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The Adult Workers' Perceptions of the Residual Effects of Secondary Career Technical Education

Rosa Michele Henehan
University of Arkansas

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THE ADULT WORKERS’ PERCEPTIONS OF THE RESIDUAL EFFECTS
OF SECONDARY CAREER TECHNICAL EDUCATION
THE ADULT WORKERS’ PERCEPTIONS OF THE RESIDUAL EFFECTS
OF SECONDARY CAREER TECHNICAL EDUCATION

A dissertation submitted in partial fulfillment
of the requirements for the degree of
Doctor of Education in Workforce Development

By

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The current research, *The Adult Workers’ Perceptions of the Residual Effects of Secondary Career Technical Education*, asks the question: Are adult workers in the implementation and stabilization stages of career development influenced by their former experiences in the secondary career technical education (CTE) centers? Based on the theoretical foundations of Super’s theory of career development and Mezirow’s theory of transformative learning, the purpose of this sequential, mixed-methods relational study was to investigate the adult worker’s perceptions of prior engagement in career technical educational opportunities. Examining the relationships between the CTE experiences and the adult worker’s progression through the career development stages of crystallization, specification, implementation and stabilization was useful in identifying strategies that contributed to academic, personal and professional success.

The research was completed in two phases. Phase One population of the study included the twenty-four Arkansas area secondary technical education centers, which were comparatively analyzed using extant data from the Arkansas Department of Career Education. Divided into geographic regions, 18 of the centers were defined as top-performers, as measured by student performance success indicators found in the extant database. Phase Two included interviewing 29 adult workers who had completed programs of study in the participating centers during the academic years 2003-2004 and 2004-2005. In this phase, the researcher gathered quantitative data in the form of interviewee and secondary center demographics. Qualitative data were gathered via the interview guide questions that encouraged critical reflection about the participants’ secondary CTE experiences, career pathways, adult learning opportunities, current perceptions of accomplishments and those responsible for perceived success.
The results of the current study are discussed in both statistical quantitative analyses and qualitative findings. Several statistically-significant, albeit weak, relationships were found between CTE experiences and current outcomes. The qualitative data, however, was much more reflective of the practically-significant long-term benefits found in the CTE experiences of the interviewed population. As the results are not generalizable to the overall population, further research with a larger study sample is warranted.
This dissertation is approved for recommendation
to the Graduate Council

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DISSEYATION DUPLICATION RELEASE

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ACKNOWLEDGEMENTS

I have always been a firm believer in the empowerment that is found through advanced education. After spending the past five years on my doctoral coursework and research, I believe this even more so. The mentorship of my advisor, Dr. Bobbie Biggs, has empowered me to become the researcher that I had hoped to be, even when my own efficacy waivered. I thank her for being such a powerful force in my life, when I so desperately needed it. The resulting research speaks to the empowerment found in education at all levels, from non-credit professional development trainings, to education found in institutions of higher education.

I wish to thank Mr. John Davidson, from the Arkansas Department of Career Education, for suggesting the research population found in the Arkansas career technical education (CTE) secondary centers. I am appreciative of the help that Ms. Sandra Porter, also from the Arkansas Department of Career Education, provided by inviting me to speak to the CTE secondary center directors. Then, I am thankful for the CTE centers that provided the needed research population of former CTE secondary students, all of whom are mentioned in the research. I could not leave out the former students themselves, now adult workers ages 23-25, all of whom were infinitely gracious in agreeing to participate in the interview process.

I would be remiss if I neglected to mention the University of Arkansas Program Of Workforce Education. I found the coursework provided through my program of study to be highly applicable to my current stage of career development, and the professors were all very eager to help me through the process. I would like to thank Dr. Jules Beck and Dr. Kit Kacirek, who both graciously agreed to serve on my dissertation committee. Dr. Beck’s courses provided me the attention to APA detail that was so needed during my dissertation process, and Dr. Kacirek’s love for qualitative studies influenced my decision to utilize mixed-methods in my current research.
Finally, I would like to thank my administrators and friends from the University of the Ozarks, who gave me much-needed moral support during the writing of this dissertation. I am thankful for the opportunity to work at an institution that is so supportive of faculty who pursue outside research interests.
DEDICATION

I dedicate this dissertation to my unbelievably supportive family, for understanding and encouraging my desire to complete my doctoral degree. My husband, Brian, believed in my ability to complete the dissertation process, even when I doubted myself, and encouraged me over the past five years of coursework. Not only did Brian give me two beautiful boys during the years of my coursework, but he has also proven to be a wonderful father and a devoted step-parent. Our three older children, Kayleigh, Cason and Curlin, have all provided much-needed child care when I have needed time for increased focus. My mother and step-father, Mary and Wendell Weaver, have not only provided child assistance with all of the children, but have also fed us weekly! And then the youngest, Schuyler and Tristan, for providing a greatly-needed distraction from the daily stressors of going to school, working full-time and being a wife and mother. I am also so thankful for the encouragement of my mother-in-law, DeLores Henehan, for her weekly encouragement during the entire doctoral process. I love you all and thank God for you daily!
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Chapter One

INTRODUCTION

The career of an adult worker is the result of a myriad of experiences coming together. Factors, such as gender and ethnic differentials, along with an individual ability, family socioeconomic status, sibling relations, birth order, opportunities, and geographic location, play a part in a person’s career choices (Kniveton, 2004, Kosine & Lewis, 2008). One of the opportunities that may influence career choice is the chance to undertake career technical education as early as the secondary level of a person’s academic career, when he or she is in the exploration life stage of Super’s Theory of Career Development. According to this theory, individuals ranging in age from 14-24 are moving through a period of exploring interests and narrowing career ideals (Super, 1957). Having intentional opportunities provided during this stage of development, such as the programs of study offered through secondary career technical education, may have lasting effects on the adult workers who were former participants.

Career Technical Education (CTE), formerly Workforce Development Education (WDED), focuses on the future in hopes of instilling the desire for lifelong learning among the participants (Bray, 2009). The concept of lifelong learning is also prevalent in the teaching of adults as an economic requisite (Bash, 2003). Educating students for contemporary workforce needs, while preparing them for future trends, is increasingly important in an ever-changing global society in which knowledge-based training is an on-going necessity (Daniel & Hultin, 2002). Secondary technical education may be a means to a more highly-trained workforce end. However, accountability measures must ensure that the chosen training will have lasting benefits, such as technical skill attainment and students being able to complete their career focus (Arkansas Department of Career Education, 2010).
There are currently 24 secondary area technical education centers that support the mission of the Arkansas Department of Career Education (ACE), which is “Providing leadership and contributing resources to serve the diverse and changing career educational needs of Arkansas youth, adults and persons living with disabilities” (Arkansas Department of Career Education, 2010, Message from the Director section, para. 2). Altogether, these centers offer 57 programs of study to high school juniors and seniors, providing them with opportunities that lead to national credentials, professional certifications, associate degrees and higher education leading to career pathways. Twenty-three of the 24 technical area secondary centers are housed in two-year community colleges, while one of the 24 is housed in a four-year public college. The CTE centers are developed around a traditional career model (Sullivan, 1999), in which programs of study follow a linear path for career development.

The secondary technical education centers in Arkansas are currently feeling the effects of the No Child Left Behind act, in which greater accountability measures ensure that academic progress is made at all levels (Lewis, 2004). Since 2004, each center has been required to provide performance indicator data to the ACE that detail the learner outcomes of the defined student population. State benchmarks, as defined by the annual report cards, provide the standard to which the CTE center outcomes are compared, (Arkansas Department of Career Education, 2010).

**Statement of the Problem**

According to 2007 research, 3.5 percent of all students enrolled in American high schools dropped out without completing the requirements for graduation (“National Center,” 2007). Furthermore, for those who do graduate from Arkansas high schools, only a minority goes on to complete a two-year degree—the current completion rate of two year colleges is 17 percent—a
rate that is credited to under preparedness at the Arkansas high school level (“Arkansas Public College,” 2010). Therefore, in an effort to narrow strategies that prove beneficial for long-term success, the effects of secondary career technical education on the lives of adult workers, who were former secondary CTE participants, were investigated.

**Purpose of the Study**

The purpose of this sequential, mixed-methods study was to investigate the adult worker’s perceptions of prior engagement in transformative career educational opportunities. Examining the relationships between the CTE experiences and the adult worker’s progression through the career development stages of crystallization, specification, implementation and stabilization was useful in identifying strategies that contributed to academic, personal and professional success.

**Research Questions**

The research questions focused on the connection of the adult learner to his or her former secondary technical educational experiences. Further questioning identified the additional career pathways that were sought by the individual learners.

1. Is there a relationship between the number of transformative learning strategies experienced in the crystallization and specification stages of life, according to Super and Mezirow, and the adult worker’s perceptions of current professional success, during the implementation and stabilization stages of life?

2. Is there a relationship between the current socioeconomic statuses of the adult workers to the professional pathways offered through their participation in the secondary technical education centers?

3. Is there a relationship between best practice strategies utilized by the secondary technical
education centers during the students’ crystallization and stabilization stages of life and the adult worker’s current education level?

4. Are adult workers in the implementation and stabilization stages of career development influenced by their former experiences in the secondary career technical education centers?

**Theoretical Framework**

As the students involved in the secondary technical education centers are at the beginning levels of investigating career opportunities, the foundation of this research built upon Donald Super’s Theory of Career Development (see Figure 1). Super’s theory is change-oriented, focusing on the development of an individual’s self-concept through life and career development opportunities (Super, 1990). Super’s theory is appropriate, as the research investigated the adult workers who were former participants in secondary technical education and the personal and professional changes that have occurred in their lives since graduating from secondary technical education programs. The research began with the adult worker’s experiences within the secondary technical education centers, when they were sixteen to eighteen years of age and in the Crystallization and Specification Stages of Super’s Theory of Career Development. The research concluded with the learners in the present day, when they should be moving into the Implementation and Stabilization Stages of Career Development, displaying a career maturity that is appropriate for this stage of development (Super, 1957).
The former students in the stages of Implementation and Stabilization may attribute perceived successes to the transformational learning experiences that began with their secondary technical education and continued through their chosen professional pathways.

Transformational Learning Strategies found in CTE and Adult Learning Best Practice, offered during the Crystallization and Specification Stages, bring about changes necessary for career development (Taylor, 1998): (a) Conditions that promote a sense of personal well-being, (b) Learner-centered approach, and (c) Exploration activities.

Figure 1. Super’s Stages of Career Development combined with Mezirow’s Theory of Transformational Learning.
This study also embedded the transformational learning theory, based on the premise that empowerment comes from higher levels of educational training. Jack Mezirow defined transformational learning as that which influences a change in the learner that could be defined as a paradigm shift, (as cited in Clark, 1993). Transformational learning is facilitated by instructors who are capable of emphasizing the importance of critical thinking skills and personal reflection, along with having the sensitivity to maintain mentoring relationships with the students in their care. While these elements or strategies are strongly aligned with adult learning theory, they are also essential in career technical secondary education, as adolescents are in a critical period of development and self-reflection (Tibbitts, 2005).

**Significance of the Study**

The Council for Education Policy, Research and Improvement, (2003) indicated that workforce education meets a very real need in society to have highly trained technical employees. With quality career training beginning in high school, secondary students have increased earning potential in their future professional pathways. However, what determines high quality training? What are the key elements utilized by successful secondary technical centers, bringing about a higher percentage of student success indicators, increasing the participants’ employability? Do the key elements actually have lasting benefits to those workers who have participated? These questions were answered by investigating the reflections of adult workers who were previous participants in the career education secondary programs in Arkansas, which are funded by the Arkansas Department of Career Education. This research is beneficial to the Department of Career Education, as a way of judiciously funding programs that are utilizing best practice strategies that appear to have lasting benefits throughout the participants’ work lives. Primarily, this research benefits adult workers who are interested in pursuing career
education opportunities, by identifying career pathways that are beneficial in advancing through the Specification and Implementation stages of Super’s theory, resulting in successful integration into the Stabilization stage of career development (Super, 1957).

Assumptions

The following assumptions about the research project were noted:

1. A secondary technical education center that attained an average score of .95 or higher in student performance success indicators met or exceeded the majority of state benchmark scores, thus identifying the center as a top performer.
2. Even though each region had top-performers, the scores were not congruent across regions.
3. The top-performing centers had instructors who utilized a variety of best practice and transformative learning strategies.
4. The adult workers were influenced by choices they made beginning with the program of study chosen at the secondary level in the CTE centers.
5. Career development is a continuous process of linear movement, and may begin as early as adolescence, as defined by Super’s Theory of Career Development.

Delimitations

The following delimitations to the research project were noted:

1. The primary quantitative data was dependent upon the Arkansas Department of Career Education (ACE).
2. Only the adults who graduated from the top-performing centers in Arkansas were contacted.
3. A systematic sampling (Glass & Hopkins, 1996) of the adult workers who completed
programs of study in the top-performing centers from the years 2004-2005 were interviewed, narrowing the focus of the study to the young adult learner with the minimum age of 23-24.

**Definitions**

1. **Adult Career Education**—Life-long learning opportunities intended to improve personal and professional outcomes.

2. **Arkansas Department of Career Education (ACE)**—Formerly Department of Workforce Education, the statewide provider of career planning information, education and training options; funding source of the secondary area technical education centers (2010).


4. **Secondary Area Technical Education Center**—Providers of career technical education (CTE) to high school juniors and seniors, housed in one of the following: public high school, postsecondary technical institute, two-year college, four-year college, or education service cooperative (ACE, 2010).

5. **Top-performing center**—A secondary area technical education center that has achieved an average score of .95 or higher in the student performance success indicators.

6. **Cold-calling**—Using telephone numbers provided by the CTE secondary area technical education centers to call potential interviewees without prior contact or notice (Merriam-Webster, 2011).

7. **Facebook**—Internet social networking service provider utilized to contact former CTE students in the current research.

8. **Skype**—A computer software application that allows users to place telephone calls using
the public internet as a network.

9. Pamela for Skype—A computer software application that works in conjunction with the Skype application, to allow recording of both parties in a Skype conversation.

10. Dragon Naturally Speaking—A computer software application that can be trained to recognize one voice to transcribe recorded conversations.

11. SPSS Version 15.x—A “comprehensive, easy-to-use set of data and predictive analytics tools for business users, analysts and statistical programmers” (IBM, 2011, Why IBM section, para. 1).
Chapter Two

REVIEW OF LITERATURE

Career Development Theory has many facets to be investigated. According to Hansen (1976), career development is a combination of developmental experiences over a person’s life experiences that give a person insight into his own life style, his roles in education, work and life, and the way he relates to the world around him. Career development theory covers the early stages of a person’s secondary education and extends far beyond the post-secondary academic career. The connections between andragogical suggested practices and currently accepted pedagogical suggested practices, as well as the residual effects of these opportunities on the adult worker, were reviewed in the literature.

Theoretical Framework

An overview of career development theory investigated (a) Social Cognitive Career Theory, (b) Holland’s Theory of Vocational Types, (c) Frank Parson’s Trait and Factor Theory of Occupational Choice and (d) Krumboltz’s Planned Happenstance Theory. An in-depth look at Donald Super’s Theory of Career Development was detailed, focusing on the career development stages of crystallization, specification, implementation and stabilization. Super’s Theory of Career Development was chosen as the foundation for the current research, as it embodies aspects of each of the previously-mentioned theories and aligns with the experiences provided in the secondary career technical education centers and beyond.

Overview of Career Development Theory

Lent, Brown and Hackett (1994, 2002) developed the Social Cognitive Career Theory (SCCT), scaffolding on the concepts from Bandura’s social cognitive theory (1986, 2001). SCCT builds on the premise that career fulfillment is dependent on self-efficacy, the belief that a
person has in his or her own abilities (Bandura, 1982, 1986, 2001). Visualizing goals and outcomes are seen as deciding factors in a person’s career choice, along with self-efficacy. SCCT has recently been studied within the area of career development, with self-efficacy being found as highly important in career opportunities. A person with a strong sense of self and a belief in his or her abilities has been found to be capable of more adventurous decision-making and goal-setting, as high self-efficacy causes him/her to believe that stressors can be handled efficiently by self (Crooker et al., 2002). These individuals have been found to have greater abilities to visualize outcomes, so they are able to cope with issues that bring about changes in their lives and careers, developing a greater sense of satisfaction in present circumstances (Strajkovic & Luthans, 1998, Gist & Mitchell, 1992). Furthermore, high self-efficacy is shown as a factor in the lives of those who have great abilities to develop strategies for dealing with change and challenges in the work environment (Raghum, Wiesenfeld, and Garud, 2003). The amount and vigor of self-efficacy determines (a) the efficiency of coping mechanisms, (b) the amount of effort put forth in any given situation and (c) the amount of time a person will spend on a task, in spite of obstacles.

In contrast, Holland’s Theory of Vocational Types (1959) attributes behavioral styles as influencing career choice development. Rather than a strong belief in one’s abilities, this theory states that career promotions, constancy and job satisfaction are all reliant on selecting a career where the environment is in congruence with an individual’s personality style. Holland’s beliefs were grounded in the development of the individual through a combination of heredity and the person’s interactions to the environment. (Holland, 1959). John L. Holland (1997) identified six personality types and six accompanying career environments, claiming that career satisfaction and success can be found by working in a career environment that matches the individual’s
personality style, and where the co-workers have similar personality styles and behaviors. This theory supposes that career choice is not random, but rather a reflection of self (Holland, 1959). Holland’s theory is the most recognized premise on the topic of career development (Arnold, 2004, Pike, 2006).

Frank Parson’s Trait and Factor Theory of Occupational Choice advocates matching a person’s abilities, interests and talents with comparable jobs in the workforce (Parsons, 1908). The premise is based on the talent-matching concept, believing that a person’s productivity levels and job satisfaction will be higher when he/she has found a good fit with his or her individual dispositions and attributes, much like the aforementioned theory of Vocational Types (Holland, 1997). The career search is based on the need for career counseling, in which a trained counselor must gather information from the participant that will provide insight to the possible matches in the job arena. Therefore, the career counselor must be knowledgeable in both the current job market, and his client’s talents and interests. Parson’s book, Choosing a Vocation (1908), noted seven stages of career counseling that would need to be worked through, in order to find the perfect career match for the client.

Lastly, Krumboltz’s (1979) Planned Happenstance Theory is one that takes into account the need for adaptability in the workforce. This theory looks at career indecision as desirable, as it could bring about opportunities for the individual to benefit from spontaneous events. Managing oneself through life transitions is considered crucial in the quickly-changing workforce, and this theory provides insight into dealing with the limited control that a person has over career experiences. Krumboltz recognized that a person’s environment holds powerful sway over his career choices, considering unpredictable events and chance social encounters that exist in everyday life. This theory emphasizes the importance of curiosity, persistence, flexibility and
optimism, which are all seen as traits that would serve a person well as career opportunities arise (Krumboltz & Levin, 2004). Furthermore, the Planned Happenstance Theory stresses helpful skills for managing one’s career, such as lifelong learning, reflection, collaborative feedback, social networking and financial planning. Achieving a balance between work and life is also considered a trait that is essential for career management success.

**Super’s Theory**

According to Kosine and Lewis (2008), career development is a “process, not just a destination” (p. 227). Part of the process is going through a series of life and career developmental stages, as seen in Donald Super’s Theory of Career Development. Super considered himself to be a trait-and-factor career counselor who sought to enhance Parson’s (1908) theory with his own theory of career development (Super, 1984). Super’s theory (1954, 1961) is divided into five life stages, which include Growth, Exploration, Establishment, Maintenance and Decline. Super defined six substages of career development, all of which comprise his theory of vocational choice. The five life stages are shown below, with the accompanying substages:

- **Life Stage: Growth (Birth-14 years of age)**
- **Life Stage: Exploration (Adolescent years)**
  1. Crystallization stage (14-18 years of age)
  2. Specification stage (18-21 years of age)
  3. Implementation stage (21-24 years of age)
- **Life Stage: Establishment (Early adulthood)**
  4. Stabilization stage (24-35 year of age)
- **Life Stage: Maintenance (Middle adulthood)**
5. Consolidation (35 years of age)

Life Stage: Decline (Late adulthood)

6. Readiness for retirement (55 years of age)

The life stage of exploration contains the career stages of crystallization, specification and implementation. The crystallization stage includes times of investigation, as the individual tentatively sets and plans career goals. In the stage of specification, one can expect to firm up the previously-set goals. Next comes a time of training for a career and then securing employment, during the implementation stage. During all three of the exploration stages of crystallization, specification, and implementation, an individual explores future career options through courses taken in school, hobbies pursued and through work experiences, as he/she tentatively makes choices for future career development. The exploration stage of life covers the adolescent years of 14-24.

As the individual becomes comfortable with choices made and is established in his career, he has become entrenched in the stabilization stage, which may include a time period of up to nine years of the establishment stage of life. It is during this time that an individual is learning to relate to others in the workforce, as he/she finds an employment position that fosters security and independence. Also found in the years of establishment is the final stage of career development that is consolidation, in which the individual experiences times of advancement in his choice of careers. The life stage of establishment covers the early adulthood years of 25-45.

These stages set a sequential course that detail the way that individuals build and maneuver their work lives, along with specifying predictable tasks and coping mechanisms that every working adult encounters (Super, 1957). Super (1980) claimed that not everyone goes through the same stage at identical ages or fashions, but that there are certain developmental
tasks within each stage that a person must master in order to find success and to be prepared to move on to the next stage. His six factors of vocational maturity included (a) awareness of the need to plan ahead, (b) decision-making skills, (c) knowledge and use of information resources, (d) general career information, (e) general world of work information, and (f) detailed information about occupations of preference. While Super originally identified stages that were set in a sequential manner, he later modified his theory to include the cycles that humans go through periodically throughout the lifespan, as they adapt to trends in the workforce and to personal life changes (Super, 1981). The current research will focus on the career development stages of crystallization, specification, implementation and stabilization, found in the life stages of exploration and establishment.

Just as Social Cognitive Career Theory (SCCT) emphasizes the importance of high self-efficacy (Lent, Brown and Hackett, 1994, 2002), Super’s theory emphasizes the role of the self-concept in choosing careers. According to Super (1957, 1963), changes in self-concept occur over a person’s life-span, as a direct result of one’s experiences. The self-concept is refined as the person’s experiential base expands, allowing the individual to become more adaptive in the workforce (Super, 1980, 1981). This sense of self is described more in detail in Super’s final theoretical explanation of career development, the life-span, life-space theory (Super, 1990). At this time, Super (1990) brought to light all roles that play a part in developing a mature sense of self—the work role is enmeshed with other life roles to create a structure of personal values. Super’s theory proposes that career satisfaction and success is reliant on selecting a career that allows one to express his or her self-concept.

Super’s (1990) life-span, life-space approach looks at the adult worker’s life as one that involves feelings about work that change over time. Super (1955) originally identified
maturation as a central construct in career development but revised his theories to identify adaptation as the key developmental process (Super, 1981). Just as Krumboltz’s (1979) Planned Happenstance Theory emphasizes the need for adaptability in the workforce, Super’s theory encourages the ability to change within the individual. Super’s theory looks at the life as a series of stages, each one building on prior knowledge and enriched through the adaptations involved. The richness of a person’s life could be enhanced by the roles in which he/she finds fulfillment, including the work roles. While the changes within the work role are seen as important to the self-concept, the compilation of adaptations within life roles found in home, school, work and community will result in a well-rounded sense of self.

One of the propositions set forth by this theory is that development through the life stages can be guided by providing experiences that encourage the maturing of abilities and interests of an individual—facilitations that lead to preparation and readiness for the next stage of career development (Super, 1990). As a career counselor, Super contended that there were individual perspectives that encouraged his clients’ choices of careers and fostered adjustment to the working stages of life (Thompson, Lindeman, Super, Jordaan, & Myers, 1984). Therefore, the impetus for moving through the life stages of career exploration to career establishment could be opportunities offered and taken by each individual, after careful consideration of the individual’s insights and reflections.

Super’s theory aligned with the current research on the adult workers’ perceptions of the residual effects of quality career technical experiences, as it dealt specifically with career maturity at several levels, beginning with his model for adolescent career maturity, the ability to make career decisions ranging from educational to vocational choice (Super, 1955). Even as his later theory encompassed the entire life-span, his focus remained on the sequential model of
career maturity in youths (Super, 1984, 1990). Super’s theories provide a comprehensive framework for the current research, which covered the span of life from adolescence through early adulthood.

**Mezirow’s Theory**

Transformational learning is an adult education term that was coined by Jack Mezirow in the latter part of the twentieth century (1975, 1978). It is part of the Transformation Theory that espouses the importance of meaningful experiences for the adult learner (Franze, 2007). The foundational belief is that it is not the experience itself that brings about learning, but the meaning that is made from the experience, within the individual. Mezirow (1975) based his theory on a study conducted on non-traditional college students, in which adult women were interviewed about their experiences, and a process of change was identified. Their educational experiences provided the stimulus for the process of questioning, challenging and revising former assumptions (Mezirow, 1975, 1978). This process leads adult learners to engage in their relationships and perceived societal roles in a new way, after revising their former schemata.

Critical reflection is an essential part of the transformation theory, as a way of understanding the reasons behind the meanings the adult learner attaches to experiences (Mezirow, 1981). Adult learning is viewed as the means to developing critical thinkers who reflect on former assumptions about the world in which they live. These reflections can lead to transformations within the individuals and empowerment through learning, instigating a progression towards social action (Mezirow 1985, 1991, 1994). Transformed learners can become change agents, advocates and leaders in society. Transformative learning is the route through which, according to Mezirow (2000),

…we transform our taken-for-granted frames of reference (meaning schemes, habits of mind, mindsets) to make them more inclusive, discriminating, open, emotionally capable
of change, and reflective so that they may generate beliefs and opinions that will prove more true or justified to guide action. (p. 8)

Three types of reflection have been identified by Mezirow (2000, 2009), only one of which can lead to transformation. Content reflection involves the learner in thinking about a specific experience. Process reflection addresses personal perspectives, leading the learner to question the source of a long-standing belief. Lastly, premise reflection engages the learner in questioning his or her belief system, views of social norms, and cultural values. Premise reflection is a powerful tool for eliciting critical thinking about one’s own values, belief system and their origins. Questioning strategies may be utilized to lead to learning in each of the types of reflection.

Development is the outcome of transformative learning (Mezirow, 1991). Transformation enables the learner to critically reflect on a broad array of experiences, to be more open-minded in dealing with others’ perspectives and to be able to assimilate personal beliefs and experiences into the newly-expanded bank of knowledge (Mezirow, 1990). The educator has the charge of nurturing transformative learning through learner-centered strategies that elicit reflection. The instructor must help learners reach specific objectives in ways that will encourage a more self-directed, socially responsible individual (Mezirow, 2009).

