpower Development Training Act (1962) to help unemployed individuals obtain training to reenter the workforce.

• Vocational Education Act (1963) to help existing vocational programs. It provided jobs for youths. It was designed to help students more so than the actual industry.

• Comprehensive Employment Training Act (1973) – changed the delivery of funds used for training and gaining employment. It was used for job training and counseling.

• Job Training Partnership Act (1982) to prepare student and unskilled individuals for job training.
• Carl D. Perkins Vocational Education Act (1984) to improve skills and give adults a chance for jobs and help at-risk groups.

As the years go by there are more acts implemented for the advancement of career and technical education, even as the programs are growing there is still a need for improvement (Gordon 2008). In studying the perception from the University of Nebraska-Lincoln (2010) it indicated that the CTE programs prepare students for career and college, yet the respect is lacking because of the courses that are being taken by students in CTE. These acts are provided for CTE and with any change there is going to be resistance and criticism. It is as if they are not working hard to complete their courses. They perceive that CTE courses aren’t as rigorous as some of the academic course loads. According to South East Education Network magazine (2010) describes some perception of CTE and how CTE addresses any concerns; CTE is highly recognized for putting individuals to work. It prepares a person for all students to learn trades. There is still a separation of CTE from all other program in schools. There are more and more states combining more rigorous courses and the vocational training courses.

• Carl D. Perkins Vocational and Applied Technology Education Act (1990) - the enhancement of academia and vocational skills in the areas of technology. To enforce education for preparation into the workforce.

• School to Work Opportunity Act (1994) addresses the shortage of skilled labor. Established to help transition student from school to work.

• Personal Responsibility and Work Opportunity Act (1996) – designated to have welfare recipient go to work after 2 years. The educational program needed to help get these recipients to work fall under this act.
The Workforce Investment Act (1998) – The governors of each state has plan for job-training services in each state. To establish these programs in areas that truly needs it. Research is done to assure resources are getting to the areas most affected. Overall support system to help individuals gain employment.

There are two memorable acts that are well spoken of today, The No Child Left Behind Act of 2001 and the Carl D. Perkins Career and Technical Education Act of 2006. The NCLB act basically states to improve the education of elementary and middle schools. There would be points of accountability and flexibility in order to provide assistance to improve these areas. Safety at school became an emphasis under this act (Gordon, 2008) The Perkins Act was an overhaul to the improvement of CTE. There was funding improvement and streamlining, more accountability, the development of the programs of study and more technological advancement.

**School Reform**

The combining of these two acts leads to a much needed school reform. There are initiatives being done to try to bridge these curriculums. In the last few years with funding increases, more and more schools are designing new programs for reform. According to the American Educational Research Association (Castelleno, Stone, & Stringfield, 2003) there are companies, school and universities changing the organizational structures of the curriculum. They are adding more professional development, adding more comprehensive approach to learning. The High School To Work initiative’s goal is to “raise the academic achievement of career-bound high school students by combining the content of traditional college preparatory studies (e.g., English, mathematics, science) with vocational studies” (Herman, Aladjem, McMahon, Masem, Mulligan, & O’malley, 1999) There are also high schools that focus on the
student’s interest and that are incorporating more academia to help lower dropout rates and increase attendance. (Castelleno, Stone, & Stringfield, 2003) The report shows three categories for reform, structural support that will help curriculum start in middle schools, broader career clusters, alternative schedules and more partnership with businesses. Increasing the capacity support will have teacher using a common learning tool such as planning. There are professional development opportunities and job shadowing. The pedagogical support comes as higher standards in academics with support on achieving goals and some form of performance assessments.

The state policy and legislation has a significant role in impacting CTE, the overall direction of where the CTE program is headed. These legislative changes affect graduation, testing, evaluations and even teacher certification (MacIver & Legters, 2002). The focus of academics has changed over the years; there is a focus to more career preparedness. There have been career academies built within school systems to assure integration of CTE. In the present day the reforms are growing and are successful. The educational system as programs like career placement school, Career Pathways and High School To Work are a blueprints to how things can progress. These particular pilot programs show how the effectiveness of integrating CTE into academic education and show the result on if they were effective. Southern Regional Education Board (1999) Shares the progression of one of these programs by using some key elements listed previously. This program was started with twenty-eight areas in thirteen states and has since grown to 1,200 areas in over thirty states. According to Gordon (2008) Shows in California, the academic achievement in school to work programs, help improve grade and within this program students scored just as high GPA as student in the accelerated programs. New York shows students in a similar program took a rigorous course
load and fared well. In most studies, these programs improved student attendance. The success of these programs can only lead to different trends and more extensive research.