**Transitioning From Secondary Technical Education to Adult Career Education**

The School to Work Opportunities Act (1994) addressed the concern that there was a gap between skills and knowledge needed to be competitive in the ever-expanding global community (Friedman, 2006) and the skills, ability and education exhibited in the students coming out of the United States educational system. This federal legislation, along with the Goals 2000: Educate America Act, and the Carl Perkins Vocational and Applied Technological Education Act of 1990, increased funding and attention to the transition from formal schooling into the adult
workforce. The School-to-Work Opportunities Act (1994) was aimed at helping students obtain the experience, knowledge and skills needed to make informed decisions about future vocational goals.

The Association for Career and Technical Education (2011) is the “largest national education association dedicated to the advancement of education that prepares youth and adults for careers” (About ACTE section, para.1). The ACTE advocates for local, state and federal funding of career and technical programs of study, and it is here that the link from secondary technical education to adult career education may be found. In Arkansas, the ACTE reported that CTE is delivered at the secondary level via high schools and twenty-four secondary area technical centers. At the postsecondary level, CTE courses are provided via twenty-two community colleges and three technical centers. Federal funding is provided through the Perkins Basic State Grant (ACTE, 2011) and from Carl Perkins Tech Prep monies. State funding is provided for adult and youth apprenticeship programs and career centers.

CTE programs have gained credibility with the current focus on rigor and postsecondary articulation of CTE courses (ACTE, 2006). Studies have shown that students who have participated in a blended CTE and college preparatory curriculum are prepared for both postsecondary academic experiences and the workforce (DeLuca, Plank, & Estacion, 2006, Hudson & Hurst, 1999). To ensure a seamless transition, the College and Career Transitions Initiative (CCTI) reform is focused on the responsibility of two-year colleges in transitioning students from secondary to postsecondary academics and employment (Hughes & Karp, 2006). The CCTI goals include “helping students ease the transition from high school to college and careers, increasing the rate of completion and success for their students, building partnerships with high schools and businesses, reducing remediation for their incoming students, learning
about and developing career pathways, and dual or concurrent enrollment” (College and Career Transitions Initiative, 2011, p.1).

The community college has been viewed as a haven for adult learners, as the administration often understands the need for treating this population with the respect due to customers in need of fee-based services (Kilgore & Rice, 2003). Ayers, Miller-Dyce and Carlone (2008) addressed the role of customer service by detailing the needs of seventeen nontraditional students, who found themselves seeking education in the form of job training. Using critical theory, the authors studied the needs of this group of individuals who had suffered from being thrown back to the base of Maslow’s Hierarchy of Needs (Maslow, 1943), losing the safety found in job security. Critical theory (Conquergood, 1991) was cited as a means of freeing individuals from binding situations, which was appropriate for this study. Ayers, Miller-Dyce and Carlone (2008) devised a qualitative method that allowed the students to reflect on their current situations, along with encouraging them to reveal their future hopes, in regard to the training they were currently receiving. Viewing the results, the researchers found that these students enrolled in the programs for reasons of gaining security, self-worth, loving relationships and purpose-driven careers (Ayers et al., 2008).

The findings from this study were to be used in program planning, with consideration given to the needs of the adult learner. As sixteen of the participants were women, it was concluded that women’s needs are of vital importance in planning programs within the community colleges (Ayers et al., 2008). To meet the security needs, programs were encouraged to provide job training that would provide marketable skills, so that the graduates would have the knowledge that would transfer into the job market. The women did not express an interest in lifelong learning, rather focusing on education as a means to an end. They were interested in
gaining employment, then moving on to other areas of their lives, outside of education; this is consistent with the phase of life in which they had found themselves, where education was considered a necessity, rather than a pathway to self-actualization (Bash, 2003, Kilgore & Rice, 2003). The recommendations of the Ayers, Miller-Dyce and Carlone (2008) research were: (a) programs need to plan coursework democratically, allowing the students to participate in the planning process; (b) they need to listen compassionately, carefully considering the needs of the students; and (c) they need to acknowledge competing interests, as the adult learner has many other time constraints.

O’Donnell and Tobbell (2007) acknowledged that globally, a large percentage of adults are attending institutions of higher education. Taking this knowledge, the pair researched the perceptions of a group of seventeen non-traditional students in the United Kingdom, all of whom were participants in a program intended to transition the adult learner into the university setting. They cited the Community of Practice Framework (Fontaine, 2001, Lesser & Everest, 2001, Lesser & Storck, 2001), to understand the needs of the adult learner in transitioning to higher education. This framework theorizes that the various communities in which adults find themselves to be engaged are interwoven, and that success for adults will come when they feel that the educational institution has taken their other communities into consideration. The authors used qualitative data analysis, focusing on the feelings of the students as they transitioned from their previous roles into the roles found within the educational experience. The findings were that the adults perceived themselves to be on the periphery of the educational experience, and only through heavier involvement would they actually find their identities as students. The authors suggested that institutions of higher education need to provide more experiences for the adult learners, to encourage more active participation in student activities.
Patterson and Mellard (2007) cited a research study that covered a period of four years, looking into the institutional practices that could predict positive learner outcomes for the adult audience. The researched institutions offered adult education services funded through the Adult Education and Family Literacy Act (AEFLA) of 1998 (Patterson & Mellard, 2007). Due to the reporting requirements attached to federal funding, standardized data was available throughout this study. Predictors of learning success were identified through a thorough review of the available literature, including areas such as staff preparation, policies and procedures. A surprising finding was that there were no consistent predictors for learner success, as the results fluctuated yearly. The conclusion of the authors was that programs with a variety of experiences for adults had the greatest chances for learner success in academics.

**Learners**

According to Kilgore and Rice (2003), there are several very real differences between the adult and secondary students. As for the age, the range of 18-24 would be defined as the traditional young adult student, while the non-traditional learner would be anyone over 25 years of age (Bash, 2003, Commission for a Nation of Lifelong Learning, 1997, Kasworm, 2003). Maturity levels range vastly, dependent upon the levels of financial, familial, career and school responsibilities. Furthermore, the differences in roles are great, as the adult student may serve in many capacities, such as a parent, an employee, a caregiver for aging parents, a school volunteer, etc., along with being a student. In contrast, the secondary student has few roles, due to his or her life experiences and perceived expectations. While there are several differing factors defining both the secondary and the adult learner, there are similarities between the two groups, as well. The literature reviewed the criteria that define the adult learner and the secondary learner, along with noting the qualities that overlap into both areas.
Adult Learners

Criteria about the adult learner are outlined in the basic assumptions by Malcolm Knowles’ (1975, 1978, 1984, 1989, 1990): (a) the need to know, (b) the learner’s self-concept, (c) the role of the learners’ experiences, (d) readiness to learn, (e) orientation to learning, and (f) motivation. From the beginning of the adult learning experience, adults have a need to know why the information presented is important to their lives, along with both the positives and the negative consequences of adding the material to their existing knowledge bases. Adults are goal-oriented and need to understand the relevancy and practicality of the information to be learned, as they apply new information towards previously-set goals.

The second assumption is that adults have a self-concept that demands the respect due to individuals who are seen as proficient at initiating the learning experience. The adult student sees the teacher as a facilitator of knowledge, one who guides the participants towards self-directed learning and acquisition of their goals. Adults learn better in a personal and informal environment, in which group interaction is utilized and encouraged (Apps, 1991, Bash, 2003, Kilgore & Rice, 2003, Knowles, 2005). Adults require timely and constructive feedback as a reinforcement of content learned. They need to feel respected, not as if they are in a situation in which the instructor is the only one with any valuable knowledge. As the term lifelong learner denotes, adults are developing learners, all of whom are at varying stages and abilities (Hiemstra, 1980, 1991, Grow, 1991).

Real-life application of knowledge is equally important in the third, fourth and fifth assumptions about the adult learner. The adult learner brings many life experiences to the classroom, emphasizing the need for individualization of instruction, along with a readiness to learn that is reliant on real-life application of knowledge. Furthermore, adults have an
orientation to learning that relies on tasks that are meaningful to the situations found in their daily lives (Knowles, 2005). Looking beyond the scope of pedagogy, and focusing on the andragogical needs of the adult learner, has allowed educators to focus on the individuals who come to them for guidance.

Knowles’ (1984) sixth assumption addressed the motivation of the adult learner. Adults are responsive to extrinsic motivators, but are more likely to be motivated through the intrinsic pressures placed on themselves, such as the desire for a greater quality of life or higher self-esteem (Knowles, 2005). Due to motivating factors and life experiences, the adult learner is inclined to be more self-directed, taking an active role in the learning process (Apps, 1991, Bash, 2003, Kelly, 2006, Kilgore & Rice, 2003).

In referencing the motivational factors behind an adult’s return to education, one would find that the majority of learners have returned in response to a life change. Fifty-plus percent are striving for career enhancements, while others are deriving a personal satisfaction in obtaining information that may help them in coping with current stressors in their lives (Zemke & Zemke, 1984, 1995). For those who perceive knowledge as empowering, learning is related to very specific materials, those that will prove to be applicable to a career move, a life-changing event, or simply in applying new skills to one’s current position (Knowles, 2005).

There are sociological reasons that precipitate a lack of adult participation in adult classrooms. According to Merriam, Caffarella & Baumgartner (2007) there are invisible psychological barriers that stem from previous experiences, along with the social barriers of familial educational history, teenage pregnancies and socioeconomic status (Merriam et al, 2007), that form an obstruction to education that is hard to break through. Learning is a process that brings about some form of change, enabling the recipient to become more adept at accepting
knowledge at increasingly higher levels of intelligence. As the ultimate goal of learning is self-actualization (Knowles et al., 2005), the learner must choose to overcome anxieties and the allure of the safety of sameness, then extend himself to receive information that will bring about the change of self-awareness and enlightenment.

Secondary Learners

The secondary learner is perceived as dependent on an instructor for the information needed to succeed, a learner who only needs to acquire the information necessary for a passing grade (Knowles et al., 2005). The student heavily relies upon the teacher, who directs all aspects of learning, and tests students to see if learning has occurred. The student is not concerned about how the learned content will apply towards his or her future life (Knowles et al., 2005).

Clark & Starr (1996) referred to motivation as the basis for students’ actions at the secondary level. The secondary instructor has the responsibility to find those motivating factors, to provide an atmosphere that is conducive to learning. At the secondary level, the students are motivated to learn through extrinsic means of grades, parental expectations, teacher/student relationship, etc. (Knowles et al., 2005). Traditionally, the learner’s experiences are seen as having little worth to the current reception of knowledge, as children have so few experiences that are relevant to what is being taught. The student is viewed as a blank slate awaiting the instructor’s knowledge to add to his future experiential base (Kelly, 2006). A secondary student sees his primary role as being a student and learner, in contrast to his adult counterpart, who assumes many roles (Kilgore & Rice, 2003).

Adult/Secondary Overlap

There are those adult learners who still have a pedagogical self-concept, as life experiences have made them more dependent and in need of guidance (Knowles, Holton &
Swanson, 2005). These students need transitioning into the higher education arena through means of transformational learning (Kilgore & Rice, 2003), in which they can learn to forgo earlier experiences and realize that they are capable of constructing knowledge for themselves.

In the pedagogy of secondary education, experience is now perceived as more valid, with many instructors utilizing learner-centered curricula (Clark & Starr, 1996). In contrast, many college-level classrooms can be found to have instructors lecturing from the podium, with little regard to the students’ experiences and prior knowledge bases (Apps, 1991).

All learners have the need to be respected, for their contributions to be considered valid. Furthermore, both secondary and adult learners have multiple learning styles and need to be taught through a variety of methods after a series of comprehensive needs assessments (Kelly, 2006). Students of all ages need to be engaged in lively discussions and active learning techniques regularly to allow for the experiential learning to increase in both audiences (Bowman, 2005, Kelly, 2006).

**Learning Theories**

The following sections address learning theories that apply to both adult and secondary learners. The literature review investigated the similarities and the differences between andragogy and pedagogy.

**Adult Learning Theory**

Malcolm Knowles (1970, 1980, 1984, 2005) created the term andragogy to describe the theory of adult learning or learner-centered theory. His book, *The Adult Learner*, addresses teaching beyond pedagogy, and has become a resource that provides motivations and goals specific to the educational needs of the adult student (Knowles et al., 2005). Knowles (1970, 1980, 1984, 2005) based many of his beliefs about adult education on the philosophy of
humanism, as he believed that adult education should come in the forms of facilitated and self-directed learning. Knowles is credited for providing a structure for adult education, and for strengthening andragogy through his years of research and publishing of texts that deal directly with the adult learner (Reischmann, 2004). Andragogy includes meeting the individual needs of the adult learners through appealing to the desire for active learning techniques that are geared specifically to the backgrounds of the audience members, providing for the individual differences that increase with the ages of the learners (Knowles et al., 2005) and allowing the needed time for self-directed learning. Therefore, andragogy is considered to be a learner-centered educational theory.

Secondary Learning Theory

Pedagogy, the study of how children learn, is traditionally considered to be teacher-centered. However, current trends in secondary education emphasize learning through more than one of the senses, or teaching that is more learner-centered (Clark & Starr, 1996):

1. Vicarious learning would be learning through someone else’s experiences, such as through a lecture, power point, and personal stories.
2. Direct learning refers to learning through personal experiences, such as an apprenticeship program, in which a student learns through valuable on-the-job experience.
3. Realistic learning may be seen on a grander scale, as the instructor strives to teach only meaningful material to the students; this type of learning is most efficient, as the brain is more likely to receive the information that is meaningful to the learner.

Learning styles are of high importance in the modern secondary classroom, as every child presents a new, individualized situation (Clark & Starr, 1996). Quality instructors realize that teaching must be student-centered, as all children learn at differing rates of ability. Children
have multiple intelligences, and rely on the strengths of their senses; some are visual learners, or auditory, or even kinesthetic, in which their learning needs are met through their physical sense. The challenge to the modern instructor is to provide many active learning techniques, mixed in with lectures, discussions, and lessons through technology.

**Adult/Secondary Learning Theory Overlap**

Originally seen as two distinct entities, andragogy and pedagogy are now seen as two parts of a spectrum. Pedagogy can be found at the beginning of the spectrum, with andragogy being found at the end. The distinguishing factors continue to be the amounts of experiences that are brought to the learning experience and the amount of control that the learner has over the experience and the environment (Knowles et al., 2005, Merriam et al., 2007).

**Best Practices**

Best practice implies work in a field that has standards and expectations of professionals who provide high quality services with ties to current research and technology (Zemelman, Daniels & Hyde, 1998). The field of education has its own set of best practice recommendations, which the literature review investigate along the educational continuum of pedagogy—andragogy.

**Adult Education Best Practice**

When adult learners are involved in setting their personal educational goals, they become more motivated, self-regulated learners (Gredler, Schwartz & Davis, 1996, Zimmerman, 1989). Knowles (2005) discussed the importance of curriculum flexibility while teaching adults, once the goals of the students have been ascertained by the instructor. Knowing that adults need to understand how the content learned will apply towards their goals, the instructor should clearly define educational objectives at the beginning of each session. Sequenced by the students’
readiness to learn, the facilitator plans learning projects which are based on learning contracts made between student and teacher (Knowles, 1980, 1984 and 2005).

While it is true that the instructor must focus on individual needs, the curriculum should not be based solely on those criteria (Apps, 1991). There are times when focusing on the group as a whole is more appropriate, or the class may begin to stagnate. Placing one’s focus completely on the individual would keep the class from experiencing a more global perspective in which the group may have one voice in course topic decisions and curriculum design. Instead, the adult instructor must provide a balanced level of instruction that would mean planning activities for the whole group, small group, partnering and individual, all of which will aid in developing a nurturing environment that will prove to be conducive to learning (Alexander, 2000).

Research in adult learning recognizes the role of the experiential base and critical reflection (Boud, Keogh, & Walker, 1985, Boud & Walker, 1998). The experience of the student is vital in planning curriculum for the adult learner. Much can be learned from discussion among peer groups, in which a diverse group of adult learners share freely about individual experiences (Fogarty & Pete, 2004). Learning is most effective when it is self-initiated, and at the individual’s pace; therefore, independent study should be encouraged (Merriam & Brockett, 1997). Instructors need to find out the motivational factors behind their students’ continued education, to meet their learning needs more effectively (Zemke & Zemke, 1984, 1995).

Current recommendations for the adult education instructor include encouraging more usage of technology in the classroom, along with focusing on making the environment itself more conducive to learning. Providing a comfortable environment is pertinent for the adult
learner to experience success. Having ample lighting, ensuring appropriate temperatures, providing the occasional social situation and ensuring frequent breaks will all prove beneficial to the adult learner’s specific needs (Kruidnenier, 2002, Sticht, 2007).

When working with students with low literacy skills, the instructor must first present the material in ways that require little or no reading (Alexander, 2000). Summarizing instructions verbally, along with giving directions both verbally and in writing will improve the comfort level of the most reluctant adult learner. If the reading material is written at a level higher than the students’ abilities, the instructor must shorten the sentences and use vocabulary that is appropriate to the learning situation.

**Secondary Education Best Practice**

Traditional learning uses the behavioral practice of utilizing extrinsic motivators, such as praise and rewards, which may lead to a dependency on external factors and a lack of confidence in one’s abilities (Bolhuis, 2003). The pedagogical curriculum follows a logical sequence of subject matter, as the teacher plans instruction around a course syllabus and units of study.

Clark & Starr (1996) emphasize the teacher-pupil model for planning of curriculum that encourages the student to be an active facilitator of his own learning, providing input concerning topics to be studied, research to be done, and goals to be met. This form of instruction provides experiences that would prove to be highly valuable to the students, as they would have ultimate ownership of the materials presented.

CTE instruction combines academic preparation and technical preparation in the secondary setting, to meet the needs of individual students. According to Wonacott (2002), best practice in CTE includes (a) articulation agreements with community colleges, so that CTE courses can equate to college course offerings, (b) additional support in the form of scholarships,
(c) long-term guidance systems involving teacher mentors, student self-assessments, and parental interaction, and (d) CTE and academic teachers partnering to better understand each other’s subject areas. To further illustrate CTE best practices, the Arkansas Department of Workforce Services issues a publication, *Career Watch Arkansas 2009-2010*, to the state secondary students, to encourage early awareness about the training and education that each career entails. This journal emphasized the importance of professionalism, interview skills, resume writing, career pathways, and real-life application of skills. The Arkansas Department of Career Education (2011) recommended best practice strategies in the form of CTE student organizations as well, emphasizing the importance of engaging students in extracurricular activities that develop leadership abilities and encourage application of content learned in the classroom.

**Adult/Secondary Education Best Practice Overlap**

Just as understanding the stages of child development aids in pedagogical practices, understanding the stages of the adult life will be vital to providing appropriate andragogical experiences (Merriam & Brockett, 1997). Becoming knowledgeable about the various transitions and stages that students may face over the course of a lifetime will certainly assist the educator in planning meaningful experiences intent on causing learning to occur.

Several research studies have investigated the differences between teaching styles in secondary and adult education, in which instructors expressed the belief that adult learners are significantly different than children (Beder & Darkenwald, 1982, Imel, 1995, Gorham, 1984, 1985). However, one of the studies found that those teachers who were most flexible and learner-centered exhibited the same traits with both adult and preadult classes (Gorham, 1985). While teachers may believe that adults are significantly different than secondary students, this is not always reflected in their teaching styles (Imel, 1995).
Adults and secondary students both bring varied life experiences to the classroom. Therefore, it is now considered best-practice to use the andragogical concept of linking prior knowledge to new experiences in both secondary and adult education (Knowles, 2005). There are several strategies utilized in the adult learning classroom that may be found at the earlier levels as well, with the intent of assessing prior knowledge (Alexander, 2000, Bowman, 2005): (a) a pre-assessment quiz is a useful tool for understanding the breadth of knowledge that students have about a topic prior to the lesson being taught; (b) using a KWL chart is another way, in which the facilitator asks learners what they already KNOW about a concept, what they WANT to know, and at the end of the lesson, what they LEARNED; (c) having the students write about prior knowledge about a subject via a writing prompt is useful; and (d) utilizing discussion starters prior to teaching is also valid for both the secondary and adult classrooms. Assessing prior knowledge at all levels enables the instructor to modify learning for the individuals, using the students’ previous experiences in adapting the curriculum to meet the needs of all learners.

Education at all stages should encourage participants to become lifelong learners, in an attempt to encourage transformative learning and a change of mindsets (Bjorklund, 2008, Fischer, 2001, Merriam & Brockett, 1997, Ross-Gordon, 2003, Torres, 2002). Lifelong learning involves learners of all ages in authentic tasks that require self-directed engagement, resulting in the acquisition of new skills and information. In order to achieve this level of self-directed lifelong learning, the process of critical thinking must be introduced to the learners, making them aware of the options that an increased education can bring to their lives (Apps, 1991). The adult education principle of prior knowledge can be referenced here (Knowles, 2005), as so many basic learners are in situations strictly because of previous educational misgivings that have kept
them at a basic level of learning readiness: For this basic adult and secondary learner, pedagogical tools will prove to be most successful (Apps, 1991). Tools such as cooperative groupings, technology-driven presentations and literature circles may all be found in the modern pedagogically-creative classroom; these very same tools may be found in the classroom of the adult educator who has proven to be learner-centered. Furthermore, best practice strategies that overlap from secondary to adult education may bring about changes necessary for career development (Taylor, 1998). The instructor should provide (a) conditions that promote a sense of personal well-being, (b) learner-centered approaches for instruction delivery, and (c) exploration activities, for self-directed learning.

According to Hammond & Collins (1991), lifelong learners are self-directed learners. These individuals take charge of their own learning, with the cooperation of others, for the purposes of increasing social awareness, critical reflection, and being the diagnostician of their own learning needs. While motivation is essentially intrinsic, there are extrinsic tools that could be used to inspire the motivation needed to become a lifelong learner. The educator must refer to the four key elements of motivation: (a) interesting, (b) linked to prior experiences, (c) useful to the learners’ lives, and (d) positive emotionally (Bowman, 2005). Instruction at all levels should be designed to articulate both horizontally and vertically, continually building on prior knowledge and experiences.

**Future of Education for Adult Workers**

“Learning is the basis for future progress in society” (Gredler, 2009, p. 3). Lifelong learning is now recognized as one of the most fundamental dispositions that a person should possess (Collins, 2009, Bash, 2003). The global challenge is to promote lifelong learning as a dynamic, self-directed, personally and professionally-fulfilling realm of education. Due to the
very nature of the world in which the modern individual lives, the Information Age now dictates that there will be a constant need to renew, investigate and expand the existing knowledge base (Duyff, 1999). The Commission for a Nation of Lifelong Learners (1997), in the report *A Nation Learning: Vision for the 21st Century*, offered a definition of lifelong learning that emphasized supporting individuals as they attempt to empower themselves through the acquisition of knowledge and skillsets that will enhance their lives in all circumstances. To that end, educators must prepare the 21st century student to be a self-directed, socially-responsible citizen who is capable of self-reflection and critical thinking in the workforce, to ensure personal and professional lifelong success.

**Summary**

A systematic literature review of the University of Arkansas online library databases and adult learning texts was conducted for topics pertinent to the current research on the adult worker’s perceptions of the residual effects of quality career technical education experiences. Key words that applied to the literature review subheadings were utilized and over ninety articles/texts met the criteria for review. Despite the attention given to the importance of career technical education, few studies have investigated the lasting effects of the experiences on the adult workers (Alamprese, 1998, Lewis, 2008). As this need is addressed, more programs will be evaluated.

A current trend in evaluation of adult education programs is to measure performance from the learner’s perspective, not just base it on outcomes such as obtaining a GED, gaining employment, etc. In a recent study of a Tennessee program, participants who were questioned about their experiences in adult education detailed qualitative outcomes such as improved self-esteem and broader ranges of literacy uses, reflecting on the improved quality of their lives.
through education (Bingman, Ebert & Bell, 2000). Morgan Lewis’ research (2008) indicates that goals in CTE are not being met, as fewer than 20 percent of technical prep participants are completing two-year degrees or the credential attached to their program of study. Research is warranted, as there are no current findings documenting research of technical education benefits past the community college level.
Chapter Three

METHODOLOGY

Research investigating the adult worker’s perceptions of the residual effects of quality career education was approached through a pragmatic worldview, defining the research problem and then using all available data to achieve understanding (Creswell, 2009). Understanding has been found through assessing extant data available in the Arkansas Department of Career Education database and utilizing reflective semi-structured interviews with former secondary career technical education (CTE) students. Pragmatism lends itself to the mixed-methods approach, in which quantitative and qualitative inquiry methods produce evidence to support best practice strategies (Shaw, Connelly & Zecevic, 2010).

Research Design

The sequential, mixed methods research used the framework of a relational study (Diem, 2002), to investigate the adult worker’s prior engagement in transformative career educational opportunities and current career choices. Phase One of this study included a comparative analysis of Arkansas’ secondary technical education centers, to identify the top-performing centers based on student performance success indicators. The completers from the top-performing centers were the population for Phase Two of the study. The former participants, who are now adult workers, reflected through an interview process on key strategies that align with adult learning best practices and have had potentially long-term effects on their lives. Therefore, this framework provided a basis for establishing the connections between the secondary technical education programs’ best practice strategies and the professional pathways that the adult learners have chosen to pursue upon completion of their chosen programs.
The theoretical lens through which the data has been viewed is a combination of Super’s theory of career development and Mezirow’s transformational learning theory, in advocating the empowerment of the individual through improved career educational practices and changes in self. Transformative learning is value-based and action-oriented. This design is appropriate, as the researcher focused on action-based strategies identified by adult workers as having had impact in their work lives.

**Researcher’s Role Management**

The researcher has been the key instrument (Creswell, 2009), collecting data via semi-structured interviews with adult workers who were former participants of the top-performing CTE centers. Interview protocol was followed (see Appendix A), with the researcher collecting adult workers’ reflections on their experiences in secondary technical education and post-secondary career education opportunities.

The researcher has had direct contact within a CTE center, working as both an instructor and an administrator of CTE classes leading to an Associate of Applied Science degree, during the years 2005-2010. This background knowledge could lead to a tendency to profile the type of students who attend CTE classes; therefore, the researcher has taken every effort to objectify the research. In identifying the top performing centers in five geographic regions, students who were former participants in the 2004-2005 academic years were accessed, thus eliminating the validity threat involved in researching programs in which the researcher had a connection (Glesne & Peshkin, 1992).

It is the researcher’s belief that technical education empowers individuals to rise above current environmental situations: Consequently, this research has been approached as a tool for providing improved educational practices for a state in which the current completion rate of two
year colleges is 17 percent—a rate that is credited as being the result of under-preparedness at the Arkansas high school level (“Arkansas Public College”, 2010).

**Research Strategy**

The research strategy has followed a sequential mixed-methods approach (Creswell, 2009). Phase One involved quantitative data based on student performance success indicators. Phase Two involved qualitative data gathered from the adult workers who were identified in Phase One. The interviews included both open- and closed-ended questions, with statistical analyses to determine the relationship between several of the closed-ended questions/variables.