**CTE Trends and Issues**

The general drive of education is to prepare students with skills and knowledge that will help them secure employment and improve the society in which they live in. Traditionally, Career and Technical Education has been responsible for preparing individuals to enter into the workforce and succeed. However, Career and Technical Education is facing several issues and challenges such as increasing leadership issues, greater accountability for student achievement, ever changing curriculum and a rapidly changing labor market.

**Leadership**

The need to improve the image of Career and Technical Education leadership is a process by which powerful individuals influence other individuals to accomplish an objective and directs the organization in a way that makes it more cohesive and coherent. Leadership is defined as the process of influencing people to not only understand, but also agree about what needs to be done and how it can be done efficiently and effectively (Yukl, 2002). Most often, working with people throughout an organization to do work is the most difficult task for leaders. That is true for leaders in the business world and is also relevant for leaders in the field of Career and Technical Education. Leaders in Career and Technical Education must find time to examine, analyze and evaluate issues relating to their practices and policies (Zirkle & McCaslin, 2007). CTE administrators have increased leadership responsibility of implementing the requirements according to Federal Legislation (Public Law 109-270) and Carl D. Perkins Act as well as the No Child Left Behind Act (NCLB 2002). Because of the Perkins requirement, it created additional
leadership responsibilities for CTE administrators. For NCLB, CTE leaders must address stronger student achievement in academics, understand funding usage and implement research into CTE program areas.

**Accountability for Student Achievement**

The Federal Perkins Act and the No Child Left Behind Act both require secondary CTE leaders to place special responsibility as it relates to technical skill proficiency (Zirkle, Parker, & McCaslin, 2005). Furthermore, in an effort to compete and prepare students for a global workforce and increased career demands, many states and school districts are placing an increased accountability for student learning within the field of CTE (McCaslin & Parks, 2002). CTE instructors are being held more accountable for the achievements and success of students in post-secondary opportunities. CTE programs are being measured by the percentage of CTE students who are able to find employment and or enroll in post-secondary education and the success these students have at that level.

**Changing Labor Market**

Despite the economic decline in our society, finding the right skilled professionals remains a priority in the business world. While CTE’s role is to prepare students for the 21st century workplace, the U.S. Chamber of Commerce identified that some states don’t have CTE as part of their assessment because of a lack of data (“Revamped nps brings,” 2008). Collecting effective data is of singular importance in CTE and so far it has been lacking. Better data collection would help in determining whether students are performing: innovation; rigorous academic standards.
Changing Curriculum

In addition to the challenges and trends mentioned above, there is an additional challenge of providing differentiated instruction to the wide range social and academic needs that students in CTE courses have (McCaslin & Parks, 2002). Several studies have indicated that CTE has been known as a dumping ground for the struggling student, but what is not getting a lot of attention is the fact that many CTE courses are faced with a mixture of students who struggle in the traditional classroom being mixed in with the higher level student. As in any classroom this presents several challenges to the instructor but, for the CTE instructor the ability to manage and lead students at both end of the spectrum is a challenge that requires training and skill. To motivate the lower level learner and push the higher level learner while your curriculum constantly changes is foreign to other areas of education but is the norm in the field of CTE.

Recommendations for Resolving the Issues Described

CTE educators and administrators should raise the awareness of leadership skills in an effort to guide the analysis into establishing the insights in students and solve CTE leadership problems within administrator and to further the awareness of information on how those leadership problems are impacting CTE in the long run.

Transformational leaders motivate their followers to take initiative, solve problems, and help people to look at things in a new way (Daft, 1999). As transformational leaders, CTE administrators motivate their staff by creating a high performance workforce; they inspire their personnel to go beyond their task requirements. Additionally, transformational leaders take on an active leadership role by listening, encouraging, and supporting members of their respective groups (Farmer, Famrer, & Burrow, 2008). Because of the degree of duties and responsibilities
CTE administrators face, it is only fair to consider them as transformational leaders. Likewise, CTE leaders can also be considered as visionary leaders. Transforming their respective career and technical centers, because without a vision there can be no transformation (Daft, 1999).

The issues facing the field of CTE and CTE instructors are numerous and are becoming more and more regulated as States push for more accountability in developing students for post-secondary opportunities. CTE instructors are no longer just being asked to prepare students for the workforce; they are being asked to adapt and overcome an ever changing curriculum, working with a wide range of learners and assisting students in helping them meet their career needs. This daunting task can only be successfully accomplished through the continued development and training of CTE instructors. As leaders, in order for students in CTE to properly benefit from their education, CTE instructors need to wear multiple hats and problem solve using a variety of approaches (Bono, 1985).

While many understand that professional development of teachers in general is important, for the CTE instructor it is critical for continued success. Many CTE instructors limit their professional development to the pre-school week or a scattering of trainings being offered during the school year. However, as a CTE instructor the courses are constantly in a state of flux and thus require additional efforts that many CTE instructors are not able to get in those few hours of training during preschool week (Kitchel, Cannon, & Duncan, 2010).

The Administration should help to develop better leadership. If there is an implementation of professional development this can only strengthen one's position in progressing CTE. The leadership should start from within the areas of CTE; someone with vast work experience will definitely help to guide the staff and the students. There has to be a balance of the front end task. Policy making and implementing changes, someone familiar should be the
catalyst to show where the need actual is in CTE. As the economy grow or weakens, some jobs are going to be around. In most cases these jobs are the skilled laborers. So student having CTE is vital and the Administrators and leaders need to be as knowledgeable as they can be and guide all parties involved in the right directions. The Instructors need to let their leadership know of any important suggestion that can be passed on and decided upon. Leadership ten needs to get things implemented in order to benefit the students. The leadership has to know that working within a unit first can help with the overall growth of CTE.

Implications for CTE Constituents

School principals and superintendents have always needed a considerable understanding of issues and problems that occur in educational leadership (Martino, 1993). Furthermore, it is also suggested that CTE leaders collaborate with external agencies such as the workforce and educational institutions at different levels (Erickson, 2003). To identify these and more leadership issues and concerns, Career and Technical Education leaders must be idealistic leaders who recognize changing demographics, identify the necessity of future employers, comprehend policy development, and lead educational change (Zirkle, Parker, & McCaslin, 2005). Thus, it is important to comprehend how CTE administrators view current educational leadership issues so they better prepare themselves to present these issues at the local and state level.

In Pennsylvania, a director of a career and technical center (CTC) is responsible for administrative duties which may be owned by one school district or owned by two or more school districts. The director of CTC supervises the entire process of the facility and naturally reports to a board of school director. Some of the duties that a director of a CTC is responsible for include the assurance of implementing CTE programs that comply with appropriate local, as
well as state regulations, only employ certified staff, budget expense and monitor expenditures and contribute in program growth within the school district (Vandermolen, 2006).

In divergence with a director of CTC, a director of CTE achieves administrative duties usually within a high school setting to supervise and manage all CTE programs. The director assures that the district CTE system is built on a local and a state regulation, employs certified staff, provides professional growth and contributes in program growth inside the school district (Vandermolen, 2006). The school district’s CTE director by tradition reports to the superintendent as an alternative of a board of school directors. According to David Macquarrie’s experiences showed that 50 percent of automotive students indicate a low knowledge of physical science. By understanding physical science, students should be able to gain a deeper understanding of the automotive process (Michigan Department of Education, 2008).

**CTE Student Outcomes**

Drop-outs are an optional outcome of CTE students. Students poor performance makes them question their abilities and may end up causing them to decide to drop out of school. Students drop out of high school for multiple reasons. However, some reasons include but not limited to: dropouts saying classes were not interesting, missing too much school, could not catch up, not enough rules, quit because they are failing, and financial problems are just a few of the reason identified.

One strategy to help decrease the dropout rate includes encouraging students to engage in a positive atmosphere which can be courses in career and technical education. These are courses that allow students to interact with academic and workforce environments at the same time using
real world examples and hands on training to keep them engaged, motivated and interested (Plank, DeLuca, & Estacion, 2005).

Outcomes may also be positive, like relationships for example, which is the biggest asset of any individual in power. Leadership skills are very important in the business world regardless of the occupation. An individual taking that into considerations would benefit from becoming a good leader that can initiate relationships very easily.