**Establishing Trustworthiness**

Permission was sought from the Arkansas Department of Career Education, to gain access to extant data which gave the student performance success indicators in the different CTE centers (see Appendix B). Then, in accordance with the University of Arkansas’ Institutional Review Board (IRB) policies, permission was requested and received to conduct research with the identified human subjects (see Appendix C). Upon receiving permission from both the Arkansas Department of Career Education administration and the IRB, the researcher attended the CTE center directors’ meeting in February, to share the current research details (see Appendix D). Each director was provided the letter of permission (see Appendix B), and the CTE center directors were very open to the idea of investigating the lasting effects of secondary career technical education. The researcher addressed several concerns, assuring the audience that strict confidentiality protocol would be utilized, and many of the directors then seemed willing to contribute their former students’ contact information.

After attending the CTE center directors’ meeting, e-mails were sent to all twenty-four center directors, to officially request the contact information of their former students. Each e-
mail included the attachments of (a) the Department of Career Education letter of permission, (b) the letter of approval from the University of Arkansas IRB, and (c) the current research details (see Appendices B, C and D).

During the actual interviewing process, all conversations were recorded and transcribed verbatim upon completion. Furthermore, an informed consent form was included in the interview protocol that was verbally acknowledged by each willing participant. Lastly, all participants have been given access to research findings, if requested (see Appendices A and E).

Interviews of human subjects may be interpreted as moral inquiry, with intentions to enhance both scientific knowledge and the human condition (Kvale, 2007). As previously stated, the interviews contained both closed- and open-ended questions, to provide material for statistical analyses and for reflections of self. If at any time the participant had become uncomfortable with the line of questioning, he/she had the option of discontinuing the interview. The researcher has striven to ascertain the human condition, noting times of stress and discomfort, and hastened to make the participant comfortable with the intent of the research. The confidentiality of all participants has been protected by assigning numbers and/or pseudonyms to each interviewee.

**Managing and Recording Data**

Research sites included the twenty-four secondary CTE centers in Arkansas, which were comparatively analyzed to determine the top performers based in each state-determined geographic region (see Table 1). After identifying the top performing CTE centers in phase one, students who were completers in the academic years of 2003-2004 and 2004-2005 were included as subjects in phase two, as these were the first two years in which student performance success indicator data were submitted to the Arkansas Department of Career Education (see Appendix B).
## Table 1

**Arkansas’ Secondary Technical Education Centers within the Geographic Regions**

<table>
<thead>
<tr>
<th>NORTHEAST</th>
<th>SOUTHWEST</th>
<th>SOUTHEAST</th>
<th>CENTRAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area Career &amp; Technical Center (Russellville – Pope Co.)</td>
<td>Arkansas Northeastern College Technical Center (Burdette – Mississippi Co.)</td>
<td>DeQueen/Mena Cooperative Technical Education Center (Gillham – Sevier Co.)</td>
<td>Conway Area Career Center (Conway – Faulkner Co.)</td>
</tr>
<tr>
<td>NorthArk Technical Center (Harrison – Boone Co.)</td>
<td>Arkansas State University-Searcy Regional Career Center (Searcy – White Co.)</td>
<td>Ouachita Area Career Center (Malvern – Hot Spring Co.)</td>
<td>Metropolitan Career and Technical Center (Little Rock – Pulaski Co.)</td>
</tr>
<tr>
<td>North Central Career Center (Leslie – Searcy Co.)</td>
<td>Mid-South Community College Technical Center (West Memphis – Crittenden Co.)</td>
<td>SAU Tech Career Academy (Camden – Ouachita Co.)</td>
<td>National Park Technology Center (Hot Springs – Garland Co.)</td>
</tr>
<tr>
<td>Northwest Arkansas Community College Regional Technical Center (Fayetteville – Washington Co.)</td>
<td>Northeast Arkansas Career &amp; Technical Center (Formerly Area Technical Center-Jonesboro) (Jonesboro – Craighead Co.)</td>
<td>South Arkansas Community College Secondary Technical Center (El Dorado – Union Co.)</td>
<td>Phillips Community College Career and Technical Center (Stuttgart – Arkansas Co.)</td>
</tr>
<tr>
<td>River Valley Technical Center (Morrilton – Conway Co.)</td>
<td>Texarkana Area Vocational Center (Texarkana – Miller Co.)</td>
<td>Southeast Arkansas Community Based Education Center (Warren – Bradley Co.)</td>
<td>Saline County Career Center (Bauxite – Saline Co.)</td>
</tr>
<tr>
<td>Western Arkansas Technical Center (Fort Smith – Sebastian Co.)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Students from the previously-mentioned school years were contacted for telephone interviews, using the contact information provided by the centers. The interviews were semi-structured in form (see Appendices A and E) and were audio recorded and transcribed verbatim,
upon completion. The interview items contained descriptive statistics, along with quantitative questions required for relational statistical analyses. The bulk of the interview questions, however, contained qualitative items requiring reflection of past experiences in the CTE centers. The reflections have been coded, to locate themes and indicators of the lasting effects of quality CTE experiences. Furthermore, reflections of adult career educational experiences have been investigated, to determine the effects of the participants’ post-secondary career pathways. Using the traditional social science approach, all of the adult workers’ perceptions, both secondary and post-secondary, have been grouped and coded according to emerging themes (Creswell, 2007 & 2009, Rossman & Rallis, 2003).

**Selection of Subjects**

Phase One population of the study included the twenty-four Arkansas area secondary technical education centers, which were comparatively analyzed using extant data from the Arkansas Department of Career Education. Divided into geographic regions, 18 of the centers were defined as top-performers, as measured by student performance success indicators found in the extant database. After meeting with the secondary CTE center directors in February, the researcher sent out e-mails to the directors, to officially request the contact information for the students identified as program completers during the years of 2003-2004 and 2004-2005. While 18 of the centers were identified as top-performers, all 24 of the CTE center directors were contacted with the request for information, which maintained confidentiality with the top-performing centers.

In Phase Two, it was the researcher’s intent to interview all adult workers who completed programs of study in the top-performing centers during the years of 2003-2004 and 2004-2005. However, the large number of participants included in the overall population made
randomization of subjects a more feasible option. Four of the five state regions in Arkansas were represented in the collection of submitted databases and the researcher began by selecting subjects through randomizing within the stratification of regional subsets, keeping the numbers proportionate within the stratification. Two of the five databases submitted by the CTE secondary centers had contact information that included participants’ names, addresses, telephone numbers and school district. The other three contained names, addresses and school districts. The majority of the data reflected the contact information that was available at the time the adult worker attended the CTE secondary center.

The researcher attempted to contact the randomized participants via cold-calling those who were listed with their telephone numbers. After multiple failed attempts at contacting the randomized participants, the researcher began going through the entire lists of names, attempting to find each former CTE student on the social networking site, Facebook. The popular social networking tool publicly announced in July, 2011 that 750 million users were currently using the site, which made Facebook a viable research tool for accessing participants for the current research (Swartz, 2011). All male names were searched, using the Facebook filter for hometown or schools attended. Females were more difficult to access, as many surnames had been changed: The search for females was filtered by using the females’ first names, along with the added filter of searching for the high school attended or the claimed hometown. A request for an interview was sent to each subject found on Facebook, utilizing their Facebook message inboxes (see Appendix F). When participants responded with questions about the research, the researcher was able to answer any concerns, prior to the telephone interview. As a participant would agree to an interview, he/she would send his or her contact telephone number to the researcher’s Facebook inbox, along with preferred times to be interviewed.
Finally, when interviews were still needed within a region whose participants were not responding to Facebook inbox requests, the researcher returned to the previous cold-calling technique, attempting to call every participant who was listed with a telephone number. The majority of numbers were either disconnected or simply incorrect; however, several of the participants’ parents were found using the telephone numbers and they were able to pass on current participant contact information to the researcher. Fifty-four telephone numbers were provided by two of the top-performing centers. Four were current participant contact numbers and five more of the telephone numbers were answered by the former CTE students’ parents, resulting in 16.7 percent useful telephone contacts. In total, 29 adult workers, who were former participants in the secondary CTE centers, agreed to participate in the interview process.

**Instrumentation**

The researcher was the instrument in accessing and analyzing the qualitative data: An Interview Guide was prepared for use with the adult workers, with items pertaining to descriptive statistics, along with open-response questions pertaining to chosen career field, educational level, career technical education opportunities, adult learning opportunities, and perceptions of prior experiences and current success. Interview protocol, a guide for collecting and recording responses, was followed, for protection of human subjects. The interview questions were asked of the sampling of adult workers who participated in top-performing Arkansas centers between the years of 2003-2004 and 2004-2005.

The researcher interviewed adult workers who were former CTE participants, to locate elements of transformative learning evident in the methods of top-performing secondary technical education centers (see Appendix E). This is appropriate for the current research, which utilized a series of questions to bring about differing levels of Mezirow-inspired critical
reflection. A question centered on learner-centered strategies such as (a) setting specific learning objectives, (b) utilizing critical thinking exercises, (c) providing cooperative learning opportunities, (d) balancing lecture with reflective discussion, and (e) encouraging critical reflection was included in the interview guide for the current research, in hopes of identifying participants who were provided transformative learning opportunities (Rademacher, 2005).

The researcher included a question within the interview guide that focused on the transitions to college and the workforce, by asking if the following professional pathways were made available to the participants: (a) college credit for courses taken, and if credit applied towards an AAS degree and beyond, (b) scholarships, (c) professional certifications, (d) certificates of proficiency, and (e) technical certificates. An open-response question encouraged reflection on how the technical programs of study prepared the students for the workforce, as well. Seven questions on the current research interview guide encouraged reflections on CTE best practices, in an effort to narrow strategies that were perceived to be useful by the former participants of CTE secondary centers.

**Data Collection**

Prior to the interview process, the researcher conducted a literature review to gain a full understanding behind (a) career development theory, (b) transformative learning, (c) adult and secondary learners, theories and applications and (d) the future of the adult worker. The literature revealed that while career technical education is perceived as having transformative value and is pertinent to career development theory, very little research has been conducted on the lasting effects of the experiences. The students in prior studies have been tracked through the two-year level, but no studies could be found that had contacted adults in the workforce, to investigate their perceptions of earlier secondary technical education experiences.
In phase one, extant quantitative data provided by the Arkansas Department of Career Education included the following performance indicators ("Arkansas Department," 2010): (a) academic skill attainment, as determined by combining and averaging the scores of the CTE students’ state-mandated testing of geometry and literacy knowledge; (b) career technical skill attainment as determined by the number of participants who scored proficient on the end-of-course exams in the chosen program of study; (c) high school graduation rates of center participants; (d) program completion rates, including graduates who successfully completed three or more units of credit within a program of study, including all the core requirements for that program of study; and (e) placement rates, including placements in post-secondary education, the military, or employment.

In phase two, qualitative data relating to the lasting effects of quality career education on the adult worker were accessed via interviews with 29 adult workers who participated in the top-performing secondary technical centers between the years of 2003-2004 and 2004-2005. The researcher was the instrument for collecting data through interview. An informed consent document, with verbal acknowledgement by each person who agreed to participate in the interview procedure, was used in accordance with the University of Arkansas IRB approval process. After the top-performing centers were identified, the former participants were contacted through e-mail, Facebook and telephone to obtain permission to conduct a telephone interview. All interviews were completed with computer technology, using Skype to make the calls themselves and recording the call using Pamela for Skype. The interviews were transcribed verbatim during the analysis procedure, utilizing the Dragon Naturally Speaking computer software program. Member checks—revisiting with the interviewees to have them look over the transcriptions for accuracy—occurred with each interview. After the researcher had transcribed
all interviews, every participant was contacted via his or her Facebook inbox, e-mail or telephone number, to offer submission of his or her interview transcript for approval. Out of 29 interviewees, 15, or 51.7 percent, agreed to check their interview transcripts for accuracy. According to Creswell (2007), this process provides the external check needed to verify the research procedures chosen.

**Data Analysis**

The extant quantitative data in phase one was analyzed by dividing each CTE student performance success indicator (Academic Skill Attainment, Career Technical Skill Attainment, High School Graduation Rates, Program Completion Rates, and Placement Rates) by its accompanying state benchmark, to provide a normalized view of the scores (Glass & Hopkins, 1996). The normalized CTE center scores were then summed and averaged, to provide a mean score for the individual centers. 2004-2005 was the first academic year to require reporting of student success indicators; however, academic skill attainment was not reported until 2005-2006. The mean scores of all six years of extant data were summed and averaged, to provide a mean of the centers’ total student performance success indicators. The mean scores of each center were then plotted in a CTE centers matrix, to be comparatively analyzed by region. If the mean score of a center was .95 or above, then the center had met or exceeded the majority of state benchmark scores during the six years of data, and could be identified as a top-performer. The top-performing centers are shown in Table 2.

The qualitative data in phase two were analyzed through coding the transcriptions of individual interviews with the adult workers, creating clusters of applicable strategies and themes which defined improved teaching strategies which translated to the adult learning model (Creswell, 2007). A code book was developed for the coding strategies that emerged—the same
strategies determined the residual effects of quality technical career education on the lives of
former participants. The complete data analysis matrix can be found in Table 3.

Table 2

Arkansas’ Top-Performing Secondary Technical Education Centers Within the Geographic Regions

<table>
<thead>
<tr>
<th>NORTHWEST</th>
<th>NORTHEAST</th>
<th>SOUTHWEST</th>
<th>SOUTHEAST</th>
<th>CENTRAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>Area Career &amp; Technical Center (Russellville – Pope Co.)</td>
<td>Northeast Arkansas Career &amp; Technical Center (Formerly Area Technical Center-Jonesboro) (Jonesboro – Craighead Co.)</td>
<td>South Arkansas Community College Secondary Technical Center (El Dorado – Union County)</td>
<td>Southeast Arkansas Community Based Education Center (Warren – Bradley Co.)</td>
<td>Saline County Career Center (Bauxite – Saline Co.)</td>
</tr>
<tr>
<td>NWA Community College Regional Technical Center (Fayetteville – Washington County)</td>
<td>ASU-Searcy Career Technical Center (Searcy – White County)</td>
<td>DeQueen/Mena Cooperative Technical Education Center (Gillham – Sevier County)</td>
<td>Jefferson Area Vocational Center (Pine Bluff – Jefferson County)</td>
<td>Conway Area Career Center (Conway – Faulkner County)</td>
</tr>
<tr>
<td>Western Arkansas Technical Center (Fort Smith – Sebastian County)</td>
<td>Mid-South Community College Technical Center (West Memphis – Crittenden County)</td>
<td>SAU Tech Career Academy (Camden – Ouachita Co.)</td>
<td></td>
<td>National Park Technical Center (Hot Springs – Garland County)</td>
</tr>
<tr>
<td>River Valley Technical Center (Morrilton – Conway County)</td>
<td>Ouachita Area Career Center (Malvern – Hot Springs County)</td>
<td></td>
<td>Metropolitan Career Technical Center (Little Rock – Pulaski County)</td>
<td></td>
</tr>
<tr>
<td>North Central Career Center (Leslie – Searcy County)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Table 3

Data Analysis Matrix for the Investigation of the Adult Workers’ Perceptions About Career Education Experiences

<table>
<thead>
<tr>
<th>QUESTIONS</th>
<th>SCALE OF MEASUREMENT &amp; VARIABLES</th>
<th>STATISTICAL TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Is there a relationship between the number of transformative learning strategies experienced in the crystallization and specification stages of life and the adult worker’s perceptions of current professional success, during the implementation and stabilization stages of life?</td>
<td>Ordinal Scale: transformative learning strategies (Question 9) = independent variable adult worker’s perceived level of success (Question 18) = dependent variable</td>
<td>Inferential: Spearman’s rho &amp; Regression analyses</td>
</tr>
<tr>
<td>2. Is there a relationship between the current socioeconomic statuses of the adult workers to the professional pathways offered through their participation in the secondary technical education centers?</td>
<td>Interval Scale: professional pathways offered through participation in the secondary technical education centers (Question 7) = independent variable current socioeconomic statuses of the adult workers (Question 24) = dependent variable</td>
<td>Inferential: Spearman’s rho &amp; Regression analysis</td>
</tr>
<tr>
<td>3. Is there a relationship between best practice strategies utilized by the secondary technical education centers during the students’ crystallization and stabilization stages of life and the adult worker’s current education level?</td>
<td>Ordinal Scale: best practice strategies utilized by the secondary technical education centers (Questions 4, 5, 6, 7, 8, 10, 11) = independent variables adult worker’s current education level (Question 25) = dependent variable</td>
<td>Inferential: Spearman’s rho and Regression analysis</td>
</tr>
<tr>
<td>4. Are adult workers in the implementation and stabilization stages of career development influenced by their former experiences in the secondary career technical education centers?</td>
<td>Mixed methods data, comprised of the combined questions</td>
<td></td>
</tr>
</tbody>
</table>
Limitations of the Study

Limitations of this mixed-methods study were as follows:

1. The top-performing center data were reliant on the accuracy with which the secondary centers reported the student performance success indicators.

2. The qualitative data were reliant upon the memories and reflections of students who have been out of the programs for six-seven years.

3. Student performance indicator data were not collected from the secondary centers prior to the 2003-2004 school year; therefore, earlier extant data were nonexistent.

4. It was very difficult to access CTE program graduates from six-seven years previous, as the contact information had not been updated at the CTE centers.

5. Not all interviewees were equally articulate or perceptive in their reflections (Creswell, 2009).

6. The researcher’s telephone presence may have biased the interviewees’ responses (Creswell, 2009).
Chapter Four

FINDINGS AND DISCUSSION

Former participants of Arkansas career technical education (CTE) secondary centers were interviewed by the researcher, who collected quantitative data in the form of interviewee and secondary center demographics. Qualitative data were gathered via the interview guide questions that encouraged critical reflection about the participants’ secondary CTE experiences, career pathways, adult learning opportunities, current perceptions of accomplishments and those responsible for perceived successes.

Demographic Profile

A total of 29 adults were included in the current research dataset; the majorities were males (75.9%), with females representing 24.1 percent of the population. The majority of the population reported that they were Caucasians (93.1%), with the other 6.9 percent reporting African-American status. As for marital status, 48.3 percent reported that they were married, 44.8 percent claimed to be single and 6.9 percent were divorced. The majority of interviewees (55.2%), had no children, 24.1 percent had one child, 17.2 percent had two children and 3.5 percent had four children.

In this research, the adult learner is defined as being 25 years of age or older: 34.5 percent of the interviewees met this criteria, with 65.5 percent self-reporting that they were 24 years of age or younger. Age was self-reported in an interview item that questioned each participant’s chosen category (a) 24 or below, or (b) 25 or above (see Appendix E). As the interviewees had been former CTE students during the academic years 2003-2005, the minimum age of the participant dataset was twenty-three. One of the 29 individuals (3.4%) had a master’s degree, seven (24.1%) had bachelor’s degrees, six (20.7%) had associate’s degrees, and nine
(31.0%) had pursued some college. Of the six individuals who claimed to have a maximum of a high school diploma, three had received additional professional certifications, to make them more marketable in their chosen career fields. In total, 27.6 percent of the former CTE secondary center interviewees had a minimum of a bachelor’s degree, in a state where only 18.9 percent of the citizens reported having a bachelor’s degree and above (U. S. Census Bureau, 2010).

An interview item related to socioeconomic status was asked of each participant, pertaining solely to individual income, not household income. Income was reported by each interviewee, as follows: Nine participants (31.0%) claimed to have an individual yearly income of less than $14,999; four (13.8%) reported salaries of $15,000-$24,999; four (13.8%) reported $25,000-$34,999; eight (27.6%) reported $35,000-$49,999; two (6.9%) reported $50,000-$74,999; one (3.4%) reported making $75,000-$99,999; and one (3.4%) reported an individual yearly income of $100,000-$149,999. Of the nine participants who reported making less than $14,999 per year, five were current students, two had part-time employment positions, and one was unemployed. Sixteen (55.2%) of the interviewees reported making over $25,000 per year, compared to the 2009 United States Census Bureau Arkansas average of $20,977 per year (U.S. Census Bureau, 2010).

Eleven CTE programs of study were represented among the 29 interviewees: (a) Agricultural Science (10.3%), (b) Agricultural Mechanics (10.3%), (c) Construction Technology (3.4%), (d) Design and Preconstruction (3.4%), (e) Engineering and Technology (13.8%), (f) Facility and Mobile Equipment Maintenance (20.7%), (g) Family and Consumer Sciences Education (13.8%), (h) Personal Care Services (3.4%), (i) Production (3.4%), (j) Therapeutic Services (13.8%), and (k) Visual Arts (3.4%). Automotive, Construction, Health Care and
Information Technology are industry targets defined by the U.S. Department of Labor as high growth fields in the state of Arkansas (“Discover Arkansas,” 2011). These career choices can be found in the secondary CTE programs of Facility and Mobile Equipment Maintenance, Production, Therapeutic Services and Engineering and Technology: 51 percent of the participants interviewed had taken courses in these high-growth programs of study (see Table 4) and seven of the 29 (24%) have continued to work in the high-growth career fields of information technology, construction and automotive services. Thirteen of the 29 interviewees (44.8%) are currently working in the career fields that they had chosen at the secondary level, and all self-reported that they were satisfied with their career choices. Four of the 29 interviewees have served in the United States military services, with three of the four choosing full-time service as a career.
Table 4

2004-2005 Secondary CTE Center Participant Respondents Demographics (n=29)

<table>
<thead>
<tr>
<th>Demographic</th>
<th>Frequency</th>
<th>Percent</th>
<th>CTE Programs of Study</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td>Agricultural Science</td>
<td>3</td>
<td>10.3</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Agricultural Mechanics</td>
<td>3</td>
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<td></td>
<td></td>
<td></td>
<td>Construction Technology</td>
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<tr>
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<td>Design and Preconstruction</td>
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<td></td>
<td></td>
<td>Engineering and Technology</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Facility and Mobile Equipment Maintenance</td>
<td>6</td>
<td>20.7</td>
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<td></td>
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<td>Family and Consumer Sciences Education</td>
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<td>Personal Care Services</td>
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<td></td>
<td></td>
<td>Production</td>
<td>1</td>
<td>3.4</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>Therapeutic Services</td>
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<td></td>
<td></td>
<td>Visual Arts</td>
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<td>3.4</td>
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<td></td>
<td></td>
<td></td>
<td>Total</td>
<td>29</td>
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<td>Male</td>
<td>22</td>
<td>75.9</td>
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<tr>
<td>Female</td>
<td>7</td>
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<td>Total</td>
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<td>Single</td>
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<td>44.8</td>
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<tr>
<td>Divorced</td>
<td>2</td>
<td>6.9</td>
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<tr>
<td>Total</td>
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<tbody>
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<td>55.2</td>
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<td></td>
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</tr>
<tr>
<td>One</td>
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<td>Two</td>
<td>5</td>
<td>17.2</td>
<td></td>
<td></td>
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<tr>
<td>Three</td>
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<td>Four</td>
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<td>3.5</td>
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<tr>
<td>Total</td>
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<td>$75,000 - $99,999</td>
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<td>$100,000 - $149,999</td>
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<td>0</td>
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<td>High School Graduate</td>
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<tr>
<td>Some College</td>
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<td>31.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Associates Degree</td>
<td>6</td>
<td>20.7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bachelors Degree</td>
<td>7</td>
<td>24.1</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Masters Degree</td>
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<td>3.4</td>
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<td></td>
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</tr>
<tr>
<td>Doctoral Degree</td>
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<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>99.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Missing</td>
<td>0</td>
<td>0</td>
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</table>

<table>
<thead>
<tr>
<th>Ethnicity</th>
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</tr>
</thead>
<tbody>
<tr>
<td>American Indian</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
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<td>0</td>
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<td></td>
</tr>
<tr>
<td>African American</td>
<td>2</td>
<td>6.9</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic or Latino</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>27</td>
<td>93.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>29</td>
<td>100</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Missing</td>
<td>0</td>
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<table>
<thead>
<tr>
<th>Military Involvement</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>4</td>
<td>13.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>25</td>
<td>86.2</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Total</td>
<td>29</td>
<td>100</td>
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<tr>
<td>Missing</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Response Analysis

Twenty-four CTE secondary centers are located in the five geographic regions of Arkansas. On February 24, 2011, the researcher met with the CTE secondary center directors, explained the research, distributed the informed consent, and noted they would be receiving an e-mail request for data. On April 1, 2011, the first e-mail was sent to the twenty-four center directors, requesting contact information for the participants identified as program completers for the academic years of 2003-2004 and 2004-2005 (see Appendix G). After the initial e-mail, responses were received from six of the directors, a 25 percent response rate. The follow-up e-mail was sent on April 29, 2011, resulting in responses from nine more of the CTE directors (see Appendix H). From the CTE secondary centers, a total of 15 responses were received, for a 62.5 percent response rate (see Table 5).

Table 5

<table>
<thead>
<tr>
<th>E-mails</th>
<th>Date</th>
<th>E-mails Sent</th>
<th>Responses</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st e-mail requesting data</td>
<td>April 1, 2011</td>
<td>24</td>
<td>6</td>
<td>25</td>
</tr>
<tr>
<td>Follow-up reminder e-mail</td>
<td>April 29, 2011</td>
<td>18</td>
<td>9</td>
<td>50</td>
</tr>
<tr>
<td>Total Responses</td>
<td></td>
<td>15</td>
<td></td>
<td>62.5</td>
</tr>
</tbody>
</table>

The responses from the center directors ranged from (a) they were currently working on collecting the data; (b) they wished to be eliminated from the study, due to extenuating circumstances; (c) they provided the needed contact information; or (d) no response was given at all. The Central and Northeast regions contained four CTE secondary centers each and each had one center which provided participant contact information. In the Northwest region, two of the six CTE secondary centers provided the requested data. The Southeast region had five centers
with none of them reporting data. Last, the Southwest region had five CTE secondary centers, with one of the centers reporting data (see Table 6). Each of the centers who reported data—National Park Technology Center, Arkansas State University-Searcy Regional Career Center, Russellville Area Career & Technical Center, Western Arkansas Technical Center and DeQueen/Mena Cooperative Technical Education Center—were identified as top-performing centers. With quantitative mean student performance success indicator scores ranging from .98 to 1.29, these centers met or exceeded Arkansas state benchmark scores during the combined academic years of 2004-2009.