Another effective leadership skill is building and coordinating teams. Any person can perform good work but leading a team is difficult. Team work is a result of very careful coordination and controlling a group performance, solving conflicts and setting examples.

It takes a lot of effort and skills to become a truly successful leader. CTE is one way to expose students to the importance of leadership skills while still in school to help them achieve a beneficial outcome upon graduation.

Reaction to the research

When I think of a “perfect leader” I picture someone who never lets his temper gets out of control, doesn’t mix personal life with business, has the complete trust of their staff, listens to their teams, and always makes careful, informed decisions. Our group’s reacted positively to this research and agreed that emotional intelligence is a major factor in being a leader and poses leadership skills. It’s the ability to understand and manage not only yours, and your teams emotions. That is essential for success. A loud and rude leader is not likely to succeed as compared to a calm and respectful leader who stays in control.
Implications of these findings to CTE constituents

Raising awareness about leadership issues in CTE allows potential students to be self-aware, always knows how they feel and how they can control their emotions and actions. Individuals benefit in that they will be able to better control themselves verbally, know their values and hold themselves accountable for their own actions.

Most importantly, students become leaders who have good social skills and great communication skills. By raising these issues in CTE, leaders can improve on conflicts, improve their communications skills and praise others.

As for teachers, they can lead in and outside of a classroom in numerous ways. Active and effective qualities are essential in teachers because they directly impact their schools, faculty members and most importantly the students (Russel, 2003)

Teachers seek ways to improve and ease learning for students. They seek opportunities to work with colleagues to help students collaborate. Teachers often become the voice for the students.

CTE Teacher Education

Career and Technical Education historically has two different pathways to certification: a traditional route, based on courses, field experiences, and exams, in colleges and universities. The second pathway is a non-traditional route also known as an alternative route which is mainly based on work experiences in the area in which certification is wanted.

Traditional teaching pathways, in addition to obtaining a bachelor’s degree, obligate individuals to have a teaching background or training in the areas they aspire to teach, while
alternative teaching pathways grant access to potential teachers from a wide range of fields (Bremer & Ruhland, 2003).

Career and technical education, our area of study, has a rich teacher certification history that dates back to 1917 Smith-Hughes Act. The Smith-Hughes Act specifically stated that instructors who were to teach in federally funded vocational education programs must have had work experience in the specific occupational area (Erekson & Barr, 1985). For the traditional route, CTE educators need a minimum of a bachelor’s degree from a four year accredited institution in the state in which they reside in. Educators need to complete thirty semester hours in educational courses. Upon the educational satisfaction and degree requirements, CTE educators are required to take and pass an entry level exam to obtain their teaching certificate and licensure in their state. Common tests topics are: academic skills, teaching pedagogy and principles, content area, performance on test (Zirkle & McCaslin, 2007). Although CTE teaching requirements are very similar in many states, there’s only minimal difference for each state. Students who are being taught by teachers with traditional certification are more successful than those students who are being taught by teachers with certification through an alternative program (Bremer & Ruhland, 2003).

As far the alternative route, requirements vary widely from state to state and sometimes even within the same state. Many states require educators to have some work experience as well as a college degree or a high school diploma. Overall, alternative certification was intended to help individuals interested to get into the educational field even if they do not have a degree in education. Hence, teachers were certified not according to their degree in a certain area, but according to their experiences in certain areas. When is teacher is hired based on his or her
experience in an area, that teacher is expected to undergo numerous pedagogy techniques through innumerable training.

Obtaining a degree through alternative programs has its advantages as well as disadvantages. Because alternative licensures make it easy for an individual to teach, it attracts many candidates for the program. Many critics believe that the pathways to alternative teaching certificates are inferior and do not affectively prepare educators like traditional pathways do (Bremer & Ruhland, 2003).

Critics believe that individuals who follow the alternative pathway lack the necessary knowledge needed to teach in Career and Technical Education because the alternative program does not require individuals to obtain an undergraduate degree from an accredited institution.

Correspondingly, teachers who were alternatively certified and did not hold a degree in education felt unprepared in pedagogy. But on the contrary, teachers that were alternatively certified felt more confident in the subject areas they taught than those with alternative certification (Bremer & Ruhland, 2003).

Roles and responsibilities of CTE teachers compared to academic teachers

CTE educators have a very demanding role and responsibilities. Throughout history, CTE educators have had the responsibility and role of preparing students to enter the workforce with the qualifications of a natural leader in order to succeed in a high demand market place. However, times have changed, and CTE teachers role have transformed to include multiple tasks besides preparing students for the work force. Nowadays, educators must implement academic standards to assist students in the learning about career development, as well as the experience that comes along making CTE teacher’s responsibilities more demanding and challenging. Teachers are obligated to integration of academic and career/technical in order for student address
holistic manner the problems, concerns, and issues of the environments in students live (N.L. McCaslin, 2002). CTE teachers have amount of pressure to develop tasks and responsibilities accepted from them.

Additionally, it is the responsibility of CTE teacher’s to ensure their students are capable of higher academic achievement and help students address holistic manners, concerns, and issues of any kind (N.L. McCaslin, 2002). In order to do so, CTE teachers are required to integrate academics and Career and Technical Education and teach higher thinking skills, critical thinking skills and most importantly, reinforce basic academic skills such as writing, reading, math and science. Because of the technology wave, CTE teachers depend on the use of technology to enhance their students, as well as their own teaching and learning skills. CTE legislation generally entails program evaluation, including follow-ups and job placement therefore; CTE teachers are progressively liable. The increase demand in technology has forced CTE teachers to become more proficient in technology.

**Differences in preparation for CTE teachers compared to academic teachers**

CTE teachers help students build a strong foundation in their teaching skills, has proper classroom management, curriculum development, student assessment, leadership skills, and education technology.

Individuals preparing to become CTE educators can follow the alternative or traditional pathways routes discussed in previous sections of this paper. Regardless of the route they take, potential CTE teachers must get certified in the state they reside in depending on their extent work experience and expertise in order to enlighten students and teach them hands on skills that
will help them in the market place. CTE focuses on training students in specific trade skills for industry certification.

On the other hand, Academic teacher’s preparation is slightly different. For academic teachers, content experience and work experience are extremely important but not enough. Academic teachers go down the traditional path. Academic teachers must have a four year degree in order to be able to teach. Academic teachers focus more on academics such as, reading, writing, math and science. I feel that a teacher who is confident in their subject matter is just as important as a teacher that is comfortable in the pedagogical aspect of teaching. With pedagogy being the science of teaching, we have to ask ourselves how effective can a teacher be if he or she is unable to deliver the instructional material or subject matter that is designed for the students. The mere idea of knowing how to teach is not always as effective if a person is not that developed in the subject at hand to be taught.

As for teacher retention, I feel that if teachers worked more collaboratively it would have a more positive effect on teacher retention. Alternatively certified teachers are paired with mentors however; mentors in addition to more support from faculty and staff could make this transaction a much smoother process for teachers that did not take the traditional route. Professional development initiatives vary from county to county and offer an additional level of support for new teachers, career changers, and the alternatively certified teacher. However, administrators have to be careful not to overwhelm the new teacher so that he or she feels that Professional development workshops, initiatives, and classes aren’t just another tedious task. Professional development has to always be looked upon as a tool for success.
Future Directions for CTE

The field of Career and Technical Education has been at the forefront of most of the major economic changes since the early 1900’s. Through the industrial revolution to the globalization of a world economy, CTE has made advancements and adaptations to curriculum in order to remain relevant and to meet the demands of an ever changing labor market (Gordon, 2008). This constant state of change for the field of CTE and the instructors is often difficult to manage, combined with increased accountability and expectations for student learning.

Furthermore, changes in technology are often seen as upgrades to your cell phone or the need to purchase the newest and latest gadget in home electronics. However, the changes in technology impact more than just the type of cell phones we have. Impacts regarding the changes in technology have changed the state of our economic growth here in America as well as around the globe. The process known as flattening forces has bridged the gaps between countries and competing economies; thus establishing what we now know as the global market (Gordon, 2008). This process has given way to dynamic changes in the way companies across the globe conduct business. No longer are companies or consumers bound to the limitations of logistics and brick and mortar. A company in London, England can have employees in Ocala, Florida producing goods or services for clients; clients who very well could be located in Japan or anywhere around the world.

As the process of flattening continues to grow and blur the lines between nations, the demand for qualified employees to create, service, operate and compete in a technology driven market will be extensive. So where will employees of the future turn in order to receive the training they need? They will turn the field of Career and Technical Education to provide high
quality training that is relevant and provides rigor designed to prepare them for the demands of a global economy (N.L. McCaslin, 2002).