Table 6

CTE Secondary Center Final Responses by Region

<table>
<thead>
<tr>
<th>Region</th>
<th>CTE Center Numbers</th>
<th>Working on it Response</th>
<th>Eliminate From Study Request</th>
<th>Participant Contact Information Provided</th>
<th>No Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>Central (4)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Northeast (4)</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Northwest (6)</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Southeast (5)</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>Southwest (5)</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Totals (24)</td>
<td>4</td>
<td>6</td>
<td>5</td>
<td>9</td>
<td></td>
</tr>
</tbody>
</table>

A total of 629 adults were included in the participating CTE centers data sets, the majority of whom were males (59%), with females representing 41.0 percent of the overall population. Of the original number (n=629), 167 males and 102 females were located on Facebook, for a total of 269 participants (42.8%) accessed through the popular social networking site. Of the 269 Facebook solicitations, 27 males responded, resulting in 17 interviews and 13 females responded, resulting in 7 interviews. Fifty-two attempts to cold-call were made, six of
which were successful contacts, and three calls resulted in interviews. One interview solicitation was sent to a personal e-mail that had been provided by one of the CTE center directors, resulting in an interview. Out of the original 629 former participants, 29 interviews were successfully completed or 4.6 percent of the overall population. Males represented 75.9 percent of the interviewee population and females represented 24.1 percent of the interviewee population. (see Table 7).

Table 7

Male/Female Response Rates

<table>
<thead>
<tr>
<th>Contact Method</th>
<th>Male Requests</th>
<th>Responses</th>
<th>Interviews</th>
<th>Female Requests</th>
<th>Responses</th>
<th>Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facebook inbox</td>
<td>167</td>
<td>27</td>
<td>17</td>
<td>102</td>
<td>13</td>
<td>7</td>
</tr>
<tr>
<td>E-mail request</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Cold-calling</td>
<td>30</td>
<td>7</td>
<td>4</td>
<td>24</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>Response rate totals</td>
<td>198</td>
<td>35</td>
<td>22</td>
<td>126</td>
<td>14</td>
<td>7</td>
</tr>
</tbody>
</table>

The 29 interviews represented four of the five regions in Arkansas (see Table 8). There were 74 contact names representing the central region, resulting in four interviews, or 5.4 percent of the population. Thirty-four Facebook inbox requests were sent to the central population sample, resulting in three responses and two interviews. Forty-eight attempts at cold-calling followed, resulting in five responses and two more interviews. The northeast region provided contact information for four former participants, resulting in two interviews (50%) of the population. Three of the northeast population names were found on Facebook, resulting in one response and one interview. Four attempts to cold-call the remaining population sample resulted in one response and one interview. The northwest region provided information for 269 former participants, resulting in 10 interviews (3.7%) of the population. Of the original northwest number, 122 participants were found and sent messages through Facebook, resulting in 17
responses and 10 interviews. The southwest region provided contact information for 282 former participants, resulting in 13 interviews (4.6%) of the population. One of the participant’s e-mail address had been provided by the CTE center director, resulting in an interview. Of the remaining southwest population sample, 110 were sent messages through their Facebook inboxes, resulting in 17 responses and 12 interviews.

Table 8

Regional Interviewees

<table>
<thead>
<tr>
<th>Contact Method</th>
<th>Date</th>
<th>Requests Sent</th>
<th>Responses</th>
<th>Interviewees</th>
<th>Percent R/I*</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Southwest Region Former Participants (n=282)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facebook inbox</td>
<td>June 16-22, 2011</td>
<td>110</td>
<td>17</td>
<td>12</td>
<td>15.5/10.9</td>
</tr>
<tr>
<td>E-mail request</td>
<td>June 16, 2011</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>100/100</td>
</tr>
<tr>
<td>Cold-calling</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total Respondents</td>
<td></td>
<td></td>
<td>18</td>
<td>13</td>
<td>16.2/11.7</td>
</tr>
<tr>
<td><strong>Northwest Region Former Participants (n=269)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facebook inbox</td>
<td>June 22-27, 2011</td>
<td>122</td>
<td>17</td>
<td>10</td>
<td>13.9/8.2</td>
</tr>
<tr>
<td>E-mail request</td>
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<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Cold-calling</td>
<td>N/A</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Total Respondents</td>
<td></td>
<td></td>
<td>17</td>
<td>10</td>
<td>13.9/8.2</td>
</tr>
<tr>
<td><strong>Northeast Region Former Participants (n=4)</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facebook inbox</td>
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<td>3</td>
<td>1</td>
<td>1</td>
<td>33.3/33.3</td>
</tr>
<tr>
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<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Cold-calling</td>
<td>June 16, 2011</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>25.0/25.0</td>
</tr>
<tr>
<td>Total Respondents</td>
<td></td>
<td></td>
<td>2</td>
<td>2</td>
<td>50.0/50.0</td>
</tr>
<tr>
<td><strong>Central Region Former Participants (n=74)</strong></td>
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<td></td>
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<td></td>
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<tr>
<td>Facebook inbox</td>
<td>Jun 27-Jul 5, 2011</td>
<td>34</td>
<td>3</td>
<td>2</td>
<td>8.8/5.9</td>
</tr>
<tr>
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<td>0</td>
<td>0</td>
<td>0</td>
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</tr>
<tr>
<td>Cold-calling</td>
<td>June 16, 2011</td>
<td>48</td>
<td>5</td>
<td>2</td>
<td>10.4/4.2</td>
</tr>
<tr>
<td>Total Respondents</td>
<td></td>
<td></td>
<td>8</td>
<td>4</td>
<td>10.8/5.4</td>
</tr>
</tbody>
</table>

*R = responses; I = interviews

Research Question One

Question One asked: Is there a relationship between the number of transformative learning strategies experienced in the crystallization and specification stages of life and the adult worker’s perceptions of current professional success, during the implementation and stabilization stages of life? In looking at the individual CTE Transformative Learning Strategies, the researcher questioned the availability of each one in the experiences of the former CTE students,
who are now adult workers. The specified transformative learning strategies utilized by the CTE centers are illustrated in Table 9. Of the 29 interviewees, (a) 27 cited the usage of balancing lectures with a time for discussion, (b) 27 stated that they were provided with times to work in group projects or team learning, (c) 26 reported that their CTE instructors had utilized the learner-centered strategy of stating specific learning objectives before and during the teaching of content knowledge, (d) 24 reported that their former CTE instructors encouraged critical thinking exercises, (e) 23 remembered having opportunities provided for critical reflection, and (f) zero participants remembered having no transformative learner-centered strategies provided at all.

The total transformative learning was calculated by the one interview item questioning the number of learner-centered strategies utilized by former CTE instructors. The scale range was 0 to 5, with the lower levels representing few strategies utilized, and 5 representing the highest number of transformative learning strategies utilized in the former CTE students’ classrooms.

Table 9

*CTE Transformative Learning Strategies (n=29)*

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lectures With Time for Discussion</td>
<td>27</td>
<td>93.1</td>
</tr>
<tr>
<td>Group Projects or Team Learning</td>
<td>27</td>
<td>93.1</td>
</tr>
<tr>
<td>Specific Learning Objectives</td>
<td>26</td>
<td>89.7</td>
</tr>
<tr>
<td>Critical Thinking Exercises</td>
<td>24</td>
<td>82.8</td>
</tr>
<tr>
<td>Critical Reflection Opportunities</td>
<td>23</td>
<td>79.3</td>
</tr>
<tr>
<td>No Transformative Learning Strategies Identified</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The perception of current success was calculated by one interview item that questioned the level of success each interviewee currently identified. The scale range was 1 to 4 (not
successful to very successful) with lower values representing lower levels of success and 4 representing a perception of high levels of professional success. The current perceptions of success perceived by the adult workers are depicted in Table 10. Of the 29 adult workers who were interviewed, (a) 7 perceived that they were very successful in their current positions, (b) 9 professed that they were successful in their current positions, (c) 11 identified themselves as being fairly successful, and (d) only two felt that they were currently not successful.

Table 10

Perceptions of Current Success (n=29)

<table>
<thead>
<tr>
<th>Perception</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Successful</td>
<td>7</td>
<td>24.1</td>
</tr>
<tr>
<td>Successful</td>
<td>9</td>
<td>31.0</td>
</tr>
<tr>
<td>Fairly Successful</td>
<td>11</td>
<td>37.9</td>
</tr>
<tr>
<td>Not Successful</td>
<td>2</td>
<td>6.9</td>
</tr>
</tbody>
</table>

To investigate the statistical correlation between the number of transformative learning strategies offered during the stages of crystallization and specification and the adult workers’ current perceptions of success, a simple regression analysis and the Spearman’s rho correlation coefficient were run through the SPSS version 15.x statistical software program. The results of the regression analysis indicated that the number of transformative learning strategies offered by the CTE secondary centers was a slight predictor of current perceptions of success, \( t = 1.56, \text{sig.} = .130 \) (see Figure 2). The mean score for current perceptions of success was 2.72 on a 4.0 scale, while the mean score for transformative learning strategies was 4.38 on a 5.0 scale (see table 11). A positive relationship between the two variables is indicated in Figure 2. The y-axis represents the dependent variable, the adult workers’ current perceptions of success, while the x-
axis, labeled Mezirow1, represents the independent variable, the number of transformative learning strategies identified by the adult workers as being used by their CTE instructors.

Table 11

*Descriptive Statistics for Research Question One*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perceptions of Success</td>
<td>29</td>
<td>2.72</td>
<td>.92</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>Transformative Learning Strategies</td>
<td>29</td>
<td>4.38</td>
<td>1.08</td>
<td>0</td>
<td>5</td>
</tr>
</tbody>
</table>

*Figure 2. Regression Analysis Scatterplot for Research Question One.*
The results of the Spearman’s rho two-tailed correlation coefficient revealed a .454 success size, with a significance of .013, indicating a significant (.01) correlation between the two variables (Salkind, 2008). The results of the Spearman’s rho correlation coefficient are illustrated in Table 12, which indicate that there is a relationship between the number of transformative learning strategies offered in the CTE secondary centers and the adult workers’ current perceptions of success.

Table 12

*Spearman’s rho Correlation Coefficient for Research Question One: Transformative Learning Strategies and Perceptions of Success (n=29)*

<table>
<thead>
<tr>
<th></th>
<th>Transformative Learning Strategies</th>
<th>Perceptions of Success</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformative</td>
<td>Correlation Coefficient 1</td>
<td>.454**</td>
</tr>
<tr>
<td>Learning Strategies</td>
<td>Sig. (2-tailed) 1</td>
<td>.013</td>
</tr>
<tr>
<td>Perceptions of</td>
<td>Correlation Coefficient .454**</td>
<td>1</td>
</tr>
<tr>
<td>Success</td>
<td>Sig. (2-tailed) .013</td>
<td></td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).**

**Research Question One Discussion**

Is there a relationship between the number of transformative learning strategies experienced in the crystallization and specification stages of life and the adult worker’s perceptions of current professional success, during the implementation and stabilization stages of life? Though there was no literature connecting transformative learning experiences to lasting perceptions of personal and professional success, the current statistical analyses indicated that the total number of transformative learning strategies was a slightly positive predictor of current perceptions of success. Furthermore, a significant correlation was found between the two variables of total number of transformative learning strategies and current perceptions of success.
It is part of the Transformation Theory that espouses the importance of meaningful experiences for the adult learner (Franze, 2007). Transformative, learner-centered strategies provide meaning to the learning experience, bringing about a process of change within the learner. While the relationship between transformative strategies and current perceptions of success was weak, it could be indicative of the change that is so strongly encouraged in the transformation theory. Instructors, who initiate a number of learner-centered strategies that not only add meaning, but also enhance critical reflection, can lead their learners toward a process of questioning, challenging and revising former assumptions (Mezirow, 1975, 1978). Development is the desired outcome of transformational learning (Mezirow, 1991); therefore, providing transformative learning experiences could encourage the learner to have a stronger sense of self, including a higher perceptions of personal and professional success.

**Research Question Two**

Question Two asked: Is there a relationship between the current socioeconomic statuses of the adult workers and the professional pathways offered through their participation in the secondary technical education centers? Current socioeconomic status was calculated by one interview item questioning the interviewees’ individual income. The scale range was 1 to nine, with lower values representing lower ranges of income and 9 representing an income range of $200,000 or more per year. The adult workers’ responses to the interview guide item pertaining to current socioeconomic status are illustrated in Table 13.
Table 13

*Current Socioeconomic Statuses (n=29)*

<table>
<thead>
<tr>
<th>Perception</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $14,999</td>
<td>9</td>
<td>31.0</td>
</tr>
<tr>
<td>$15,000-$24,999</td>
<td>4</td>
<td>13.8</td>
</tr>
<tr>
<td>$25,000-$34,999</td>
<td>4</td>
<td>13.8</td>
</tr>
<tr>
<td>$35,000-$49,999</td>
<td>8</td>
<td>27.6</td>
</tr>
<tr>
<td>$50,000-$74,999</td>
<td>2</td>
<td>6.9</td>
</tr>
<tr>
<td>$75,000-$99,999</td>
<td>1</td>
<td>3.4</td>
</tr>
<tr>
<td>$100,000-$149,999</td>
<td>1</td>
<td>3.4</td>
</tr>
<tr>
<td>$150,000-$199,999</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>$200,000 and more</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

The professional pathways were self-reported in an interview item that identified six options that are available in CTE secondary centers which utilize best practice strategies (see Appendix E). The scale range was 0-6, with lower levels representing few professional pathways, and 6 representing that all of the professional pathways were offered to the former CTE participant. The adult workers’ perceptions about the career pathways that were offered during their years at the CTE secondary centers is depicted in Table 14. Of the 29 CTE former completers, (a) 18 reported that scholarships were available to the CTE students in their secondary programs, (b) 14 stated that college credit was made available for the courses taken during their years at the CTE secondary centers, (c) 11 cited professional certifications that were obtainable for CTE secondary students, (d) 11 stated that technical certificates were provided upon completion of courses, (e) 9 remembered the options of certificates of proficiency, and (f) 4
reported that no professional pathways were available during their years at the CTE secondary centers.

Table 14

*CTE Professional Pathways (n=29)*

<table>
<thead>
<tr>
<th>Perception</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>College Credit for Courses Taken</td>
<td>14</td>
<td>48.3</td>
</tr>
<tr>
<td>Scholarships</td>
<td>18</td>
<td>62.1</td>
</tr>
<tr>
<td>Articulation into College Degree</td>
<td>12</td>
<td>41.4</td>
</tr>
<tr>
<td>Professional Certification</td>
<td>11</td>
<td>37.9</td>
</tr>
<tr>
<td>Certificates of Proficiency</td>
<td>9</td>
<td>13.8</td>
</tr>
<tr>
<td>Technical Certificates</td>
<td>11</td>
<td>37.9</td>
</tr>
<tr>
<td>No Professional Pathways Identified</td>
<td>4</td>
<td>13.8</td>
</tr>
</tbody>
</table>

The statistical tests of Spearman’s Rho and a simple regression analysis were run in SPSS version 15.x statistical software to determine the possible relationship between the number of professional pathways offered through the CTE centers and the current socioeconomic statuses of the adult workers who were former participants. The mean score for the adult workers’ current socioeconomic (SES) statuses was 2.90, with a minimum of 1 and a maximum of 7 on the 9.0 scale. This indicated that the average adult worker in the sample population had a socioeconomic status in the $25,000-$35,000 range. The mean score for the CTE professional pathways was 2.66, with a minimum of 0 and a maximum of 5 on the 5.0 scale (see Table 15), indicating that the average former CTE participants had the opportunity to take a minimum of 2-3 professional pathways during their time at the CTE secondary centers.
Table 15

*Descriptive Statistics for Research Question Two*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current SES Status</td>
<td>29</td>
<td>2.90</td>
<td>1.70</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CTE Professional Pathways</td>
<td>29</td>
<td>2.66</td>
<td>1.65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The regression analysis revealed a minimal positive correlation, $t = .597$, with a significance of .556. The slight increase in socioeconomic status related to the increase in the numbers of professional pathways offered via the CTE secondary centers is illustrated in Figure 3. The y-axis represents the dependent variable, the current socioeconomic statuses of the adult workers. The x-axis represents the independent variable, the number of career pathways offered to the adult workers who were former students of the CTE secondary career centers.
The Spearman’s Rho correlation coefficient revealed a correlation size of .146, indicating a weak or no relationship (Salkind, 2008). There is no relationship between the total number of professional pathways offered through the CTE secondary centers and the current socioeconomic statuses of the adult workers who were former participants. The results of the Spearman’s rho correlation coefficient are depicted in Table 16.
The researcher then investigated the relationship between the individual professional pathways taken by each former participant, to determine if any of them had a significant relationship with the adult workers’ current socioeconomic statuses. A Spearman’s rho correlation coefficient was run to explore the relationship between the adult workers’ current socioeconomic statuses and the (a) college credit for courses taken, (b) scholarships, (c) articulation into AAS degrees and beyond, (d) professional certification, (e) certificates of proficiency, and (f) technical certificates that were available through their participation at the CTE secondary centers.

The Spearman’s rho analysis revealed a weak positive relationship between technical certificates offered through the CTE secondary centers and current socioeconomic statuses, with a .297 correlation coefficient and a significance of .117. The results of the Spearman rho correlation coefficient are found in Table 17.

Table 17

*Spearman’s rho Correlation Coefficient for Research Question Two: Individual Professional Pathways and Current Socioeconomic Status*

<table>
<thead>
<tr>
<th>Spearman’s Rho</th>
<th>College Credit</th>
<th>Scholarships</th>
<th>Articulation</th>
<th>Professional Certifications</th>
<th>Certificates of Proficiency</th>
<th>Technical Certificates</th>
</tr>
</thead>
<tbody>
<tr>
<td>SES Status</td>
<td>Correlation Coefficient</td>
<td>.044</td>
<td>.051</td>
<td>.009</td>
<td>.015</td>
<td>.147</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.822</td>
<td>.793</td>
<td>.964</td>
<td>.939</td>
<td>.448</td>
<td>.117</td>
</tr>
</tbody>
</table>
Noting the relationship between the socioeconomic statuses and the opportunity to receive technical certificates through participation in the CTE secondary centers, the researcher ran a simple regression analysis to investigate the prediction strength of the relationship between the two variables. The regression analysis indicated that the opportunity to receive technical certificates for courses taken was a slightly positive predictor of current levels of socioeconomic status, $t = 1.41$, $\text{sig.} = .17$. A positive relationship between the two variables is represented in Figure 4. The y-axis represents the dependent variable, the adult workers’ current socioeconomic statuses, while the x-axis represents the independent variable, the adult workers’ opportunities to receive technical certificates through participation in the CTE secondary centers.
Figure 4. Regression Analysis Scatterplot for Research Question Two: Technical Certificates and Current Socioeconomic Statuses

After statistical analysis of both total and individual professional pathways and their relationship to the adult workers’ current socioeconomic statuses, there was a one weak positive relationship between the opportunities to receive technical certificates from the CTE secondary centers and the current socioeconomic status of the adult workers who were former participants.

Research Question Two Discussion

Is there a relationship between the current socioeconomic statuses of the adult workers and the professional pathways offered through their participation in the secondary technical education centers? Professional pathways were those opportunities provided by the CTE
secondary centers, designed to make the experiences profitable for the participants’ future career lives, such as (a) college credit for courses taken, (b) scholarships, (c) articulation of CTE coursework into college degrees, (d) professional certifications, (e) certificates of proficiency, and (f) technical certificates. The adult workers were in the crystallization stages of career development, during their years at the CTE secondary centers; however, the vast majority of interviewees were provided professional pathways that would normally be found in the implementation stage, in which one embarks on actual training for a career. Furthermore, the mean socioeconomic status of the current research population was at a higher level than the state average.

Although no research was found that investigated the relationship between the offering of professional pathways, and the participants’ socioeconomic status at a later date, Super’s theory advocated providing experiences to facilitate movement through the career development stages. While the provision of professional pathways may have assisted the students in moving to a higher level of career development, statistical analyses did not reflect a relationship between the number of opportunities and the current levels of income. When the individual professional pathways were investigated, however, statistical analyses revealed that the opportunity to receive technical certificates for courses taken was a slightly positive predictor of current levels of socioeconomic status.

**Research Question Three**

Question Three asked: Is there a relationship between best practice strategies utilized by the secondary technical education centers during the students’ crystallization and stabilization stages of life and the adult worker’s current education level? Career technical education (CTE) best practice was calculated by seven interview items measuring types of CTE best practice
strategies, including items that identified (a) the number of extracurricular activities each interviewee engaged in during their years at the CTE secondary centers, (b) the number of ways that career information was made available to the students, (c) the number of ways that students were encouraged as future professionals, (d) the number of career pathways offered through CTE secondary center participation, (e) the perceptions of former CTE instructors’ qualifications, (f) mentor relationships with former instructors, and (g) the perceptions of the workforce preparation in the chosen programs of study. The CTE best practice responses were summed to find a total CTE best practice score per interviewee. The interviewees’ responses to the items pertaining to best practice opportunities are illustrated in Table 18.
<table>
<thead>
<tr>
<th>Extracurricular Activities</th>
<th>Frequency</th>
<th>Percent</th>
<th>CTE Best Practice Opportunities</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student Organizations</td>
<td>19</td>
<td>65.5</td>
<td>Perceived as Professionally-</td>
<td>28</td>
<td>96.6</td>
</tr>
<tr>
<td>Service Opportunities</td>
<td>10</td>
<td>34.5</td>
<td>Qualified</td>
<td>10</td>
<td>3.4</td>
</tr>
<tr>
<td>Other</td>
<td>6</td>
<td>20.7</td>
<td>Perceived as Not Professionally-</td>
<td>6</td>
<td>2.1</td>
</tr>
<tr>
<td>No Involvement in Extracurricular Activities</td>
<td>8</td>
<td>27.6</td>
<td>Qualifed</td>
<td>8</td>
<td>27.6</td>
</tr>
<tr>
<td>Career Section in Library</td>
<td>8</td>
<td>27.6</td>
<td>Identified CTE Instructor as</td>
<td>4</td>
<td>13.8</td>
</tr>
<tr>
<td>Guest Speakers</td>
<td>20</td>
<td>69.0</td>
<td>Mentor</td>
<td>4</td>
<td>13.8</td>
</tr>
<tr>
<td>School Website/Newsletter</td>
<td>17</td>
<td>58.6</td>
<td>Identified CTE Counselor as</td>
<td>1</td>
<td>3.4</td>
</tr>
<tr>
<td>Computer/Internet Access</td>
<td>24</td>
<td>82.8</td>
<td>Mentor</td>
<td>1</td>
<td>3.4</td>
</tr>
<tr>
<td>School E-mail Network for Students</td>
<td>24</td>
<td>82.8</td>
<td>No CTE Mentors Identified</td>
<td>4</td>
<td>13.8</td>
</tr>
<tr>
<td>Job Fairs</td>
<td>18</td>
<td>62.1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>13.8</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Career Information Identified</td>
<td>0</td>
<td>0</td>
<td>Workforce Preparation</td>
<td>26</td>
<td>89.7</td>
</tr>
<tr>
<td>Professional Services</td>
<td>Mock Job Interviews</td>
<td>11</td>
<td>37.9</td>
<td>Perceived that CTE Prepared</td>
<td>26</td>
</tr>
<tr>
<td>Field Experiences</td>
<td>17</td>
<td>58.6</td>
<td>Him/Her for the Workforce</td>
<td>3</td>
<td>10.3</td>
</tr>
<tr>
<td>Resume Building</td>
<td>18</td>
<td>62.1</td>
<td>Perceived that CTE Did Not</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professionalism Tips</td>
<td>21</td>
<td>72.4</td>
<td>Prepare Him/Her for the</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cover Letters</td>
<td>19</td>
<td>65.5</td>
<td>Workforce</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Placement Files</td>
<td>9</td>
<td>31.0</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Professional Services</td>
<td>3</td>
<td>10.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identified</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Professional Pathways</td>
<td>College Credit for Courses Taken</td>
<td>14</td>
<td>48.3</td>
<td>CTE Instructor Qualifications</td>
<td>28</td>
</tr>
<tr>
<td>Scholarships</td>
<td>18</td>
<td>62.1</td>
<td>Perceived as Professionally-</td>
<td>10</td>
<td>3.4</td>
</tr>
<tr>
<td>Articulation into College Degrees</td>
<td>12</td>
<td>41.4</td>
<td>Qualified</td>
<td>12</td>
<td>41.4</td>
</tr>
<tr>
<td>Professional Certification</td>
<td>11</td>
<td>37.9</td>
<td>Perceived as Not Professionally-</td>
<td>11</td>
<td>37.9</td>
</tr>
<tr>
<td>Certificates of Proficiency</td>
<td>9</td>
<td>31.0</td>
<td>Qualified</td>
<td>9</td>
<td>31.0</td>
</tr>
<tr>
<td>Technical Certificates</td>
<td>11</td>
<td>37.9</td>
<td></td>
<td>11</td>
<td>37.9</td>
</tr>
<tr>
<td>No Professional Pathways</td>
<td>4</td>
<td>13.8</td>
<td></td>
<td>4</td>
<td>13.8</td>
</tr>
<tr>
<td>Identified</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Current education level was self-reported by the adult workers on a scale of 1 to 6, with the lowest level representing a minimum of a high school diploma, and the highest level representing a doctoral degree. The current education levels of the 2004-2005 CTE secondary center completers, as self-reported by the interviewees, are illustrated in Table 19.
Table 19

*Current Education Levels of CTE Secondary Center Completers*

<table>
<thead>
<tr>
<th>Education Level</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>High School Graduate</td>
<td>6</td>
<td>20.7</td>
</tr>
<tr>
<td>Some College</td>
<td>9</td>
<td>31.0</td>
</tr>
<tr>
<td>Associates Degree</td>
<td>6</td>
<td>20.7</td>
</tr>
<tr>
<td>Bachelors Degree</td>
<td>7</td>
<td>24.1</td>
</tr>
<tr>
<td>Masters Degree</td>
<td>1</td>
<td>3.4</td>
</tr>
<tr>
<td>Doctoral Degree</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

To test the statistical significance of the relationship between the current education levels and the best practice strategies offered by the top-performing CTE secondary centers and utilized by the adult workers who were former participants, the data pertaining to both variables was input in the SPSS version 15.x statistical software program. The Spearman’s rho correlation coefficient was used to investigate a relationship between the total number of best practice strategies and the adult workers’ current education levels. The results of the Spearman’s rho analysis revealed a correlation coefficient of .177, with a significance of .358. As the correlation suggests minimal if any relationship, the total number of best practice strategies will not be useful as a predictor for education level. The relationship between the two variables is illustrated in Table 20.
The Spearman’s rho was then used to analyze the significance of the correlation between the individual best practice strategies offered by the CTE secondary centers and the adult workers’ current levels of education. The results of the Spearman’s rho analysis are illustrated in Table 21. The statistical software program flagged the correlation between extracurricular activities and the adult workers’ current education levels as being significant at the .05 level, with a correlation coefficient of .508 and a significance value of .005. According to Salkind (2008), a correlation size of .508 is indicative of a moderate relationship between two variables. Other variables indicating a weak relationship to the current education levels are the adult workers’ perception of CTE instructor qualifications, with a .268 correlation coefficient, and the adult workers’ identification of CTE instructors as professional mentors, with a .240 correlation coefficient.
Table 21

Spearman’s rho Correlation Coefficient for Research Question Three: Individual Best Practice Strategies and Current Education Level (n=29)

<table>
<thead>
<tr>
<th>Spearman’s Rho Correlation Coefficient</th>
<th>Extracurricular Activities</th>
<th>Career Information</th>
<th>Professional Services</th>
<th>Professional Pathways</th>
<th>Instructor Qualifications</th>
<th>Professional Mentors</th>
<th>Workforce Preparation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education Correlation</td>
<td>.508**</td>
<td>.025</td>
<td>.134</td>
<td>-.066</td>
<td>.268</td>
<td>.240</td>
<td>.148</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td>.005</td>
<td>.897</td>
<td>.487</td>
<td>.735</td>
<td>.160</td>
<td>.209</td>
<td>.444</td>
</tr>
</tbody>
</table>

**Correlation is significant at the 0.01 level (2-tailed).

Upon realizing that there is a significant relationship between extracurricular activities and the adult workers’ current levels of education, analyses were run to determine the extent of the relationship. The descriptive statistics for the relationship between current education levels and the numbers of CTE extracurricular activities taken by the adult workers who were former participants in the CTE secondary centers are illustrated in Table 22. The mean score for the adult workers’ current education level was 2.59, with a minimum of 1 and a maximum of 5 on the 6.0 scale, indicating the average number of participants had a minimum of some college. The mean score for the total number of extracurricular opportunities taken by the adult workers, through their former participation in the CTE centers, was 1.24, with a minimum of .00 and a maximum of 3 on the 3.0 scale, indicating that the average number of interviewees had participated in at least one extracurricular activity during his or her time at the CTE center.

Table 22

Descriptive Statistics for Research Question Three: Total Extracurricular Activities and Current Education Levels

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>M</th>
<th>SD</th>
<th>Minimum</th>
<th>Maximum</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Education Level</td>
<td>29</td>
<td>2.59</td>
<td>1.18</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>CTE Extracurricular Activities</td>
<td>29</td>
<td>1.24</td>
<td>.95</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>
The researcher then narrowed-in on which extracurricular activities were especially meaningful to the adult workers’ current levels of education. The interviewee response data for questions pertaining to education levels, student organizations, service opportunities and other extracurricular activities were input into SPSS version 15.x, and a simple regression analysis and the Spearman’s rho correlation coefficient were both run to investigate the relationship between each extracurricular activity and the current education levels. The Spearman’s rho analysis flagged two of the extracurricular activities as being significant at the .05 level, as illustrated in table 23. The relationship between student organizations and the current education levels revealed a .389 correlation coefficient with a significance of .037, indicating that there is a weak relationship between the two variables. The relationship between service opportunities and the current education levels revealed a .371 correlation coefficient with a significance of .047, indicating that there is a weak relationship between the two variables. The relationship between other extracurricular activities (sports and other high school clubs not offered through the CTE secondary center) and current education levels indicated a .214 correlation coefficient with a significance of .266, indicating a minimal or no relationship between the two variables.
Table 23

*Spearman’s rho Correlation Coefficient for Research Question Three: Extracurricular Activities and Current Education Level (n=29)*

<table>
<thead>
<tr>
<th>Spearman’s Rho</th>
<th>Education Level</th>
<th>Student Organizations</th>
<th>Service Opportunities</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>1.000</td>
<td></td>
<td>.389*</td>
<td>.371*</td>
</tr>
<tr>
<td>Correlation Coefficient</td>
<td>.037</td>
<td></td>
<td>.047</td>
<td>.266</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Student Organizations</td>
<td>.389*</td>
<td>1.000</td>
<td>.362</td>
<td>-.140</td>
</tr>
<tr>
<td>Correlation Coefficient</td>
<td>.037</td>
<td></td>
<td>.054</td>
<td>.470</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service Opportunities</td>
<td>.371*</td>
<td>.362</td>
<td>1.000</td>
<td>-.070</td>
</tr>
<tr>
<td>Correlation Coefficient</td>
<td>.047</td>
<td></td>
<td>.054</td>
<td>.718</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>.214</td>
<td>-.140</td>
<td>-.070</td>
<td>1.000</td>
</tr>
<tr>
<td>Correlation Coefficient</td>
<td>.266</td>
<td></td>
<td>.470</td>
<td>.718</td>
</tr>
<tr>
<td>Sig. (2-tailed)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.05 level (2-tailed)*

The regression analysis indicated that participation in student organizations was a slightly positive predictor of current levels of education, $t = 1.82$, $sig. = .08$. A positive relationship between the two variables is represented in Figure 5. The y-axis represents the dependent variable, the adult workers’ current levels of education, while the x-axis represents the independent variable, the adult workers’ former participation in student organizations.
Figure 5. Regression Analysis Scatterplot for Research Question Three: Education Level Related to Student Organization Participation.

The regression analysis indicated that participation in service opportunities was a slightly positive predictor of current levels of education, $t = 1.57$, sig. = .13. A positive relationship between the two variables is represented in Figure 6. The y-axis represents dependent variable, the adult workers’ current levels of education, while the x-axis represents the independent variable, the adult workers’ former participation in service opportunities.
The regression analysis indicated that participation in other extracurricular activities (sports and high school clubs that were not a part of the CTE secondary center offerings) was a slightly positive predictor of current levels of education, $t = 1.57$, sig., $= .13$. A positive relationship between the two variables is represented in Figure 7. The y-axis represents the dependent variable, the adult workers’ current levels of education, while the x-axis represents the independent variable, the adult workers’ former participation in other extracurricular activities.
A regression analysis was then run on the relationship between the total number of extracurricular activities taken by each participant and the adult worker’s current level of education. The Spearman rho analysis had indicated a moderate relationship, with a correlation coefficient of .508 and a significance value of .005. The regression analysis revealed that participation in multiple extracurricular was a positive predictor of the adult workers’ current levels of success, $t = 3.05$, $sig. = .005$. A positive relationship between the two variables is illustrated in Figure 8. The y-axis represents the dependent variable, the adult workers’ current
levels of education, while the x-axis represents the independent variable, the adult workers’ former participation in multiple extracurricular activities.

![Regression Analysis Scatterplot for Research Question Three: Education Level and Total Extracurricular Activities.](image)

**Figure 8.** Regression Analysis Scatterplot for Research Question Three: Education Level and Total Extracurricular Activities.

The results of the Spearman’s rho two-tailed correlation coefficient analyses and the regression analyses all revealed that there were minimal to weak relationships between participation in the individual extracurricular activities and the adult workers’ current levels of education. The strongest correlation and predictive values were found when the participants had taken more than one extracurricular activity. With a correlation coefficient of .508 and a significance value of .005, there is moderate strength in the relationship between total
extracurricular activities and current levels of success. Weak relationships were also found in the correlation coefficients between education levels and the adult workers’ perception of CTE instructor qualifications, with a .268 correlation coefficient, and the adult workers’ identification of CTE instructors as professional mentors, with a .240 correlation coefficient.

**Research Question Three Discussion**

Is there a relationship between best practice strategies utilized by the secondary technical education centers during the students’ crystallization and stabilization stages of life and the adult worker’s current education level? Positive relationships were found between the education levels and the adult workers’ former participation in school organizations, service opportunities and other extracurricular activities, with the strongest relationship found between total numbers of extracurricular activities and current levels of education. Other variables indicating a weak relationship to the current education levels were the adult workers’ perception of CTE instructor qualifications and the adult workers’ identification of CTE instructors as professional mentors.

The current research analyses are in contrast to the results of the study by Patterson and Mellard (2007), whose findings were such that there were no consistent predictors for learner success. However, the authors did conclude that programs with a variety of experiences for adults had the greatest chances for learner success in academics, which is an appropriate conclusion for the current research, as well.

The funds provided by the School to Work Opportunities Act (1994) addressed the concern that there was a gap between skills and knowledge needed to be competitive in the ever-expanding global community and the skills, ability and education exhibited in the students coming out of the United States educational system. These same funds provide the extracurricular activities that have been found to be significant in encouraging students to further
their education. These activities do appear to be providing the needed transition from CTE secondary center participation into adult career education, and beyond.

The O’Donnell and Tobbell (2007) study encouraged reflection of adult learners, to understand the needs of the adults in transitioning to higher education. Just as extracurricular activities were found to be an important component in the academic lives of the current research population, O’Donnell and Tobbell found that heavier involvement encouraged their adult population to find identities as students. Their recommendations were that institutions of higher education need to provide more experiences for the adult learners, to encourage more active participation in student activities; this is appropriate for the current research, as well.

Research Question Four

Question Four asked: Are adult workers in the implementation and stabilization stages of career development influenced by their former experiences in the secondary career technical education centers? This question is viewed as a mixed-methods compilation of the earlier statistical analyses in the first three research questions and the qualitative data gathered via the participant interviews (see Appendix E).

Mixed Methods Finding One

Research Question One investigated the relationship between the number of transformative strategies used by instructors at the secondary CTE centers during the crystallization and implementation stages of the participants’ career development and the adult workers’ current perceptions of success. A significant correlation was found between the two variables, indicating that the adult workers who had been provided multiple transformative learning strategies at the CTE secondary centers were more likely to perceive themselves as successful to very successful.
Adult workers who were former students answered the interview item (see Appendix E) pertaining to Mezirow-inspired learner-centered strategies in various ways. Two of the 29 referred to the importance of scaffolding the learner. Robbie stated, *I think he used a progression system. He wanted us to perfect the skills, because they built on each other.* The other, Kevin, said, *This is what we had kind of mapped-out as to what our career was going to be, at least in general it was going to be something related to agriculture, but I think it would be helpful for high school students to kind of have that basis going into the class. This is what this course is designed to do, this is what we’re going to attempt to instruct you in while you’re in this course.* An emphasis on balancing lecture with discussion was also viewed as important. Kevin spoke up here, stating, *I think the agricultural program in general is set up to allow for and engage students in discussion. Either as a group, or in between the students and instructors. I think that’s where a lot of the learning can take place specifically in areas that are more technical to be able to talk about the issues relating to that technicality.* Robbie’s sentiment agreed, *At the beginning of a project he would have us a blueprint and explain to us what he needed us to do. After he explained, it was pretty much open discussion.* The same two participants had comments relating to critical thinking, critical reflection opportunities, and group projects or team learning. Kevin felt that critical thinking was emphasized in some classes more than others, especially those pertaining to leadership skills. He also said, *That particular class required not only critical thinking but also critical reflection. Looking back on those issues which at the time were important issues in agriculture. Looking at them both from the perspective of how do we solve these issues? And then going back and looking at it as a group and as a class, how each other, each individual group addresses those issues throughout their class work and critical reflection was definitely involved in that.* Robbie spoke to the value of
group projects, saying, *He used group projects to teach the value of working as a team.*

_Sometimes he had the teams compete._

**Mixed Methods Finding Two**

Research Question Two explored the relationship between the number of professional pathways offered to the CTE students, and the current socioeconomic status of the adult workers who were former participants. Interviewee demographics revealed that the average socioeconomic status range of the participating individuals ($25,000-$35,000) was higher than the Arkansas average salary, which is $20,977 (U.S. Census Bureau, 2010). The statistical analyses revealed a minimally positive relationship (\( t = .597 \), correlation coefficient of .146). However, there was a weak relationship (.297) in which the opportunity to receive technical certificates was a slightly positive predictor of the adult workers’, who were former participants in the CTE secondary centers, socioeconomic statuses.

Fourteen of the 29 interviewees (48.3%) received college credit for the classes taken through their participation at the CTE secondary centers. One of the participants, Robbie, said, _I think you could get college credit if you’re going to pursue the same career path. The U of A has a machinist program now, and I remember them saying that some of the courses would transfer there._

Eighteen of the 29 interviewees (62.1%) had the opportunity to receive college scholarships through their participation in the CTE secondary centers. Three of the 29 mentioned receiving various scholarships. Ryan said, _Yes, there was a high-tech scholarship and I actually received that scholarship._ Alex spoke of receiving a scholarship offer through his participation in the student organization (VICA/Skills USA) at the CTE secondary center, saying, _Yes, through the program that I went through, I got scholarships from Ford AAA, from_
competing in that competition, as well as I won the outstanding student in that class, so I got a full two-year college scholarship. Then, there was Danny, who was satisfied with the education he received at the CTE secondary center, and chose to go no further, stating, *Yes, I had two full paid scholarships and I didn’t take either one. I had got a job right after that, made 25 bucks an hour, so I didn’t figure I needed anymore schooling.*

Twelve of the 29 interviewees (41.4%) were able to articulate their college hours earned through the CTE secondary centers into associates degrees and beyond, in postsecondary studies. One of the adult workers who were former participants, Hinrichs, mentioned the articulation agreement he was able to make in his military career field, *My coursework qualified as promotion points E5 (40 hours) in the military.*

Eleven of the 29 interviewees (37.9%) had opportunities to earn professional certifications through their various CTE programs of study. Four of the eleven articulated the extent of their professional certifications. Heloise stated that all of her hours taken at the secondary CTE center would go towards certification in postsecondary technical education. Ben referred to his earned certification, saying, *Yes, ASE (Automotive Service Excellence) certification. If you pass the ASE certification test while you are in the program, the center will reimburse you for the cost of the test. There are eight different areas of certification and they’re $80 per test.* John also spoke of earning the ASE certification for automotive. Robbie remembered his opportunities as, *I think you personally had to go to get a higher certification, but this was more of a certificate as a personal accomplishment and to put on your resume to say that you have been trained.*
Nine of the 29 (13.8%) were able to apply their coursework towards certificates of proficiency. Eleven of the 29 (37.9%) were able to earn technical certificates through their coursework taken at the CTE secondary centers.

Four of the 29 interviewees (13.8%) identified no professional pathways that were offered through their participation at the CTE secondary centers.

**Mixed Methods Finding Three**

Research Question Three examined the relationship between CTE best practice strategies utilized by the CTE secondary centers and the adult workers’, who were former participants, current education levels. CTE best practice strategies included (a) extracurricular activities, (b) career information availability, (c) professionalism services, (d) career pathways, (e) professionally-qualified CTE instructors, (f) CTE instructors as mentors, and (g) workforce preparation. Statistical analyses flagged significant, though weak, relationships between the current education levels of the adult workers who were former CTE secondary center participants and (a) extracurricular activities involved in at the secondary level (.508), (b) the adult workers’ perceptions of CTE instructor qualifications (.268), and (c) the adult workers’ perceptions of CTE instructors as professional mentors (.240). Quantitative data in the form of interviewee demographics revealed that the majority (79%) of the interviewees had a minimum of some college. The current completion rate of Arkansas’ two year colleges is 17 percent (“Arkansas Public College,” 2010); comparatively, 14 of the 29 (48%) interviewees had a minimum of an associate’s degree.

Twenty-one of the 29 (72%) of the interviewees had participated in extracurricular activities such as (a) student organizations, (b) service opportunities, (c) other extracurricular activities, including sports and other high school organizations that were not included in their
CTE secondary center experiences, or (d) a combination of the different types of extracurricular activities. Nineteen of the 29 (65.5%) interviewees had participated in student organizations, with 11 of the 29 (38%) specifically speaking to the importance of the CTE student organization, SkillsUSA, formerly The Vocational Industrial Clubs of America Inc. (VICA). The organization’s ties to career technical education are defined on the Arkansas chapter’s website (Skills USA Arkansas, 2011).

SkillsUSA is an applied method of instruction for preparing America’s high performance workers in public career and technical programs. It provides quality education experiences for students in leadership, teamwork, citizenship and character development. It builds and reinforces self-confidence, work attitudes and communications skills. It emphasizes total quality at work—high ethical standards, superior work skills, life-long education, and pride in the dignity of work. SkillsUSA also promotes understanding of the free-enterprise system and involvement in community service.

SkillsUSA programs include local, state and national competitions in which students demonstrate occupational and leadership skills. At the annual national-level SkillsUSA Championships, over 5,500 students compete in 94 occupational and leadership skill areas.

SkillsUSA programs also help to establish industry standards for job skill training in the lab and classroom, and promote community service. SkillsUSA is recognized by the U.S. Department of Education and is cited as a "successful model of employer-driven youth development training program" by the U.S. Department of Labor (About SkillsUSA section, para. 1-3).

Schuyler voiced his approval of the SkillsUSA experience, saying, *In SkillsUSA we went to state with their competition for students. We were on the health knowledge bowl team and we came in second. They told us we were going to get scholarships all the way up, and it was a really good deal.* Robbie voiced a similar statement, *We did the, like where all the secondary education-type classes got together and had competitions with each other.* Ben voiced fond memories of competing at the state level, saying, *We won third place in the competition and received several scholarship opportunities from the competition.* One student, who had not participated in the student organization, felt that SkillsUSA should have been emphasized more
by the CTE secondary center he attended. Brandon said, *I feel that it would look good on my resume, and wish that they would have told me just how important it was.*

Ten of the 29 (34.5%) interviewees participated in service opportunities during their participation in the CTE secondary centers. Schuyler remembered, *We had the option to go to some big mock crisis management situation. You know, when they have a big disaster and it’s all fake, it is like a three-day disaster thing and we had the option to go there and help triage or something.* John spoke of automotive services, saying, *We did some maintenance work for people who would volunteer vehicles for us to work on. We would advertise it to people.* Curlin remembered having a fundraiser at a local Firestone business; whereas, Kayleigh referred to delivering food donations at Christmas and picking up litter on the side of the highway.

Six of the 29 (20.7%) participated in sports or other organizations not offered through their participation at the secondary CTE centers. Eight of the 29 (27.6%) participated in no extracurricular activities during their secondary years. As mentioned earlier, the strongest relationship was found between the total number of extracurricular activities and the adult workers’ current levels of education, indicating that participation in extracurricular activities does have a correlation with continuing education.

Career information services are provided to participants of the top-performing CTE centers in Arkansas, such as (a) having a career section in the library or having a career reference room, (b) providing career information through a school website or a newsletter, (c) providing computer and internet access, (d) providing a school e-mail network for students, (e) having job fairs, and (f) other career services, such as field trips to job sites and career guidance from the CTE instructors.
Twenty-nine (100%) of the interviewees identified a combination of career information services. Eight of the 29 (27.6%) remembered having access to career information through a career reference room or a career section in the library. Twenty of the 29 (69%) remembered having guest speakers periodically and Jerra reflected, *Yes, we had licensed stylists come in that would tell us how to get started and everything like that.* Seventeen of the 29 (58.6%) remembered having a school website or a newsletter, and Kevin referred to this experiences as one with lasting impact, saying, *In high school (secondary CTE center), I actually managed a website related to the agriculture program. We started that in 2004 or maybe the year prior. Did that for approximately a year before I graduated. In my junior year in college, I actually published the newsletter for the Ag-Ed department there. In both areas I participated in that and I was aware of the department’s newsletter and website.* Twenty-four of the 29 (82.8%) remembered having computer and internet access, thirteen (44.8%) had a school e-mail network provided, and 18 (62.1%) had access to job fairs. When asked to identify other ways career information was made available, Robbie said, *We went on field trip to places where the students could possibly get a job.* Liz, Ben and Curlin reflected on ways their CTE instructors were helpful, such as providing career guidance, sending out job listings to their e-mail accounts, and helping the students to fill out job applications occasionally to help in acquiring a position. 

Twenty-six of the 29 (90%) interviewees remembered having access to services intended to increase their personal professionalism. Eleven (37.9%) remembered mock job interviews, which Robbie commented on by saying, *Yes, my teacher was an awesome teacher. He helped us out on what would go on in an interview with questions that would be asked. He said sometimes if it was between you and another guy, they may have you demonstrate on a machine and whoever does a better job will get the job.* Seventeen (58.6%) remembered having field
experiences within their classes. Kayleigh said, *I showed animals and in our Agri classes we would take field trips and go to farms and you know, help people out in the community. We got to see some really awesome things. Our Ag teacher was really amazing at getting us a lot of experiences.* Kevin reflected, *The field experience was one of the great benefits to the agriculture program.* Schuyler spoke of having to have 40 hours of field experience in the emergency medical technician (EMT) program, John remembered working in the shop on cars during his automotive training, and Burke said, *Not so much off-campus, but we did build a house per year.*

Eighteen of the 29 (62.1%) of the interviewees remembered training in resume-building, 21 (72.4%) reflected on the professionalism tips provided, 19 (65.5%) remembered having opportunities to write cover letters, 9 (31%) felt that the centers kept placement files on them, and 3 (10.3%) felt that no professionalism services had been provided at all. Robbie reflected, *He was an amazing instructor. He was there to teach the kids and he wanted the kids' future to be bright. He wanted to learn and I know from my personal experience he still to this day is one of the best instructors I ever had.* Two students spoke of doubts when asked if their centers had placement files on them. John said, *This is the first time I've been contacted since I went through the program.* Hinrichs stated, *Doubt it, I was just one in a million students. Why would they?*

Twenty-eight of the 29 (96.6%) felt that their CTE secondary center instructors were professionally-qualified. One of the 29 (3.4%) felt that his instructor was kind, but was not qualified to teach his cooking class. Rodney said, *No! I liked the teacher and everything, but she was just the type of person that didn’t know how to cook herself.* The rest of the interviewees had various remarks about their instructors, equating professional qualifications to (a) being supportive and encouraging beyond the classroom, (b) being knowledgeable about current trends
in the career field, (c) having high expectations for his or her students, (d) providing hands-on experiences, (e) having life experience in the field, beyond the degree, (f) having certifications in their field. Two of the 28 (7.1%) who replied that their instructors were professionally-qualified equated the qualifications to being supportive and encouraging beyond the classroom. Liz replied, _There were a couple of teachers I really got along with. They were there to help, they were supportive but also they treated you like a college student. It was really good!_ Twelve of the 28 (43%) felt that their instructors were professionally-qualified because they were knowledgeable about current trends in the career field. Ryan stated, _I was there for three years, and he always knew what I was on to and how to present it to me. He seemed to be very well-versed in all the different things that he covered._ Jess felt that all of his CTE instructors were qualified, saying, _They were all very knowledgeable about their respective studies._ Tristan stated, _She was one of those teachers I had for all of my computer classes. She just knew everything about computers and was very clear on the way she taught everything._ Robbie voiced his opinion by saying, _As far as my instructor goes, he was really qualified. He just, I mean you could just tell from the first day how he was presenting stuff and just the knowledge that he had, the way he used the calipers and he would tell you if you were off. You could tell he was very knowledgeable about all the machines and even a computer system that we used._ John felt that his industrial maintenance teacher was very knowledgeable, and spoke of his long-term teaching. Hinrichs stated his instructors’ qualifications emphatically, saying, _I think both of my instructors don’t deserve to be at (CTE secondary center), they need to be at NASCAR teaching engine building – they were great!_ Burke stated, _My main teacher seemed extremely knowledgeable on everything that could have possibly come up when it came to building a house or anything we did there. He wasn’t the most knowledgeable when it came to wiring, but the first year we did_
wiring was the first year he ever taught wiring, as well. Ulic said, I felt like the agribusiness teachers and things of that nature were qualified and went to reputable schools and knew what they were talking about.

Two of the 28 (7.1%) who replied that their instructors were professionally-qualified equated the qualifications to the teacher who had high expectations for their students. Both of the respondents were from the same region, and both mentioned the same family and consumer science teacher. Mandy stated, She was very professional on everything she did, she was one that wouldn’t just let you sit back and laugh and act a fool, she actually helped everyone. She would tell them, “Listen, I’m not going to help you make your grade. You got to do your best.” She wanted everyone to do their best that they can do. She pushed you to give more than you’re willing to give up to make us a better person. I’ve never had a teacher push me so hard and when my first year of college my history professor reminded me so much of that lady and I told him thank you every day. Speaking of the same teacher, Cason said, To be quite frank, I’ve never met another person, male or female, college or high school level, that could keep the classroom in order like she did. When you walked into her class, you knew she was the boss. She does not just have students and then forget them. I remember being in her class and hearing a knock at the door and one of the students that had her in the past had come by to say hello and tell her how they’re doing. She made an impact on many people.

Three of the 28 (11%) who replied that their instructors were professionally-qualified equated the qualifications to the teacher who provided hands-on experiences. Will spoke of his welding and automotive instructor, saying, He was easy to get along with, good-natured, more hands-on. He ain’t there no more, he left a year after I left. I bet most anything in the shop I learned. How to work on vehicles, tractors and everything. Kayleigh spoke of her agriculture
teacher, saying, *He involved us all the time, hands-on, you couldn’t ask for a better hands-on teacher. When it came to the field of showing animals, like at a fair, he was always really caring; he came around to everybody and tried to help any way he could and tried to find people to help us.* Curlin spoke of his computer instructor, saying, *He taught us through doing things by hand, rather than by the book. On our first day of the class, he put a computer in front of us and said, “Look through it and tell me what you see.” I thought the class was for computer programming at first, but then found out it was for computer hardware repair.*

Seven of the 28 (25%) who replied that their instructors were professionally-qualified equated the qualifications to the teacher who had life experiences in the career field, beyond a college degree. Gabriel stated, *He was very knowledgeable on what we went over as far as the medical portion and he knew exactly – it wasn’t that he was just teaching straight from the book, he had the knowledge and our CPR first aid instructor was very knowledgeable and had been an ambulance instructor and had been in the ambulance service for many years.* Kevin spoke of three agriculture instructors, saying, *I believe that all three of our agricultural instructors were not only well-educated, but also had the personal experience in agriculture to base their instruction on. They didn’t just go to college and attend class; it is one thing to have general knowledge, they actually had hands-on knowledge of being involved in agriculture themselves. Which I think specifically in agriculture, in certain areas of agriculture, that could be very helpful. In instructing students on those issues, to have that background upon which to rely, some of it is more common sense than textbook-based and some of it is a mixture of both. Sometimes what somebody does in a research setting when you go and apply it to real-life the typical American farmer out in the field minding his crops or his livestock is not going to be able to replicated what you could in a controlled setting where maybe finances are a little less limited.*
than what they would be for the conventional farmer. Schuyler spoke of his medical instructors, saying, *The nurses that were leading all of the classes were very, very well-equipped and qualified and had a lot of experience.* Jerra referred to her cosmetology instructors, saying, *A lot of them had been doing hair for a very long time and had been instructors for a long time and they were just really helpful and professional about things.* Alex spoke of his automotive instructor, and said, *He said he was a mechanic, he worked in tire shops in different places and seemed like he knew what he was doing.* Ginger felt her two instructors were qualified, saying, *Both of them did nursing work throughout their whole life. And I know that was one of those things that I thought made the class really interesting, was that not only did they know everything about what they were teaching, but they also had personal experience so that they were able to tell stories about certain situations and I really think that made the class really interesting. Instead of just reading straight from the book, learning from personal experiences that they had and I enjoyed the class more than any other class I have had.* Danny felt that his automotive instructors were qualified, as he said, *One of my instructors quit, and he’s a mechanic here in town now. The other guy was old school and both of them would teach you stuff, you know, “I’ve been tinkering before,” and they would show you different ways to do it and the correct way to do it.*

Two of the 28 (7.1%) who replied that their instructors were professionally-qualified equated the qualifications to the teacher who had professional certifications. Jacob and Ben both referred to their automotive instructors who were Automotive Service Excellence (ASE) certified. Jacob said, *Some of them were ASE certified and stuff like that and they had the qualifications to teach it.* Ben stated, *I know that they were ASE certified in all the areas that*
they taught and they were also North American Technician Excellence (NATE) certified. It is the same certification as ASE but it’s for instructors.