The scope of CTE no longer has as its sole purpose the focus of developing just the technical skills needed to perform a task. By the year 2020 CTE will need to embrace the concept of educating a workforce that is diversified, mobile and has the ability to creatively problem solve. A hot topic within the field of CTE is the concept of Career Academies, which is the combination of core academics and career training brought together in the form of Career Paths and a more focused diploma. This concept will continue to develop and grow but the course offerings will need to expand to cover even more careers, some for careers that are not even created yet. Future CTE courses will need to see an increase in the following areas (N.L. McCaslin, 2002):

1. Connection of lifelong learning
2. Curriculum that combines development for not only the workforce but for academics as well
3. CTE leaders who understand the changes in the workforce and are equipped to navigate the change
4. Focused curricula designed for the adult learner as well as the secondary level student
5. Cooperative efforts made by instructors and leaders in CTE to be part of the community and processes they teach to their students
6. Courses that are change focused with high standards for achievement
7. Strong foundations in both academics and the market
8. Diverse in addressing the local needs of not only the students but the workforce and the consumers of the businesses these potential employees will or are working for
9. Professional Development for the instructors and leaders in the field of CTE

10. Strong support and connection with leaders across the education and workforce community in the efforts and direction of CTE

Identification of a Specific Program of Interest in CTE

The specific program in Career and Technical Education selected for this report is Business Education. This course is designed to provide students with not only the hard or technical skills needed for business but also the soft/people skills that are often lacking. The following is a course sequence for the Business Education Program:

Course Sequence

The Business Education Program has 8 units that are to be taught. The order for the units is a suggested order that builds on each unit and will activate student's prior knowledge of key concepts and terms learned from prior units (Dearinger, 2012).

Unit 1: Introduction to Technology-Business Software

In this unit students will learn the basic processes associated with using Microsoft Office products such as Word, PowerPoint, Excel, and Outlook. Students will learn the various functions and abilities of the software such as; formatting and editing, creating new documents, managing contacts and calendars, and the tools for business management (Shelly & Vermaat, 2011). Students will apply their knowledge learned by taking an Industry Certification exam for these programs.

Unit 2: The art and skill of presenting: A lesson on debating and public speaking

In this unit students will learn the skills needed to speak professionally about a wide range of topics. Students will engage in one on one conversations as well as whole group
discussions and presentation. The course will cover topics ranging from Ice Breakers to formal Business Presentations and much more. The model for this unit is similar to Toastmasters International, a non-profit organization designed to assist the working professional and secondary aged student in improving their communication skills.

Unit 3: Introduction to Systems and Hardware

Students will be introduced to the basics of computers, the internet, networking, application software, computer hardware, input, process, output and storage. (Shelly & Vermaat, 2011)

Unit 4: Business Communication

Students will learn to format and create multiple business forms such as but not limited to; resumes, business letters, various business forms, publications, emails, reports, and marketing materials.

Unit 5: Web Development & Networking

Students will also seek to earn an Industry Certification from CIW as in Internet Business Associate or also known as IBA. The IBA certification covers foundational knowledge in basic network troubleshooting, IT support, Internet Protocol, Internet Hardware and Software as well as the basics of computer hardware.

Unit 6: Research & Technical Writing

Students will learn to read, interpret and follow instructions as they read technical writing manuals and guides. These writings are associated with the hardware, IT courses, and business software courses they take in the Technical Skills portion of the program. Students will learn key
vocabulary, how to chunk out the readings and create technical written responses to the articles they read.

**Unit 7: International Business Law**

Students will learn the laws that govern a global economy and how to apply them in business. Students will gain exposure to multiple cultures and economies as they study case law from various regions around the globe. Students will have the opportunity to be part of a mock trial in a real world case example from their studies. Students will seek to apply prior knowledge learned from their Speech course and their business communications courses to research and present their case.

**Unit 8: Creative Problem Solving**

Students will be presented with various team building and problem solving processes and learn skills that contemporary business competing in a global market need. Students will work in groups as well as individually as they complete each lesson.