Interviewees were also questioned about professional mentor relationships with their instructors, as an additional indicator of CTE best practice. If the respondent answered “Yes,” then they were asked to detail how the instructor/mentor was helpful in their program of study and beyond. Twenty-four of the 29 (82.8%) interviewees identified former CTE instructors as professional mentors, 1 (3.4%) interviewee identified a former counselor as a professional mentor, and 4 (13.8%) did not identify any former CTE instructors/counselors as professional mentors. For the 24 who responded that their CTE instructors were viewed as professional mentors, the reasons given were the former student felt that the instructor (a) exhibited good teaching skills, (b) showed personal interest in his or her students’ lives and future careers, (c) had high expectations of his or her students, (d) had prepared him/her for the real-world, (e) enhanced the former student’s character, or (f) the former student respected the instructor’s professionalism.

Seven of the 24 (29.2%) respondents who identified former CTE instructors as professional mentors felt that their instructors had exhibited good teaching skills that left a lasting impression. Brandon felt that his CTE instructor provided good feedback and constructive criticism, when necessary. John felt that his CTE instructor provided him with skills that he currently uses every day. Liz stated, *She was awesome, I loved her class. To me, she was up-front and this is how it’s going to be. She was helpful; if you had questions she would help you understand it. She was just a good teacher.* Gabriel, who struggled in school, said, *She was very knowledgeable and she actually helped me along a whole lot through my career. I have a difficulty in reading comprehension, I struggle in that area, and she is a retired schoolteacher,*
so she knew how to deal with that. She was a retired schoolteacher and then she started teaching in the medical field and she knew exactly how to help me so that I would understand it better and I can understand and comprehend it a lot easier. Will enjoyed his CTE instructors’ methods, saying, They have always been good to me and they were really good guys, hands-on told you detail by detail on what to do and stuff like that. Rodney referred to his instructor, saying, She really taught me how to know how to write an essay and a cover letter, you know, the letter that you send whenever you might get the job. She taught me how to do all of that, she really taught me a lot in her class.

Eight of the 24 (33.3%) respondents who identified former CTE instructors as professional mentors felt that their instructors showed personal interest in their students’ lives and future careers. Ryan spoke of his drafting instructor, saying, He took me down to (name of college), where I went as a college student, and showed me around and introduced me to the instructors there and he’s actually the one who got me the job I have now. Kayleigh referred to her instructor’s kindnesses, saying, I know I was taking a college crop class and I had to call (instructor’s name) several times. I had to do an interview with him. I had to call him for help with my college courses. He was always willing to help me just like he was in high school. It didn’t matter what was going on, he would drop anything to help us. As long as we were succeeding, he was good to help us get through it. I’m so blessed with that! Brian spoke of his instructor’s strengths, saying, I talked to him a couple of times after I graduated, but he really is the only one I can think of that was a great teacher and that really knew what he was talking about and really kept up with up-to-date technology. Actually, one of the e-mails I sent him was I failed to actually take the A+ certification test when I was at the center. I knew there was a practice test that Word had available, so I e-mailed a couple of years later and I asked him for
Jerra referred to her instructors’ interest in her, saying, *After my study, when I was out in the field, they told me when I left if I needed anything they could help with, I could call and they would help me. Of course, if I had questions, I would call and also I can still talk to them this day, if I need to.* Joanie and Curlin referred to their instructors’ availability to them when needed; Hinrichs spoke to this, as well, mentioning, *I could literally call their house phones and they would let me put them down as references on applications.* Burke spoke to his relationship with his CTE instructor as a professional mentorship, as he shared a love for the military with him, and would return to visit his instructor when on leave.

Three of the 24 (12.5%) respondents who identified former CTE instructors as professional mentors felt that their instructors had high expectations of their students. Mandy spoke of two of her CTE instructors, saying, *They were both amazing people. They both push you beyond your limit.* Schuyler felt that one of his CTE instructors wanted him to succeed, saying, *One of them I felt like was more interested in developing me beyond just that class. Do you know what I mean by that? They wanted to see me personally succeed and tried to have an effort there. Just encouraging me to do things like run for SkillsUSA president, working with us on the health knowledge bowl, personal discussions and just encouragement.* Kevin spoke of his instructors’ high expectations, saying, *All three of the instructors definitely had a professional influence. A lot of that comes from my decision to pursue the degree that I did. They were very instrumental and kind of pushing me in that direction and so they have relayed to me my potential and pushed me towards that end, when times I may have had a reluctance to go that route. And I can say that I’m fairly happy that they have.*

Three of the 24 (12.5%) respondents who identified former CTE instructors as professional mentors felt that their instructors had prepared them for the real world. Tristan
stated, *They was very helpful in preparing me for the real world. I’m a deputy and I see everybody (CTE instructors) all the time, I’m always friendly with everybody.* Ben spoke of his real world preparation, saying, *Going through that program is actually what determined my career field. When I was in high school, I didn’t really know what I wanted to do, but by going through that program, it gave me the direction to where I wanted to go in life.*

Two of the 24 (8.3%) respondents who identified former CTE instructors as professional mentors felt that their instructors had enhanced their character. Cason responded in this fashion, saying, *I can think of numerous things I do in my life today, both morale and the way I think and carry myself, and I can see a few of my educators (CTE instructors).* Jacob said simply, *They helped build my character.*

One of the 24 (4.2%) respondents who identified former CTE instructors as professional mentors respected the instructors’ professionalism. Ginger stated, *We had a lot of times in her class and even now, I know she’s about to quit her job and go back to nursing, and I think that is very honorable. As many times I’ve been sick, I would have loved to have had a nurse like her. And I think she would make any patient, I think any patient would be lucky to have her as a nurse. I look up to her a lot.*

The final interview item pertaining to CTE best practice strategies questioned the adult workers who were former participants about their perceptions of their workforce preparation. The interviewees were asked if they felt that the CTE secondary center program of study prepared them for the workforce. If they responded positively, they were encouraged to tell how they were prepared. If they responded that they had been unprepared, then they were encouraged to tell what the center should have done for them. Twenty-six of the 29 (89.7%) interviewees responded that they had felt prepared, while 3 (10.3%) felt unprepared for the workforce. The
interviewees responses of how the CTE secondary centers prepared them for the workforce ranged from the program (a) taught skills that the participant still used daily, (b) gave the participant information that helped in postsecondary academic pursuits, (c) encouraged critical thinking skills that were useful in his or her career field, (d) helped the participant in dealing with other professionals, (e) helped the participant narrow-in on career decisions, (f) provided hands-on experience that proved valuable, or (g) the interviewee could not verbalize how he/she was prepared. For those students who felt unprepared, their responses on what should have been provided at the CTE secondary center were (a) no suggestions, (b) the CTE secondary center should have provided more realistic feedback about career options, or (c) the CTE secondary center should have provided more hands-on experiences.

Eleven of the 26 (42.3%) interviewees who felt that the CTE secondary centers had prepared them for the workforce responded that the program taught skills that the participant still uses on a daily basis. Liz stated, *Yes, I knew I was going to go somewhere in medical, I didn’t know where or when. It did teach me stuff I use daily.* Mandy felt that her family and consumer sciences program prepared her for raising her children, saying, *Some of the classes that I took have helped me in my parenting, because I took the parenting classes with (CTE instructor’s name) and it helped me with my children; yes, they did; they helped a lot.* Will applied his skills to his farm life, saying, *They taught me more stuff that I learned on the farm. Like, how to be precise, precision and stuff like that.* Jacob appreciated his automotive skills, saying, *They helped me learn how to work on vehicles a little bit. When I need to work on them, I know how. I still have a little bit of knowledge I ain’t used, but I didn’t forget it.* Jerra uses her cosmetology skills on a daily basis, and said, *They helped me pretty much in every way with my skills professionally. Financially, they helped me figure out how I was going to need to do that.*
much every way I can think of. Burke applied his electrical skills in full-time military service, saying, *Granted, I took the route of the military, which didn’t have a lot to do with that. Some skills I learned in that class I carried over; even though as a military policeman there were the times where things would need to get wired or we would have to build something for someone and it wasn’t the most common thing in the world that my skills kind of gave me the option of actually doing it, instead of waiting a month or two to see if they can get an engineer or someone else to come in and build on it, or trying to wire a Humvee or something like that.* Brandon felt that his experiences helped in the daily operations of his job, saying, *Yes, just the negatives and the positives prepared me for the workplace, whether it was professionalism or just deadlines.*

Four of the 26 (15.4%) interviewees who felt that the CTE secondary centers had prepared them for the workforce responded that the program gave them information that helped in their postsecondary academic pursuits. Ryan stated that he was prepared by, *Being able to cover multiple programs on the software; I already knew that when I went to college and so it kind of propelled me a little forward more.* Brian felt that his program of study provided him with the basics, saying, *I think college is more to understand the basics and then to think freely more on your own.* Ben felt that his automotive experiences were helpful, saying, *They gave me a basis, the basic fundamentals of automotive so that I could further my education. I had a big leg up on a lot of other people that were in the postsecondary program with me, because I had already taken four of the subjects that they went over in the postsecondary, so I already knew a lot about them.* Joanie felt well-prepared for postsecondary pursuits, saying, *I think with the classes that I did, it gave me more of an open mind, and wasn’t closed off, and I was always, you know, willing to learn new things and apply those. I am really anxious with technology to see how the*
different types of technology and software work, the things that change so much I’m always looking to the next thing.

One of the 26 (4%) interviewees who felt that the CTE secondary centers had prepared them for the workforce responded that the program encouraged critical thinking skills that were useful in his or her career field. Gabriel stated that he was prepared, *Very much so. You know there’s only so much you can learn in a classroom, but we had also a lot of hands-on skills. But there’s a lot of knowledge that you have to learn and memorize different facts, different stuff you’re going to have to memorize as far as knowing what to do. Not hands-on, but knowing how the body works, knowing different areas like that today prepared us for hands-on skills with time and to do them over and over. But a lot of that stuff we had to learn and memorize; when you get to the field, you have to know what the problem is and you know what to do for the problem. They helped us a whole lot by doing a lot of critical thinking stuff in her class.*

Four of the 26 (15.4%) interviewees who felt the CTE secondary centers had prepared them for the workforce responded that the program helped them in dealing with other professionals. Jess said, *They were all helpful in preparing me for dealing with professionals in their own fields.* Kayleigh felt that her agriculture experiences were helpful in this manner, saying, *There are several things I learned that had it not been for my agriculture classes and actually doing and seeing professionals in action, I would never know what to do. Honestly, I truly believe that.* Robbie felt that his experiences helped him in dealing with coworkers, saying, *I think it prepared me more for maybe not my line of work that I went into now, but it gave me a sense that there were guys there that would work five days a week and sometimes a guy would get on your nerves, but you had worked side-by-side with them and it kind of prepared you for, it kind of matured you a little bit. It helped me learn how to work with coworkers.* Curlin felt, *He
showed us that not everybody will be kissing our backsides all the time. Taught us to think quick on our feet.

Two of the 26 (7.7%) interviewees who felt the CTE secondary centers had prepared them for the workforce responded that the program helped him/her narrow-in on career decisions. Kevin felt, *It was definitely one of the steppingstones. I believe it prepares you, yes, it more, I don’t know exactly how to put that, it more pushes you in a direction to start thinking about what your career might intentionally be there. It opens your eyes to what is out there.* Cason agreed, citing the examples of his family and consumer sciences classes and his business classes.

Two of the 26 (7.7%) interviewees who felt the CTE secondary centers had prepared them for the workforce responded that the program provided hands-on experience that proved valuable. Ginger elaborated, *First, just the knowledge that I learned and being able to go and see different parts of the hospital and go on field trips, and I kind of got an idea of what is going to be like so that when I did do interviews or became a CNA worker it was like something I had already done, even though it was something I had never done before. I just know all of the hands-on experience was something that just made everything I've learned kind of stick with me. Because it was hands-on, and I was with friends, and I felt like they were my friends too, not just my teachers, we could talk about anything. I remember so much even though I haven't been doing CNA work or medical or any type of medical work in like two or three years now, I still do like that I can remember and still know a lot about the stuff that I've learned even though it's been that long since I've been the class just because it was hands-on experience and I just remember all those things they taught us. And I just loved that class.* Danny stated, *I was able
to go into a job first thing out high school and knew exactly what I was talking about instead of
guessing what I was doing and what I wasn't doing.

Two of the 26 (7.7%) interviewees who felt the CTE secondary centers had prepared
them for the workforce were unable to verbalize how they felt that their experiences had
prepared them. Rodney stated, *Just the one class helped, the rest of them I don’t’ need it, I
hadn’t run into them in life yet.* Heloise reflected, *They could have helped if I would’ve stuck
with them.*

Bob felt that his experiences in the CTE secondary center had not prepared him for the
workforce, but did not provide any suggestions for improvement. Schuyler also felt unprepared
and felt that the CTE secondary centers should provide more realistic feedback about career
options, saying, *Well I think something that would be very very helpful that is missing; they
should convey the reality of the working life more to the students, instead of making it a more
academic pursuit.* The EMT, CNA, those were all wages that no one could survive on in my
opinion. Whenever I got out of (CTE secondary center), I feel like they promoted it as a good
career. I actually don’t like the school system. I don’t think colleges prepare people for what
work actually is it’s a wake-up call when you get into the workforce. I feel like students gauge
their performance by the feedback, like a grade and being pushed to succeed like when you're in
the workforce some supervisors will push you to be your best, but there's not as much
involvement. It's hard to find praise in the work place and in school it’s handed out like candy if
you even try. Ulic credited his family values for preparing him for the workforce, and felt that
his CTE secondary center should have provided more hands-on experiences, saying, *There’s
nothing better than hands-on experience, in my opinion. Honestly the thing that prepared me for
the workforce was my family values; the things I learned from my family as far as work ethic goes.

Mixed Method Findings Discussion

The mixed methods findings involved a compilation of the statistical analyses and the qualitative components of the first three research questions, which investigated the relationships between (a) the number of transformative learning strategies experienced in the crystallization and specification stages of life and the adult worker’s perceptions of current professional success, during the implementation and stabilization stages of life, (b) the current socioeconomic statuses of the adult workers and the professional pathways offered through their participation in the secondary technical education centers, and (c) the best practice strategies utilized by the secondary technical education centers during the students’ crystallization and stabilization stages of life and the adult worker’s current education level.

Mixed Methods Finding One described the statistical analyses that indicated that the adult workers who had been provided multiple transformative learning strategies at the CTE secondary centers were more likely to perceive themselves as fairly successful to very successful. The qualitative analyses investigated the adult workers’ reflections on the transformative strategies that were particularly meaningful, including (a) scaffolding the learner, by providing activities that build on prior knowledge, (b) balancing lecture with discussion, allowing time to openly discuss new concepts, (c) critical thinking and critical reflection opportunities, with an emphasis on solving problems and building leadership skills, and (d) group projects, to teach the value of teamwork. The qualitative data related strongly to the literature on Mezirow’s theory, as the participants valued critical reflection and critical thinking as tools to increase leadership skills and problem-solving abilities. Just as adult learning is viewed as the means to developing
critical thinkers who reflect on former assumptions about the world in which they live, CTE
quality instruction appears to fill this need, as well. Furthermore, the andrological concept of
linking prior knowledge to new experiences in both secondary and adult education (Knowles,
2005) can be found in the interviewees’ reflections. The interviewees who valued their
instructors’ means of scaffolding the learner, had instructors who helped them reach specific
objectives in ways that encouraged them to be more self-directed, which is one of the goals of
transformative learning.

The results of Mixed Methods Finding One are reminiscent of adult learning theory, in
which research recognizes the role of the experiential base and critical reflection (Boud, Keogh,
& Waler, 1985). The interviewees valued the group projects and open discussion provided by
their instructors, just as Fogarty & Pete (2004) suggested when they found that much can be
learned from discussion among peer groups, in which a diverse group of adult learners share
freely about individual experiences.

Mixed Methods Finding Two investigated (a) interviewee demographics, which revealed
that the participating individuals had a socioeconomic status that was higher than the current
state average, (b) statistical analyses, which revealed a minimal relationship between
socioeconomic status and professional pathways offered to CTE students, (c) statistical analyses
which indicated that the opportunity to receive technical certificates was a slightly positive
predictor of the adult workers’ current socioeconomic statuses, and (d) reflections of the adult
workers, concerning the professional pathways that had been offered when they were
participants at the CTE secondary centers. The majority of adult workers shared reflections on
professional pathways they found meaningful, and only four participants were unable to identify
any experiences that could be construed as professional pathways. The reflections focused on
the professional pathways of (a) college credit, (b) college scholarships, (c) articulation of CTE secondary courses into college degrees and military promotion points, (d) professional certifications, (e) technical certificates and (f) certificates of proficiency. The qualitative analyses provided insight into the transitions from secondary technical education to adult career education. The Association for Career and Technical Education (2011) advocates for local, state and federal funding of career and technical programs of study; the reflections of the adult workers, who were former participants of CTE secondary centers, have shown that those monies allocated for CTE experiences have had a lasting effect.

Mixed Methods Finding Three included the statistical analyses that revealed a significant, though weak, relationship between the current education levels of the adult workers who were former CTE secondary center participants and the extracurricular activities they were involved in at the secondary level. Other variables indicating a weak relationship to the current education levels are the adult workers’ perceptions of CTE instructor qualifications, and the adult workers’ identifications of CTE instructors as professional mentors. Interviewee demographics revealed that the majority of participants had attended college, and almost half had a minimum of an associate’s degree, which is a much higher education level than the state average. These results are in contrast to Morgan Lewis’ research (2008), which indicated that goals in CTE are not being met, citing the finding that fewer than 20 percent of technical prep participants are completing two-year degrees or the credential attached to their programs of study.

The Arkansas Department of Career Education (2011) recommended best practice strategies in the form of CTE student organizations, emphasizing the importance of engaging students in extracurricular activities that develop leadership abilities and encourage application of content learned in the classroom. The vast majority of interviewees had participated in
extracurricular activities, and their reflections focused on (a) SkillsUSA, the CTE student organization that provided opportunities to earn scholarships through technical competitions at the local, state and national levels, and (b) service opportunities, in which the participants had been able to use technical skills as a way to give back to their communities.

Other best practice strategies that proved meaningful to the adult workers who were former CTE students were (a) career information services, in which students were provided information by experts in their chosen fields of study, or through a school newsletter, website, and field trips to potential job sites, (b) services intended to increase professionalism, such as field experiences mock job interviews and resume building (c) CTE instructors’ professional qualifications, (d) identifications of CTE instructors as professional mentors, and (e) workforce preparation. The Arkansas Department of Workforce Services’ publication, \textit{Career Watch Arkansas 2009-2010}, emphasized the importance of these professionalism skills, including interview skills, resume writing, career pathways and real-life application of skills.

Almost all of the participants identified their former CTE instructors as being professionally-qualified. The adult workers’ perceptions of their former CTE instructors’ professional qualifications brought forth many reflections that dealt with the themes of equating professional qualifications to (a) being supportive and encouraging beyond the classroom, (b) being knowledgeable about current trends in the career field, (c) having high expectations for his or her students, (d) providing hands-on experiences, (e) having life experience in the field, beyond an academic degree, and (f) having certification in their field. Over three-fourths of the interviewees identified former CTE instructors as professional mentors. Themes that emerged from their reflections included perceptions that their instructors (a) exhibited good teaching skills, (b) showed personal interest in their students’ lives and future careers, (c) had high
expectations of their students, (d) had prepared their students for the real world, (e) enhanced their students’ character, or (f) the former student respected the instructor’s professionalism. These instructors met the criteria for providing Bowman’s (2005) four key elements of motivation of their learners, as (a) they made their classes interesting, (b) they linked new information to their students’ prior experiences, (c) they presented information that was useful to their learners’ lives, and (d) they provided a positive emotional environment. While no literature could be found that investigated students’ perceptions of teacher qualifications and mentorship, the qualitative data suggested that the students’ reflections of their CTE instructors’ qualifications and mentorship were meaningful and lasting.

The overwhelming majority of interviewees felt that they had been prepared for the workforce, with only three former students claiming to have felt unprepared. The interviewees’ reflections on their workforce preparation ranged from the CTE program (a) taught skills that the participant still used daily, (b) gave the participant information that helped in postsecondary academic pursuits, (c) encouraged critical thinking skills that were useful in his or her career field, (d) helped the participant in dealing with other professionals, (e) helped the participant narrow-in on career decisions, to (f) provided hands-on experience that proved valuable. As learning is the basis for our society’s future progress (Gredler, 2009), it is essential for students to feel prepared for the workforce of tomorrow. Due to the very nature of the world in which the modern individual lives, the Information Age now dictates that there will be a constant need to renew, investigate and expand the existing knowledge base (Duyff, 1999). Furthermore, CTE secondary and adult best practice strategies dictate that educators provide conditions that will bring about changes necessary for career development (Taylor, 1998). The instructor should provide (a) conditions that promote a sense of personal well-being, (b) learner-centered
approaches for instructional delivery, and (c) exploration activities, for self-directed learning. The interviewees’ reflections revealed the best practice strategies that were meaningful to the current research population.

For those former CTE students who felt unprepared, their responses on what should have been provided at the CTE secondary center were (a) the CTE secondary center should have provided more realistic feedback about career options, or (b) the CTE secondary center should have provided more hands-on experiences. The Commission for a Nation of Lifelong Learners (1997) encouraged the ideal that education should support individuals, as they attempt to empower themselves through the acquisition of knowledge and skillsets that will enhance their lives in all circumstances. Both suggestions for improvement in the CTE secondary centers are in line with the commission’s ideal, as (a) realistic feedback about career options may help the participants make more informed career decisions for personal and professional lifelong success, and (b) hands-on experiences provide the opportunities to enhance skillsets necessary for the workforce.

**Qualitative Finding One**

Adult workers, who were former participants of the CTE secondary centers, were able to make career decisions, during the stages of crystallization and specification, which were satisfying into the implementation and stabilization stages of their career development. Thirteen of the 29 (44.8%) interviewees stated that they had remained in the career field that they had chosen at the CTE secondary centers, and further reported that they were currently satisfied with their career choices. One participant, Cason, expressed his satisfaction by saying, *I would say that the program helped me decide where I wanted to go, gave me an avenue to go down and then from that avenue I ended up where I am today. So, I would say it tremendously shaped what*
I’m doing currently, and yes, I am satisfied with my career choice, absolutely. Another participant, Curlin, voiced his ambivalence in saying, I’m happy that I’m getting to work with computers and help children, but I’m not too excited about my pay.

Of the sixteen interviewees who had chosen different career paths than the ones chosen during their CTE secondary center participation, 8 (50%) voiced that they had either (a) tried to find a job in their chosen career field, (b) worked in the chosen career field for a time, but had to leave for economic reasons, (c) worked in the chosen career field for a time, but had to leave for personal reasons, (d) were continuing to take classes in the chosen career field, or (e) attempted to work in the chosen career field, but was deterred by field requirements beyond personal control. One participant, Kevin, stated his reasons this way: The job I have now is nowhere close. The job before this was pretty close, but once that job ended I had to find something. Another interviewee, Schuyler, voiced his concerns in saying, Actually, I did. The program I got in, I was one of the few people who passed the EMT license, at least on the first try. There may have been one other person who passed it from our secondary technical center, but from what I understood that was not the case. I don’t know how many students in the past actually passed the licensure maybe they hadn’t had any, but when I went to apply, the results were that you can’t drive an ambulance or be on an ambulance unless you are 21, because of insurance reasons. So then I ended up losing my license because you have to work as an actual EMT so many hours a year. This student had wanted to pursue his career in the medical profession, but was unable to do so, due to the age restrictions. He was a licensed EMT at the age of 18, but was unable to obtain a job in the field before the age of 21. One participant, Tristan, was working in a different field than the one chosen at the CTE secondary center, but said, I’m still currently taking classes. I’m just having to take a few at a time, because I’m taking them on my own. I’m
getting my Associate of Arts. One participant, Jacob, had worked in the chosen field of study right after high school, but changed his career path, saying, *I worked at a garage for a couple of years but didn’t hang around there too long, there wasn’t no money in it.* Along the same lines, Hinrichs said, *I did the automotive program and then I immediately went into doing automotive work after that and it was a very good job and I was very well-trained for it from what (CTE instructors) did for me. Unfortunately, I had kids and everything in the automotive department deals with commission and commission wasn’t what I wanted my family to grow up on. It wasn’t the college’s (secondary center) fault, it was the way you got paid.* One interviewee, Brandon, voiced his concerns about the economic situation by saying, *I moved and was on the prowl for a job for about three months, probably had two or three interviews in about three months (pause) and related to graphic design. The economy is in bad shape and two or three years later, I’m just now seeing an increase in graphic design jobs.* An interviewee, Ginger, spoke of health issues that prevented her from remaining in her chosen career field as a certified nursing assistant. She said, *I worked as a CNA for about two years and I got really sick and had to have my third open-heart surgery. After I got really sick and was in the hospital for a while, I decided that maybe CNA work was probably not the right thing for me at the time because that was how I got sick by being around sick people all the time.*

Of the eight remaining former students who were not in their previously-chosen career fields, and had not attempted to pursue a job in that area, two men referred to joining the military. The first, Jess, said, *While I was in college, I decided a career as an army officer was right for me.* The other, Burke, said, *I was going into the military, so it was kind of more what they wanted me to do.* One interviewee, Ulic, said, *I would have been better off with an environmental degree of some kind,* as he felt that he should have chosen another area of study.
while at the CTE secondary center. Two more of the participants referred to changing their minds while pursuing their postsecondary degrees, and the remaining three gave no reasons for why they had pursued different career pathways.

In summary, 21 of the 29 (72%) interviewees had expressed that they had hoped to continue on the career pathways that they had chosen while they were students at the CTE secondary technical centers. This is indicative that adolescents in the career development stages of crystallization and specification are capable of choosing career pathways that will remain personally and professionally satisfying into the adult career development stages of implementation and stabilization.

**Qualitative Finding Two**

More than half of the 29 (55%) interviewees identified hands-on experiences as being extremely beneficial during their years at the CTE secondary centers. One interview item asked the adult workers who were former participants to identify the one thing that stood out to them as the most beneficial, from their CTE secondary experiences. The responses ranged from (a) coursework, (b) hands-on experiences, (c) values gained, (d) career expectations, to (e) they could not identify any beneficial experiences.

Six of the 29 (21%) interviewees responded that the coursework was the most beneficial. Liz said, *I enjoyed it all. I liked the basic information that I learned in that year. Learning medical terminology for the first time was cool. Learning the college experience and having somebody there for a whole year to guide you where you need to go. I think it would be different if I would have just graduated and then had to do it all on my own.* Gabriel also referred to a medical class in saying, *I would have to say the one thing that helped is now more than anything as far as what we did the biggest thing that I think stayed with me is that we had to label the*
entire body. Like things to remember as you have to study it’s so hard because of all the bones and it’s active and that really stays with you - any study that you have to imagine that hard.

Jess felt that his automotive classes were beneficial, saying, *The advancement of the classes beyond normal high school classes.*  Schuyler was the third interviewee to refer to medical coursework, saying, *I learned a lot and I am someone who values learning for the sake of learning. But I learned a whole lot about healthcare, the body and that was very valuable. I still work in a healthcare company corporation rather than in the hands-on, but I learned a whole lot I really did. The material they present is very educational. The health career ethics class I did take was very beneficial I think I actually got an A with it. And if you're going to keep going to that school afterwards you'll have plenty of extra electives.*  Brandon valued the articulation into college credit, saying, *Just gotta be establishing college credits. You can start early, and finish early, which is the reason I did it.*  Danny spoke of his automotive classes, saying, *I guess just the knowledge and what they taught us on how to get things done.*

Sixteen of the 29 (55.2%) of the interviewees felt that the hands-on experiences were the most valuable aspect of their CTE secondary experiences.  Ryan referred to a meaningful incident in his drafting coursework, saying, *The last year in that program, he was able to purchase a model printer; we were able to create our part and then actually be able to print it and have the model in our hands. We could see both sides of it and see if you did something wrong and if you printed it out, you could see where you need to adjust it.*  Bob simply stated, *Probably just the hands-on type experiences that you get from it, I would guess. That would be the most helpful aspect I guess.*  Will said, *The Agri classes for me and welding classes.*  Kayleigh said, *I'm a really hands-on learner. I have to learn from experiences and try whatever it on. I'm a doer, not a watcher. Being able to do all those things and being a part of it; that's*
what truly helped me the most in life, in my personality and a lot of things. Rodney enjoyed the hands-on experiences his cooking class provided. Tristan, currently a deputy, referred to his computer classes, saying, In my job today we do all their accidents on computers. All of our reports are on computers. If it wasn’t for the computer classes, I wouldn’t know how to really type real good or how to work the different programs. It was very helpful and I use everything everyday in my job. Robbie mentioned his SkillsUSA experiences, reflecting on the hands-on experiences the competition provided. He said, As far as SkillsUSA, we worked really hard together to perfect it; it was the one where he showed the arm and presented the gear; I can’t remember what it was called. Jerra, a cosmetologist, stated, Really, just the hands-on part of everything. After so many hours you could move into doing actual haircuts with instructors right by your side, then teaching along the way. Without that, there’d be no way you could learn without the hands-on. Definitely that part. Ben appreciated his skills, stating, I’d say honestly that being able to work on my own car and learn about my own car throughout the class. It was a great way to save money! Alex also referred to automotive skills, saying, Overall mechanical, being familiar with automotives, I learned a lot about working systems and air systems. John simply stated, Welding skills in the industrial maintenance class. Joanie reflected on a meaningful experience saying, I think, because my senior year our high school hosted a basketball tournament and we were able to put together programs and get sponsors and things like that for the marketing of the tournament. It was really rewarding to learn all that stuff and then to be able to apply it. Curlin and Ginger both said simply, The hands-on experience. Burke said, I mean, I don’t know. I really liked it because it taught you a job skill that you chose that you’d be interested in that would really help you after high school and instead of just coming out of high school without any actual relevant work experience or anything like that. For me, it’s
kind of hard to say. I really like the experience of learning how to do that and knowing how to build things, how to tripwire things and stuff like that. Ulic said, I haven’t never thought about it; it was challenging, the things that we learned. We learned like in the agricultural or mechanics class how to use tools we learned the trade they taught us how to weld and things of that nature but my opinion it really hasn't been that beneficial for what I do today.

Three of the 29 (10.3%) interviewees reflected on the values they gained from their experiences in the CTE secondary centers, counting them as the most beneficial during their secondary years. Mandy appreciated a value she uses daily in parenting her children, saying, Patience is a good thing. I have a one-year-old and a two-year-old, so I have that terrible two's and the crawling-trying-to-walk stage going on and it has taken a lot of patience. Cason referred to the professional dispositions he learned during his time at the CTE secondary center, saying, I got to see the opportunity of networking and that even in the real world be the best you can be. If you’re going to be a doctor, be the best doctor you can be. If you’re going to be a ditch digger, you better be the best ditch digger you can be. Just the inspiration that you know your job might not be glamorous and it might not be pretty, but it’s providing for you and you’re happy and do the best that you can do at it. I know that so many people tried to look good but if you’re miserable at it the job is not very beneficial other than a nice paycheck. So take pride in yourself and whatever it is you’re doing. That was very beneficial to me. Hinrichs referred to the independence he felt at the CTE secondary center, saying, I would say the way they did a very good job of transitioning you from high school student to young adult in that they weren’t going to hunt you down and beg you to do your work, they weren’t going to baby you or do any of the stuff they do for you in high school. They expected you to show up do what you had to do, to do
your work and if you didn't, that's fine get out of class; if you did, that's great, if you don't understand, ask me a question.

Two of the 29 (6.9%) interviewees felt that the most beneficial experience from their days at the CTE secondary centers was the focus on career expectations. Kevin felt that his agriculture classes gave him this focus, saying, *I think it would be the opportunity to get a small glimpse of what a career would be, because it kind of guides you into what steps you're going to do; whether that be going into education at a technical college or some other institute of higher learning, a two-year college or four year college. It also points out to you that specific area that you thought you were interested in is not something that you necessarily want to pursue.* Brian spoke about his information technology coursework, saying, *Given the general idea as to what to expect; maybe a broad idea as to what information technology has to offer. “This is what we can offer you and from there hopefully you can find something that fits what you have signed up for.”*

A lot of what I learned at the center was more hands-on type troubleshooting programs, not specific software. Really the only software I remember learning was operating systems such as XP 2000 and Red Hat. We learned Microsoft Office suites and such but I really don't know how any school could tackle real specific software I don't know that necessarily could be improved.

Two of the 29 interviewees (6.9%) interviewees were unable to identify any one aspect of their CTE secondary center experience that was especially beneficial. Heloise said, *That one will be hard for me. It's been so long ago. I'm not sure.* Jacob stated, *I ain't sure. I'd say it be different if I was still in that field, but those classes I took there didn't help me do what I'm doing now. I mean, if I was still in that field, I'd probably list 100 things that helped me. As it stands right now, it was kind of a waste my time to take the classes because I'm not doing nothing near that.*
Qualitative Finding Three

Almost half of the 29 (48.3%) interviewees were unable to think of one thing that was least beneficial from their CTE secondary experiences. One interview item asked participants to identify the least beneficial from their CTE secondary experiences, and the responses ranged from the participant (a) would have chosen a different program of study, (b) reflected on his or her instructor’s teaching style, (c) reflected on the class structure, (d) felt that the coursework was lacking, (e) felt that he/she could have benefitted from counseling to prepare for postsecondary academics, to (f) could think of nothing that was not beneficial during his or her time at the CTE secondary center.

Two of the 29 (6.9%) interviewees felt that they would have chosen different programs of study, if they could repeat their CTE secondary experiences. Liz stated, *I probably would not have done that EMT course; I would have done the CNA program or would have chosen a different medical program.* Schuyler said, *I think there should’ve been more programs. I really wanted to do the technical stuff and I wish there was something maybe a little more advanced like LPN or something like that, even if it was going to be bridged afterwards which I think they're doing that now. I wanted to do it, but there really wasn't anything I was interested in; I was interested in it as a whole but not as a job.*

Three of the 29 (10.3%) interviewees felt that their instructor’s teaching style could have been improved. Ryan stated, *Um, I think it would have been good if he had done more lectures in class. Just given a book or papers to go through it's good so you can go at your own speed, but sometimes it's good to have that lecture in there as well. I tell my students, I said, “My lectures are short, like 10 or 15 minutes, because that's all the attention I can get from you,” and then I may have a PowerPoint going on and also on the big screen with a step-by-step process*
going on. And I learned it all from (name of college attended), when I got my associates degree and then I was kind of just thrown in there quickly. I took what I learned from (name of college attended) and modeled their kind of teaching. Heloise simply stated, Some of the teachers. John felt, It was all kind of helpful. I just wish the automotive instructor would've been a little more knowledgeable a little more hands-on with students.

Five of the 29 (17.2%) interviewees felt that the class structure was not beneficial. Gabriel said, We didn’t really have enough time in class, because it was through the high school and we only had like an hour, I think and it wasn't like a normal college class and had to cut it down to where you were only allowed so much time there and we had to go back to high school. I think that the time frame that they gave us to do it in. Jess also stated, The inability to be very flexible with class times and locations. Ben was the third to mention the time frame, saying, The fact that we only had an hour and one half per day. I think it would be a lot better if we would've had more time, because in an hour and a half it's hard to do any major repairs. Bob reflected, I guess probably the lack of organization, not laying out a daily plan of what to accomplish or what you're going to be studying. Slight unorganization within the rubric I guess. Danny reflected on classroom management issues, stating, The kids that went there didn’t pay attention to the class, the distractions, you know, that it was more of a field trip than actually trying to learn something.

Four of the 29 (13.8%) interviewees felt that their program coursework was lacking in substance. Brian simply stated, Couldn’t learn the software that was job-specific. Joanie said, Maybe not always having the most up-to-date, due to funding, and things like that. I know technology rapidly changes and it's hard sometimes, due to funding. You might have an older book that's talking about different stuff and then you have new software programs that, (pause)
and they're not all the new. Hinrichs and Ulic both resented having to take coursework that was not meaningful to them. Hinrichs said, I had to take a typing class. I know it sounds kind of dumb, but I'm a part of the new generation; I grew up with computers around me. I knew how to double-click the mouse, I knew what the little E internet thing meant. Ulic said, Tree identification. We had to learn the different trees of the state of Arkansas and I think it's useless. It took three weeks - there's a waste of everybody's time. I mean if you're going to be a Forester but the only school in the state of Arkansas as far as I know that offers a forestry degree is the (name of college) as far as I know. It took three to four weeks to do that tree identification course or whatever was and I think it was useless and a waste of everybody's time.

One of the 29 (3.4%) interviewees felt that he/she could have benefitted from counseling to prepare for postsecondary academics. Kayleigh reflected, Now, this is separate from the agriculture department, but as far as career opportunities and future career education, I don't want to blame it on our school on our counselor, and it was just pretty much when it came time for scholarships and such we were kind of left hanging. We were left to find and look at different options for ourselves; I think it would be a lot more helpful if they did do a career day like you were asking me earlier. It would give students a better idea of college life we did have college days we could take off and go visit the college, but as far as like the representation of colleges coming to the school, that could be more useful, I think.

Fourteen of the 29 (48.3%) of the interviewees were unable to identify any one thing that was least beneficial, from their experiences at the CTE secondary centers. Mandy emphatically stated, Oh my gosh, I can't really say anything was the least beneficial, because I have used every bit of it and it has benefited me so much! Will jokingly said, Everything I learned I still use, except English. Cason also struggled, saying, That's a hard question, because I can think of
some way things benefited me. It may not have been a huge impact, but it was beneficial. Honestly, I had wonderful experiences. Honestly, I don’t have an answer for this question.

Kevin said, I’m not sure that I would change very much from my high school experiences. Certainly from my point of view, I had a pretty good idea of what I wanted to do, but even going into the program as a freshman, for me, I knew what I was getting myself into. I knew what to expect and I think those expectations were pretty well met. Robbie said, It would probably be, it was, it, I couldn’t tell you, it was a great program. It’s hard to say what wasn’t beneficial. I can’t think of anything that was not and it comes back to my instructor, but just my instructor was awesome. Burke reflected, The least beneficial thing about it would be really hard to say, to be honest. I went to state competitions and didn’t win but I still thought that was a good experience. There really wasn’t too much bad about it. Jerra, Rodney, Tristan, Jacob, Alex, Curlin, Ginger and Brandon all simply said that they couldn’t think of anything about their CTE secondary experience that was not beneficial.

**Qualitative Finding Four**

All 29 of the interviewees had participated in at least one form of adult learning, since their participation at the CTE secondary center, as illustrated in table 24. One interview item asked the adult workers who were former students to identify adult learning opportunities that they have had, in the categories of (a) continuing education through their jobs, (b) academic opportunities, through institutions of higher education, and (c) personal enrichment opportunities, through church or social organizations. Eight (28%) had participated in only one form of adult learning, 11 (38%) had participated in two forms of adult learning, and the remaining 10 (34.4%) interviewees self-reported participating in adult learning opportunities in all three of the categories.
Table 24

**Adult Learning Opportunities**

<table>
<thead>
<tr>
<th>Strategy</th>
<th>Frequency</th>
<th>Percentage</th>
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<tbody>
<tr>
<td>Continuing Education Through a Job</td>
<td>17</td>
<td>58.6</td>
</tr>
<tr>
<td>Academic Opportunities Institutions of Higher Education</td>
<td>23</td>
<td>79.3</td>
</tr>
<tr>
<td>Personal Enrichment Opportunities Through Church, Social Organizations</td>
<td>13</td>
<td>44.8</td>
</tr>
<tr>
<td>No Adult Learning Opportunities Identified</td>
<td>0</td>
<td>0</td>
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Seventeen of 29 (58.6%) had participated in continuing education through their jobs. Five of the 17 felt strongly enough about their continuing education to elaborate. Gabriel referred to his training as a firefighter/EMT, saying, *I do continuing education religiously, it's in everything – is an everyday thing for us. We do continuing education for Air Evac through helicopters; we share a lot of information with them. I go to the college once every two years to do a refresher; I'm a certified instructor. I teach CPR first aid, which if I'm not teaching it, I go to help, so it's always a refresher and I'm always keeping current it's a lot of stuff, always have to keep current and that's just the medical side. And then there's the fire service; you're constantly going to classes and learning.* Brian spoke of his continuing education requirements as a help desk technician, saying, *We have to continue doing that all the time with a lot of meetings. Our people want to make sure we’re up to speed, we know what's going on with our updates. Whenever I actually joined the bank group, I came in at the rough point that they were going through – a migration to where they were moving away from Novell software and moving to more of a Windows-based software like AV and Outlook and newer versions of PowerPoint word and Access and stuff like that. We are constantly going through training still. We, actually the*
bosses, would get together and think of ways to have consensus training programs, something about other people's work areas. We shadow with them and see what they do, maybe to help us at the front and, as to troubleshooting stuff, because there may be things that we see that we don't necessarily know, so we go to that other people's areas to see what they do and to see if the stuff helps us. That's a great thing about IT really is that we are always learning and are always trying to stay up to date. I read stuff all the time, magazine subscriptions and I still read a lot of new technology that's coming out. Ben spoke of the requirements of being a secondary automotive service technology instructor, saying, Yes, as a teacher I have to have 60 hours per year of continuing education. But I also have worked in dealerships, that's actually what I'm doing right now throughout the summer. I am working at the Chevrolet dealership, and they have online trading. When I worked at the dealership full-time, they sent me to Dallas almost monthly. I would have to go down to Dallas and do actual hands-on training on new GM stuff that's coming out. Burke, recently retired from the military, said, You could say that. I really haven't had, well you could say I have had some good opportunities to select, such as military police school. Basic training during combat training and sending me to some other schools like SRT, like the SWAT team for military police, other stuff like that. I did get to take one course that was two weeks, which is basically relearning all the math I learned from all the way from multiplication and long division. Take the ASVAB again for a job in the military or in my case, since I never really took an ACT in high school like I should have, that really helped a lot. Tristan spoke of the requirements to be a deputy, saying, We go to classes for law enforcement, like I'm about to go to the police academy, but once I get out of there I'll have 30 college hours. It's a three month long course. But once I get through with that I'm going to continue to go back
to college to get my general studies. Finish taking all my classes get my Associates and go from there.

Twenty-three of the 29 (79.3%) had attended college, with two more making plans to do so. John said, *I plan on taking night classes like for an Associates’s degree in business, to help with my job now.* Burke has enrolled in a state college for the fall semester, saying, *I am scheduled to start in the fall. I will have the chance then.* After John and Burke have attended classes at an institution of higher education, a total of 25 of the 29 (86%) will have taken college courses.

Thirteen of the 29 (44.8%) identified some form of personal enrichment opportunity through church or social organizations. Four of the 13 elaborated on their opportunities. Cason spoke of his service organization and his church ties, saying, *I have a secular job, but I am an associate pastor and that is something I have absolutely benefited from. Kiwanas International has helped me grow personally because it’s all about helping children.* Kevin said, *Certainly through Agricultural Communicators of Tomorrow, for professional development. I attended conferences and the like. Also to my fraternity, there were leadership conferences, leadership workshops I participated in.* Heloise appreciated opportunities she had access to, in which she was able learn essential skills, saying, *Yes, I've had mine where I've went to classes through the universal housing. They offered classes that teach about banking and credit and all this and where you open an account and you save money. You open an account and it helps to go back to school.* Burke referred to his military opportunities, saying, *Absolutely. There’s plenty of that in the military.* Two of the 16 interviewees who had not identified personal enrichment opportunities spoke of time restraints, due to their current jobs. Will said, *I don't have anything to do with nothing really. I work seven days a week on construction as the Millwright at a paper
mill. Ulic said, *There is,* (personal enrichment opportunities) *but I don’t act on any of them. I stay busy at work.*

**Qualitative Finding Five**

Thirteen of the 29 (45%) interviewees mentioned a preferred learning style, when asked to identify the types of trainings they currently found beneficial. Twelve of the 13 identified the preferred trainings as pertaining to their “hands-on,” or kinesthetic learning style. These responses were self-reported, as responses to one interview item pertaining to types of training the adult workers now found most beneficial, beyond their secondary experiences. The responses ranged from the training pertaining to (a) job-related continuing education, (b) specific college courses, (c) job experiences, (d) preferred learning style (e) communication skills, (f) realistic expectations, (g) networking, to (h) all fields, all training is helpful.

Several of the participants, who preferred hands-on learning, elaborated on the beneficial trainings. Bob, a recent college graduate who is in current pursuit of a full-time engineering position, said, *At this point, none of the training has proven beneficial because I haven’t gotten to put it to use. But once again, like hands-on, the labs I would think will be the most beneficial.* Tristan clarified his position by saying, *Just the hands-on, you know, not just a lecture and take a test, but have open discussion.* Jacob, unsure of his response at first, said, *I don’t know. I don’t know what you’re getting at there. Hands-on to me is the best way to learn.* Robbie, who is currently pursuing a degree in education, said, *Through my degree program, I’m actually getting a degree of physical education, and we do just a lot of hands-on stuff. We go to the elementary schools or the middle schools and high schools, and we write up lesson plans, and we teach, and we are going to the schools, and we get to teach. I’ll be getting my licensure some time next semester. I’m doing my internship next semester where, I’ll be teaching pretty much.* Ben stated
simply, *Hands-on classes I'd say that's the best.* Alex said, *I learn best by doing something.*

*Especially since I'm a mechanic down there, so it's kind of hard to read in a book and know how to do it. You have to get in there and learn.* John, who had experienced academic success at a young age, still felt that hands-on was best for him, saying, *I'm really a hands-on kind of person. I was good at taking tests and learning things really fast. Like I pretty much slept through my algebra one class but I still had a hundred percent and it was because the teacher would teach the lesson and then I would pass the test. I would learn the first time in and sleep through the rest of the class. I think learning is different for each person, and some people don't have to go over and over it to get it. Public schools are good, but I think that they should have a little more teaching variety, I guess.* Joanie said, *I would say I’m very hands-on; I am more show me how to do it, and then I’ll go do it.* Hinrichs, also simply said, *Hands-on learning.* Burke felt that his preferred learning style was a combination of hands-on and visual, saying, *I would say that I am more of a hands-on visual learner for the most part. I would just say for the most part that’s how I am. I'm not really bad in any of the areas.* Ginger stated, *I still learn better hands-on. I mean, I think now I can read information and take it more than I did in high school, but I still learn and remember best as hands-on.* Brandon liked to see a skill illustrated before practicing it himself, saying, *If I see it done, I can do better than rather reading it in a book by myself.* Danny preferred just, *Getting out there and doing it.*

Eight of the 29 (28%) interviewees identified job-related continuing education as the most beneficial post-secondary trainings. Liz, who is currently enjoying her position as a dental assistant, appreciated the training provided on orthodontics. Ryan, currently teaching in a CTE secondary center, said, *Well in my field, there are many websites that you can pull up where you can get software for free and there are forums and discussion in case you have problems and you*
can learn from other people. Brian, who feels the need to stay current on information technology trends, said, Probably ones offered through the job itself. I can't really necessarily afford to pay for the things that they do. I mean, I could of course read websites, but none of them would give me the job environment situations that I need to know to be successful. So I guess I would say the training that I get within the company itself is that the most beneficial for what I do today. Curlin, who is also working with computers in a program serving local children said that he finds it most beneficial learning on the job by, helping the kids. Jerra, a cosmetologist, said, Just keeping up with new ways to do hair. There's always new things coming out, it is very helpful to keep up with it. Jess referred to his military training, saying, I have been through numerous kinds of military and civilian trainings that have furthered my abilities and I continue to gain training all the time. Will felt that his added certifications in the construction industry were the most beneficial types of training he had received. Ulic mentioned his HAZMAT training, saying, In my industry, I said I work for a hazmat company now, you have to have certification to deal with hazardous materials and it's all just repetition. But I don't have to know it by heart like you would in school - I need to hunt beside my desk I have 20 books and if I need something I pull the book and I look it up.

One of the 29 (3.4%) interviewees felt that her college courses had proven most beneficial since her attendance at the CTE secondary center. Mandy said, I'm going to say my anatomy and physiology, those classes like the dissecting and all that. I was going to school to be a doctor or pediatrician actually and that has have helped me with my kids, like knowing the different parts and that has helped me. And my speech class in college helped me, because it helped me know that you have to hit it, hit the high points not worry about things in between the
heavy; hit the high and go on from there. Pretty much about 75% of the classes I've taken have been beneficial to me in the long run.

Two of the 29 (7%) interviewees spoke of the importance of the job experiences they perceived as valuable training. Gabriel referred to his experiences as a firefighter/EMT, saying, I would have to say the different job experiences. In different areas you do different things. I worked in the Gulf for a long time, for about six months and I dealt with a lot of heat strokes. It just depends on the area. I mean, going around at work and I've been all over the United States working in different areas and every area has its different types of emergency. It all comes back to the basic stuff and that actually helped out a lot. Kayleigh spoke of her agricultural experiences, saying, I live on a farm. All the experience I had working with animals have, of course, benefited me. Now, my husband's cousin showed hogs and the things I've learned I was able to help her and her experiences. I have a child and even little things like how grass grows I've been able to show her.

Two of the 29 (7%) interviewees felt that courses that helped in communicating with others were most beneficial. Rodney said, How to communicate with people, different things that she taught in school essays and resumes and all stuff like that. That would be great. Schuyler enjoyed leadership trainings, saying, I learned the best in leadership trainings and communication. I feel like I would benefit from that greatly; it would complement my skill set a lot more.

One of the 29 (3.4%) interviewees felt that courses that provide realistic expectations to adult students would be most beneficial. Cason elaborated on this point, saying, Being real. Sometimes when you go to different training seminars of that nature, they want to put you in a perfect world scenario and as you know, we do not live in a perfect world. So, when you teach
somebody things in a perfect world scenario, they leave that training with a false hope, because they're thinking, “Oh we could do this and that we could do this and that,” when really you could be an optimistic person and it's not going to be as fruitful or as beneficial as they may have led you to believe. Because simply things do not always go as planned. And so I have in my training sometimes I am left feeling, well, “Wow, I could just do this or this,” but they don't give you the flipside of the coin. They'll give you the flipside saying if this step two doesn't work here's what you need to do to get step three they just give you steps 2 and three and then if you trip along the way or if it doesn't go as planned then you're kind of just stuck wondering, “What do I do next?”

One of the 29 (3.4%) interviewees felt that the opportunity to network with other professionals was most beneficial at this point in his life. Kevin stated simply, Just the ability to network with other professionals. One of the 29 (3.4%) interviewees felt that all of the trainings she had experienced were beneficial, even as she felt that her focus is now on raising her child. Heloise said, I think all training is helpful, in all fields. All training is helpful really. For me I'm not sure right now. I've had a child now and that's my focus.

Qualitative Finding Six

Ten of the 29 (34.5%) interviewees felt that their college experiences were the biggest accomplishments of their lives. One item on the interview guide asked the adult workers, who were former participants of CTE secondary centers, to identify their proudest accomplishment. The responses ranged from the adults identifying (a) college experiences, (b) family relations, (c) job positions, (d) service opportunities, (e) military experiences, (f) financial stability, and (g) being the first in the family to graduate from high school.
For the ten who identified college as being the biggest accomplishment, the levels of education ranged from a few college hours, to a master’s degree. Joanie, a first-generation college student, said, *I would say being the first in my family to get a bachelors and a Masters degree*. Robbie was proud of completing college, saying, *Just getting a college degree. I mean, I set out for it, there were a few bad semesters there, where I didn't know. It was just being young and you don’t understand the value of a college degree. I had a few bad semesters where I thought, “Man, I don’t even know whether I’ll be able to finish,” the just sticking it out and you know, going through the, I guess, controversy, the troubles of college. There are tough classes out there getting through that, me getting a college degree is the most thing is the thing I’m most proud of.* Schuyler was also proud of his bachelor’s degree, saying, *There are so many different directions you could go with that. I'll say this way – I feel like I have been happiest with my success in college. I am most fulfilled personally through my success in college.* Jess listed his college degree first, in a series of accomplishments, saying, *Graduating College and becoming a U.S. Army Officer, (pause) second to marrying my amazing wife, of course.* Bob also mentioned obtaining his bachelor’s degree, saying, *I guess just gaining my degree at this point.* Jacob felt that his two-year degree was his greatest accomplishment, saying, *I guess getting my Associates in liberal arts.* Ryan proudly spoke of his college experiences leading to his current position as a CTE secondary instructor, now teaching at the same center that he attended. Ryan said, *I think getting my Associates degree in one year and I started teaching at 19 years old. I had five classes that transferred immediately and then I had scholarships where I had to get 12 hours of work and so I took a class in the summer, took a full 18 hours in a fall and in the spring and then another class and the next summer and I was done.* Tristan spoke of his return to college as an adult, saying, *Finishing high school was a big plus, and just starting college. I waited for six*
years before I actually went to college. So, actually taking college courses is my biggest accomplishment. I had a whole lot better grades, you know, in college, than I did when I was in high school, because I had to pay for it. Now, it actually counts; if you're having to pay for it, it makes you want to do better. Mandy looked forward to her future pursuit of a degree in education, as she would like to become an early childhood educator. She said, Actually going to college; I may not have finished, but it was a huge accomplishment – not only for me, but as being part of my family. I was the first grandchild to ever go to college, so that was a huge accomplishment. The biggest accomplishment will be finishing school. Liz felt that her college attendance was also an accomplishment, saying After I graduated, I continued going to college. I didn’t get probably where I wanted to, but I guess I did find a career that I love and that’s an accomplishment.