**Issues in the Specific Program Identified**

Courses in the Business Education Program are often thought to be like the typing class that many CTE programs and schools offered thirty or forty years ago. Students come in sit down and learn the basic job skills and functions associated with the software. However, CTE instructors are now being held more accountable for student learning and the success of a CTE instructor or course are now being measured by the passing rate of students who take an Industry Certification Exam. While an industry certification is important and should be an area of focus, the new CTE demands more from us than just basic industry skills.
In addition to the technical skills, many Business Education programs focus on the technical skills needed and forgo the development of the soft skills. As technology has changed the face of business, interpersonal skills are being pushed aside in support of a more sterile, isolated environment. Today our society supports the growing trend of texting over conversations, Facebook over face to face and emails over the written word. Just as our social interactions have changed with the advancements in technology, so has the art of conducting business. The workforce of the future will need to be trained in the art of conducting business that consists of proficiency in the technical skills as well as proficiency in the art of human development.

Linking of Business Education to Business and Academics

A growing concern in academics is the ability to link education to a student’s real world experience making what they learn relevant for their education and career goals. Within the course frameworks for the Business Education program focus is primarily on a student earning the industry certification and not how that certification can benefit them currently as well as for post-secondary opportunities.

While there are many approaches that aide in making education relevant, the focus of this report will be on the use of student data folders, student goal setting and class goal setting as a tool to assist in helping students make that connection. CTE Instructors should strive to present a big picture overview of how the software being taught in this class is used in education and the business community. CTE instructors can provide examples of how learning technology can benefit them socially; example is the new Windows based cell phone that operates Windows / Microsoft software, students can learn the basics of that software while participating in this class.
Once the big picture is presented instructors can have the students’ identity the skills sets needed to compete in the global workforce, break down those skills sets into manageable chunks and format them into personal goals using their student data forms. This process is placing the responsibility for student learning back in the hands of the student (Hoglund, 2012). As a result, students are able to chart and map out their road map for success in the course.

Response to the growing trend of a flattening of the global markets

For decades communication between businesses and consumers were limited to the region in which their pony express mail carrier could cover, anything beyond that region was often not reliable and or took weeks to be delivered. Changes in technology grew from the use of telegraphs into what is now being used in phones, computers and mobile devices.

This example regarding the growth of communication rapidly allowed for the expansion of businesses and communities and continues to provide that same type of growth for business today. However, in this growth the lines between the various economies around the world have become blurred by a process known as flattening (Gordon, 2008). The flattening process allows a business to operate across many platforms and in various regions almost seamlessly, with these advancements new economies are being created and others are experiencing a down turn. As a result, many are turning to the field of CTE for help in developing the skills needed for a 21st century workplace (N.L. McCaslin, 2002).

The course Business Education provides a solid foundation in the technical skills required but lacks a much needed component in the art of global business law or processes. A student in Lincoln, Nebraska can work for a company located in Stockholm, Sweden and have customers in Helsinki, Finland and will need to have an understanding the business etiquette for a global client
base. In order for the field of CTE and the Business Education course to truly prepare students for the workforce of today the issue and impact of flattening needs to be considered.

Response to the challenges of changes in hardware and software

We have all either been the victim or at least known a victim of the technology envy blues, you know that feeling you get when you just purchased the latest, greatest, and newest piece of technology only to find out that just days after you purchased the item is was obsolete. Maybe the software needed updated or the hardware was not up to speed, something about it changed and now the pressure to upgrade was on. This similar feeling or frustration is what CTE instructors are facing in regards to the Business Education course and the industry certification process. The software companies continue to roll out newer versions of the software or hardware which in turn causes a re-training of the students and upgrades in their industry certification; thus creating what seems like an endless cycle of training and testing.

An improvement to the process and one that may garner support, especially at the secondary level, is a more standardized approach in that Industry Certification should be valid for at least one or two upgrades before the need to have students re-certify. By partnering with our industry supporters and sharing ideas and concepts such as this could greatly benefit the budgets of many CTE programs and improve the effectiveness of our classrooms (N.L. McCaslin, 2002).

Links and Resources supporting Business Education

There are various business partners and supporters of the Business Education course. Samplings of those supporters are as follows:

1. The Florida Department of Education: www.fldoe.org
2. Training and Video tutorials: www.lynda.com and www.gcflearnfree.org
3. Microsoft Office Essentials: Text (Shelly & Vermaat, 2011)
5. Lee County School District: www.leeschools.net
References


Public School of North Carolina. (n.d.). Retrieved from Department of Public Instruction: http://www.ncpublicschools.org/cte/