Six of the 29 (21%) interviewees responded that their familial relations were the greatest accomplishments of their lives. Kayleigh said simply, I'm going to have to say being a mommy. Heloise proudly said, Raising my child. Rodney, who was currently unemployed, said, Really ma'am, I don’t have one. Sadly to say. Sadly to say because right now, I'm just looking for a job, so the only thing I'm proud of in my life right now are my two kids. Jerra listed being a parent first, and then went on to include her schooling and career, saying, Most proud of being a parent and being able to go through with my schooling; have a career and be a parent at a young age. That's what I’m most proud of. Ginger said, Being a mother. I know that probably sounds cheesy but as many jobs I’ve had, I really loved doing CNA work I thought that was most rewarding job that I had, I just love working with people and I love elderly people, they’re sweeties and they're so appreciative and they have great stories to tell and they're funny and I loved it, but nothing tops being a mom, and that's my biggest accomplishment. Brandon, who
had been unable to find a job in his field of graphic design, said, *I got married three weeks ago. I would be proud of my Associates degree, but it hasn't gotten me my dream job yet, so I'll stick with marriage.*

Six of the 29 interviewees (21%) referred to their job positions as their biggest accomplishments in their lives. Gabriel referred to his passion for his career as a firefighter, saying, *As far as my job, it would have to be being a firefighter. Just getting it, that's a big accomplishment, because I'm really passionate. That's my true passion, is fighting fires. I work every day. If I want a day off, I have to take it, because I work two full-time jobs. I work at the fire department full-time and I work at the ambulance service full-time. If I'm off, I do hazmat with the company just to help them out. Will proudly spoke of the certifications involved in his position, saying, Being where I'm at, being where I'm at, I guess. In the position I'm in. There ain't very many 26-year-old Millwright's. There's a lot of certifications in it. Brian spoke of his appreciation for his current position, saying, I guess the fact that I finally got to do what I originally sought out to do, which was something related to computers. This is the first job that has necessarily given me that. That chance opportunity. I, of course, worked but none of them related to anything I did in college. This is the first chance I actually had to do something that has revolved around computers and what I originally sought out to do, growing up and wanting to do something that interested me. Ben enjoyed his career as a CTE secondary instructor, and said, The fact that I got that teaching job at the age of 24. I have the secondary students, I actually teach the 11th grade classes, the first year students. Curlin spoke of his current position, and said, Working at the boys and girls club. Ulic referred to his position as an operations manager at a HAZMAT company, saying, I don't know. I manage a million dollar
company every day and have 20 guys working underneath me, and I'm 24 years old and I have
guys twice my age working for me.

Two of the 29 (7%) interviewees felt that the service positions in which they were
currently participating were the biggest accomplishments of their lives. Cason was proud of his
affiliation with an international service organization, saying, *At this particular time, it is my
being accepted as Lieutenant Governor for (division number) Kiwanis International. There are
one million members in Kiwanis and in our division, in our district, which is (name of district),
there's about 17 or 18,000 Kiwanians and for those 17 or 18,000 people to nominate and vote
me and to represent them as a leader I am proud of that. That is an accomplishment because I'm
a young guy. I'm 23, I’ll be 24 in October. So, to have people from the age of 28 to 75 think that
they can put the future, honestly I look at it that way, of their division in the hands of a 23-year-
old little kid that's impressive to me—makes me proud.* Kevin spoke of his involvement in a
grant-funded position, saying, *That's a tough question. I would say my involvement with the agri-
tourism industry as a whole. That program has always had its ups and downs, because it was a
collaboration between an organization that I work for and about seven other organizations in the
state. So, getting everybody's funding to line up, getting everybody's leadership to agree, it could
be quite interesting at times.*

Two of the 29 (7%) interviewees spoke of their military experience as their biggest
accomplishments. Hinrichs said, *Living through three deployments overseas. Blown up nine
times does that count for anything?* Burke, recently retired from the military, said, *I’m going to
have to go back to the military on that one. Say joining the military, I guess.*

Two of the 29 (7%) interviewees referred to financial stability as the biggest
accomplishment. Alex struggled at first, and then said, *I don't know. I can't really think of any. I
bought a house. John also spoke of his home purchase, saying, *The fact that I am 23 years old, and I have everything paid off except for my house.*

One of the 29 (3.4%) interviewees spoke of being the first in the family to graduate from high school. Danny, who is currently a married father of two children who works as a tire technician, said, *Out of all six of my brothers and sisters, I was the only one to graduate high school.*

**Qualitative Finding Seven**

The majority (69%) of interviewed adult workers, who were former participants of the CTE secondary centers in Arkansas, attributed personal and professional successes to their CTE experiences. One interview guide item asked if there was anyone the interviewee would like to thank, from his or her secondary technical education or post-secondary education experiences, for the personal and professional successes in his or her life. The responses given were (a) CTE secondary personnel, (b) CTE experiences through SkillsUSA, (c) college professors, (d) family members, (e) too many to name, or (f) no one.

Nineteen of the 29 (66%) interviewees thanked CTE secondary personnel for their personal and professional successes. Liz stated that she would thank her instructor, who, as she said, *Was awesome!* Will referred to his agriculture instructors, saying, *My agri teachers. They helped me out a lot. And they more or less got me to where I'm at today.* Kayleigh also mentioned her agriculture instructors, and said, *Yes, I would like to thank my agriculture teachers. They both taught me a lot.* Rodney thanked his family/consumer science instructor, saying, *That was one of my favorite teachers. I can say she taught me everything I ever ran into now she done taught me. You know, how to have correct posture in your chair and in an interview, how you're supposed to dress appropriately, everything. I'm 25 years old and she*
taught my mother and she is like 45. She retired a couple years after I got out of school. Kevin mentioned his agriculture teachers, saying, I would say (instructors’ names) who were my instructors for most of the time at (name of town) in the high school program there. They are certainly two people who I definitely thank. They got me involved in the program really early when I was still in junior high, and I think we had some really good experiences through the ag program and certainly through the FFA program, they certainly helped shape that. Heloise attributed her successes to her CTE cosmetology instructor, saying, (instructor’s name) was my instructor at the beauty college. Beauty school was not my thing, I cannot do hair, but she still made it fun for us and she was always helpful with everything. Jacob appreciated the experiences provided by his CTE automotive instructors, and said, I don't know. So many different teachers and all that. They, it was all good, I guess. Brian mentioned his CTE information technology instructor, saying, Obviously, (instructor’s name), him I would want to thank for everything. I thought he was a really good person, and was a really great speaker, as far as being motivational and doing what you want to do. Jerra thanked her cosmetology instructors, saying, Yes, I would like to thank my teachers. They were wonderful and they really taught me everything I know. They are the reason I am where I am at today. Ben wished to thank the CTE secondary center administrator, and said, I would like to thank the secondary program director, (director’s name), because he really tries to drive his students. He tries to drive them to get something out of life. He makes it something more than just an hour and half of the day, he gives you a focus for your life. Alex thanked his CTE instructor for career motivation, saying, I would thank my instructor at the (name of CTE center) for suggesting the John Deere program that I got into. That’s probably one of the reasons I got on at the railroad. I didn’t even know about this program when I got there. I wouldn’t be where I am now, if the
people in that program hadn’t told me about working at the railroad. Hinrichs thanked both of his CTE instructors, saying, I would definitely thank (name of instructors) from (name of CTE secondary center). And, I forget his name off the top of my head, he was a professional development teacher I don’t remember Mr. K he’s a real tall lanky guy, I never can remember his name until I see him. But he probably was the best interview teaching that I’ve ever been in.

When asked who he would like to thank, Curlin said, My instructor, he got me ready for the world. Burke referred to his CTE secondary instructor, saying, I would thank my teacher. (instructor’s name) was a really good teacher, he was really good at getting everyone to learn in that kind of stuff. He’s a really good guy, easy to get along with, that kind of stuff. Did not really upset anyone, he’s a really good teacher in that aspect. Ginger referred to the CTE instructors she had during her CNA training at the CTE secondary center. She said, They were the best teachers I’ve ever had in my life, and I will always remember them and thank them for the experiences I had when I was in their class. Brandon spoke of his graphic design instructors, saying, I would say faculty-wise, (instructors’ names). I think (CTE secondary center) is very fortunate to have them on staff and I think (instructor’s name), especially (instructor’s name), is the greatest there. Because they were very professional and at the same time they were your friend. They just made everything comfortable and they made my experience better. Mandy had strong feelings about her CTE secondary instructor, saying, Both retired from (CTE secondary center); they instilled morals and values beyond this world into me and pushed me to not reach for the stars but to reach out way farther than that and accomplish anything and everything I set my mind to it. Without them pushing me and without the support of my parents I don’t think I would have gone as far as I did in my college. Danny, who earlier had said that he was the only one of seven children in his family to graduate from high school, said of his instructors, Both of
the instructors, they worked with me, I lived by myself when I was going to high school and they worked with me and they helped me out tremendously.

One of the 29 (3.4%) interviewees was thankful for his CTE secondary experiences through the student organization, SkillsUSA. Ryan spoke of his experiences, saying, When we got to SkillsUSA, I actually got to go compete in the drafting competition and I placed sixth in the state, and going to Hot Springs and doing the competition, I really enjoyed that. I had to go practice, I had to stay focused, I had to see how I fared against everyone else and it was a lot of fun to do that. Altogether, 20 of the 29 (69%) interviewees were thankful to the CTE secondary centers, for their personal and professional successes.

One of the 29 (3.4%) interviewees was thankful to his college professor for his own personal and professional successes. Schuyler spoke of his favorite professor, saying, (professor’s name) is a history professor who is brilliant, he went to some really good schools and is a really good person. The same interviewee shared that he had hopes of someday teaching in an institution of higher education.

Five of the 29 (17.2%) of the interviewees wished to thank family members for their personal and professional successes. Gabriel, a firefighter/EMT, said, I would have to say my father. My dad has been in the fire EMS service for 24 years and it just comes second nature to me, because I've always been around it. I grew up with it; he is actually the one I look up to. There are also 30 people at the fire department I look up to, they taught me as I’ve gone along. We do everything together: We fight fires together, we do the ambulance service together, we do rescue scuba diving together, we both ride motorcycles together. We are really close and everything we do is together and my son, his grandson, is growing up and he's going the same way I was, in which he's right there with us. Cason thanked his mother’s mother, saying, I would
like to thank my maternal grandmother. She can sometimes be rough and hard, things that she always keeps your mind clear of clutter and keeps you focused. She asked those questions that make you mad when she first asked them, but then you go home and think about them and she gets you back in line with the way you need to be. If it wasn’t for my grandmother keeping me grounded and less arrogant, to be frank, I couldn't be anywhere where I am today. Tristan spoke of his mother, saying, Just my mom, because she was always there for me and pushed me in every way, in every direction possible. Robbie was also thankful to his parents, saying, Obviously, I would want to thank my parents. They provided for me to get through college, as far as like helping me pay for rent, if I needed something, so my parents. Joanie, a first generation college graduate, also thanked her parents, and said, I would definitely want to thank my parents, (names of parents).

One of the 29 (3.4%) interviewees felt that there were too many people to name, as he was thankful for all of his educational experiences, and attributed his personal and professional successes to his many instructors. Jess said, Too many people to name. I thank all my teachers, professors and instructors. Two of the 29 (7%) interviewees did not attribute their personal and professional successes to any specific person or experience. Bob, the recent graduate in search of an engineering position, said, Oh no, no one in particular. Ulic, the operations manager for a HAZMAT company, simply said, Nobody.

Qualitative Finding Eight

Twenty-eight of the 29 (96.6%) adult workers who were interviewed reflected on the positive residual effects of their CTE secondary centers’ programs of study. Only one of the 29 (3.4%) adult workers who were interviewed claimed to have no residual effects of his CTE
secondary experiences. Ulic, the operations manager for a HAZMAT company, is firmly rooted in the stabilization stage of career development, as he is content with his current position and heavily established in his field. When going through the interview guide, he responded in ways that indicated there were no positive effects from his secondary experiences. However, he did concede that this could be due, in part, to the under-funding of his school district, saying, *I think the school was underfunded; it didn’t have the money to do the things that we are discussing.* Ulic did provide insight into postsecondary trainings that could prove beneficial for the adult learner, as he felt that hands-on trainings were most effective. Ulic was a former gifted-and-talented student, who found learning to be easy. He attributed his successes to his family, who had imbued a strong work ethic within him.

**Qualitative Findings Discussion**

In analyzing the qualitative data, eight qualitative findings emerged. These findings were enhanced with the vivid memories and perceptions of former experiences, provided by the adult workers who were former CTE secondary center students. Qualitative Finding One indicated that a large majority of interviewees had expressed that they had hoped to continue on the career pathways that they had chosen while they were students at the CTE secondary technical centers. Almost half of the interviewees stated that they had remained in the career field that they had chosen at the CTE secondary centers, and all reported that they were currently satisfied with their career choices. Of the interviewees who found themselves taking different career paths than the ones chosen at the CTE secondary centers, half expressed that they had either (a) tried to find a job in their chosen career field, (b) worked in the chosen career field for a time, but had to leave for economic reasons, (c) worked in the chosen career field for a time, but had to leave for personal reasons, (d) were continuing to take classes in the chosen career field, or (e) attempted
to work in the chosen career field, but was deterred by field requirements beyond personal control.

Qualitative Finding One indicated that adolescents in the career development stages of crystallization and specification are capable of choosing career pathways that will remain personally and professionally satisfying into the adult career development stages of implementation and stabilization. This was true for the large majority of the interviewed population; however, for those interviewees who had found themselves taking different career paths, their choices were indicative of Super’s (1981) identification of adaptation as the key developmental process. Super’s theory encouraged the ability to change within the individual, and his theory looked at the life as a series of stages that are enriched through the adaptations involved.

Qualitative Finding Two looked at the importance of various experiences at the CTE secondary centers. The qualitative data gained from the interviewed adults’ reflections identified (a) coursework, (b) hands-on experiences, (c) values gained, and (d) career expectations as being extremely beneficial during their years at the CTE secondary centers. These reflections were rife with the experiences found in the adult learner, and addressed Malcolm Knowles’ (1975, 1978, 1984, 1989, 1990) basic assumptions about the adult learner. For those who found coursework to be the most beneficial, the assumption of readiness to learn is connected; these students demonstrated a readiness to learn that was reliant on real-life application of knowledge. For those who expressed that the hands-on experiences were most beneficial, the adult orientation to learning can be noted, as these participants relied on tasks that proved to be meaningful to the situations found in their current lives. The assumption of the adult learner’s self-concept can be connected to the reflections of those who felt that they had gained beneficial values from their
CTE secondary experiences, as they all expressed perceptions of instructors who treated them with the respect that is crucial for the adult learner. For those who expressed that being provided with career expectations was the most beneficial experience, Knowles’ assumption of the adult learners’ need to know can be found. From the beginning of the adult learning experience, adults have a need to know why the information presented is important to their lives, including career expectations. While all of the reflections were centered on the interviewed adult workers’ former experiences in CTE secondary experiences, the perceptions that ensued were consistent with Knowles’ basic assumptions about the adult learner.

Qualitative Finding Three found that almost half of the interviewed population were unable to think of one thing that was least beneficial from their CTE secondary experiences. For those who were able to identify a negative experiences, the responses included (a) the participant would have chosen a different program of study, (b) the instructor’s teaching style was not beneficial, (c) reflections on the class structure, and (d) the coursework was lacking in substance. The majority of negative responses centered around the CTE secondary classroom, recalling experiences that would not meet the criteria for being best practice in either secondary or adult learning theory. Gorham (1985) suggested that those teachers who were most flexible and learner-centered exhibited the same traits with both adult and secondary classes. The students who reflected on poor teaching practices referred to strategies that were neither learner-centered, nor flexible. In the case of the interviewees who reflected on class structure, there was no literature to indicate a connection or solution. These former students reflected on the amounts of time that were spent in the classroom, which are mandated by departments of education and are beyond the scope of the CTE secondary centers’ control.
The interviewees who reflected on program coursework cited examples of information technology coursework that was outdated and not job-specific. In order to keep students’ motivation levels high, the educator must refer to the key element of providing information that is useful to the learners’ lives (Bowman, 2005), such as staying informed and up-to-date on current trends in the courses they teach. Furthermore, the interviewees’ reflections are comparable to the research of Ayers, Miller-Dyce, & Carlone, (2008), in which programs were encouraged to meet their participants’ security needs by providing job training that would provide marketable skills, so that the graduates would have the knowledge that would transfer into the job market.

Qualitative Finding Four found that all of the interviewed adult workers, who were former CTE secondary students, had participated in at least one form of adult learning, since their participation at the CTE secondary centers. O’Donnell and Tobbell (2007) acknowledged that globally, a large percentage of adults are attending institutions of higher education, which is consistent with the current research findings. The majority of the interviewees had attended institutions of higher education, over half of the interviewees had been provided continuing education through their jobs, and almost half of the interviewees had taken advantage of personal enrichment opportunities through their churches or social organizations. These choices were reflective of Super’s (1990) proposition that development through the life stages can be guided by providing experiences that encourage the maturing of abilities and interests of an individual. The adult learning opportunities, accessed by the interviewed population, lead to preparation and readiness for the next stage of career development.

Qualitative Finding Five investigated the adult workers’ perceptions about the types of adult learning they found especially beneficial. Almost half of the respondents referred to a
preferred learning style, when reflecting on trainings that pertained to (a) job-related continuing education, (b) specific college courses, (c) job experiences, (d) preferred learning style, (e) communication skills, (f) realistic expectations, (g) networking, or (h) all fields, all training is helpful. These reflections are reminiscent of the learner-centered trend that emphasizes teaching through more than one of the senses (Clark & Starr, 1996). The interviewees’ perceptions of beneficial trainings included the three types of learning referred to by Clark & Starr (1996), including (a) vicarious learning, where the participant learns through someone else’s experiences, (b) direct learning, where the participant learns through personal experiences and on-the-job experiences, and (c) realistic learning, where the instructor strives to teach only meaningful material to the students.

Qualitative Finding Six investigated the perceptions of the greatest accomplishments of the interviewed adult workers, who were former participants of CTE secondary education. After being asked to identify their proudest accomplishment, the interviewees’ responses ranged from (a) college experiences, (b) family relations, (c) job positions, (d) service opportunities, (e) military experiences, (f) financial stability, and (g) being the first in the family to graduate from high school. These reflections revealed the lifelong learning behavior of being self-directed; the individuals have taken charge of their own learning, with the cooperation of others, for the purposes of increasing social awareness, critical reflection and being the diagnostician of their own learning needs (Hammond & Collins, 1991). Over a third of the participants counted educational experiences as being their proudest accomplishments, indicating that they have taken charge of their own learning. For those who chose service opportunities and military experiences as their greatest accomplishments, the lifelong learner attribute of social awareness could be found. The interviewees displayed the adult learner characteristics of advanced maturity levels,
dependent upon the levels of financial, familial, career and school responsibilities (Kilgore & Rice, 2003).

Qualitative Finding Seven found that the majority of interviewed adult workers, who were former participants of the CTE secondary centers in Arkansas, attributed personal and professional successes to their CTE experiences. When asked if there was anyone the interviewee would like to thank for his or her personal and professional successes, the responses given were (a) CTE secondary personnel, (b) CTE experiences through SkillsUSA, (c) college professors, (d) family members, and (e) too many to name. These former students met the criteria for developing as lifelong learners, as defined by the Commission for a Nation of Lifelong Learners (1997). Their perceptions of their CTE experiences being responsible for their personal and professional successes indicated that their educators prepared them to be lifelong learners. The interviewees appeared to be self-directed, socially-responsible citizens who are capable of self-reflection and critical thinking in the workforce, thus ensuring personal and professional lifelong success.

Qualitative Finding Eight analyzed all of the qualitative data, to find that almost the entire population of adult workers who were interviewed reflected on the positive residual effects of their CTE secondary centers’ programs of study. Only one participant claimed to have no lasting benefits from his CTE secondary experiences. The qualitative data could be compared to the research of Bingman, Ebert, & Bell (2000), which found that participants, who were questioned about their experiences in adult education, detailed qualitative outcomes such as improved self-esteem and broader ranges of literacy uses, reflecting on the improved quality of their lives through education. No other literature has been found that documents technical education benefits past the community college level.
Additional Qualitative Notations

Seven of the 29 (24%) interviewees took a personal interest in the current research, and shared additional information that was pertinent to the qualitative data. All seven were very reminiscent about their CTE secondary experiences and felt that the lasting effects were still felt into their adult years.

Mandy, the former family/consumer science student at a CTE secondary center, is now a waitress and single mother, looking forward to her return to the classroom. She is one of seven children and is a first generation college student. She was an eager interviewee, very enthusiastic about career technical education. She is very interested in returning to school as an adult learner, in hopes of becoming a licensed early childhood educator.

Cason, also a former family/consumer science student at a CTE secondary center, is a college graduate and sales representative for a national company. This participant was very interested in the current research, and was intrigued by the dissertation process the researcher was going through. He wished to be an advocate for career technical education, and applied his career education experiences to his current home life.

Joanie, the first generation college student who had completed her master’s degree in college personnel, was also a participant in Upward Bound. Upward Bound is a federally-funded program, intended to provide first generation college students better opportunities for attending institutions of higher education.

Curlin, the computer specialist who was currently working in a program for children, e-mailed the researcher later, telling of his love for children. He said that he was raised without a male role model, so he felt that he knows what to look for in children who are experiencing the same. This former CTE secondary student is a change agent in the making.
Schuyler, the student who had experienced the disappointing episode of losing his EMT certification after graduating from the CTE secondary center, went on to graduate college and was currently employed in an unsatisfying position. This participant e-mailed the researcher after the interview process, to say that he had quit his job to wait tables, study for his GRE, and to go to graduate school. He also had dreams of teaching English in Korea or Japan. He ended his note with, *You were one of many factors that helped me make that decision, so I thought I would let you know.*

Ben, the former CTE secondary automotive student who was currently an automotive service technology instructor at the same CTE secondary center from which he graduated, felt strongly about the importance of career technical education. He said, *I believe in career and tech education. It was the most important part of my career, because it made me to where I am. I’ve made a lot of money from it.*

Burke, the participant who had recently retired from the military, spoke of his CTE experiences in his construction technology program. He found the electrical aspect very helpful in his military career, and said, *If it helps in your survey, you may want to tell that the program saved lives in Iraq. My gunnery Sergeant got a police PA system that don’t work right in Humvees, but I got them to where they could work in Humvees to where we could tell Iraqis to get out of their vehicles, without us having without us ever having to get out of the armor. And the Humvees in those cases, that really helped in that aspect. Also, my team’s always on call to go outside the wire, to take care of problems and one of their PA systems were linked to the wall with the computer charger and I put the speakers throughout our little compound so when the 911 came down we had to bound up in the Humvees and go and instead of someone just running*
around yelling, “Nine line,” they could just say it to the loudspeaker. You have to know enough about wiring to know how to do that yourself so I was able to do that too.

The researcher found the majority of interviewees to be most amenable to sharing experiences from their CTE secondary center programs of study. Many of them felt at the beginning of the interview that their memories would be vague and unhelpful. But the contrary was true – once the interview questions began, the memories were unleashed with clarity.
Chapter Five

SUMMARY, CONCLUSIONS & IMPLICATIONS, RECOMMENDATIONS

In an effort to narrow strategies that prove beneficial for long-term success, the effects of secondary career technical education (CTE) on the lives of adult workers, who were former secondary CTE participants, were investigated. The purpose of this sequential, mixed-methods relational study was to investigate the adult worker’s perceptions of prior engagement in transformative career technical educational opportunities.

Summary

Examining the relationships between the CTE experiences and the adult worker’s progression through the career development stages of crystallization, specification, implementation and stabilization was useful in identifying strategies that contributed to the academic, personal and professional successes of the study participants.

Revisiting Assumptions

It is prudent to revisit the underlying assumptions noted in Chapter 1, which were based on the researcher’s experiences and knowledge prior to the current research. Five assumptions were provided, three of which can be discussed in light of the current research findings. Assumption one identified a top-performing CTE center as one that had attained an average score of .95 or higher in student performance success indicators, as the center had met or exceeded the majority of state benchmark scores. Assumption two acknowledged that although each region had top-performers, the scores were not congruent across regions. Both assumptions spoke to the identification of centers as top-performers and both have held true.

Assumption three was that the top-performing centers had instructors who utilized a variety of best practice and transformative learning strategies. Several of the findings spoke to
this assumption, including (a) Mixed Methods Finding One, (b) Mixed Methods Finding Three, (c) Qualitative Finding Two, (d) Qualitative Finding Three, (e) Qualitative Finding Four, (f) Qualitative Finding Seven and (g) Qualitative Finding Eight. These findings included qualitative data from the interviewees’ responses to questions on the interview guide, all of which contained multiple reflections of CTE instructors who had provided a variety of best practice and transformative learning strategies.

Assumption four stated that the adult workers were influenced by choices they made beginning with the program of study chosen at the secondary level in the CTE centers. This assumption was validated in all of the mixed methods and qualitative findings. The adult workers, who were former participants of CTE secondary centers, had strong perceptual memories that indicated they were still being influenced by choices made as early as their adolescent years. Many of their reflections pertaining to current education levels, perceptions of success, accomplishments and job satisfaction were reminiscent of the residual effects of the interviewees’ CTE secondary experiences.

Assumption five stated that career development is a continuous process of linear movement, and may begin as early as adolescence, as defined by Super’s Theory of Career Development. Findings clarifying this assumption are (a) Mixed Methods Finding Two, (b) Mixed Methods Finding Three, (c) Qualitative Finding One, (d) Qualitative Finding Four, (e) Qualitative Finding Six, and (f) Qualitative Finding Eight. Mixed Methods Finding Two investigated professional pathways that were taken during the participants’ years at the secondary CTE centers. Mixed Methods Finding Three revealed the best practice strategies that were provided for the adult workers, when they were students at the CTE secondary centers.
Qualitative Finding One indicated that adolescents in the career development stages of crystallization and specification are capable of choosing career pathways that will remain personally and professionally satisfying into the adult career development stages of implementation and stabilization. Qualitative Finding Four identified the forms of adult learning that had been accessed by the interviewed population of adult workers. Qualitative Finding Six investigated the interviewees’ perceptions of their greatest accomplishments. Qualitative Finding Eight investigated the compilations of the entire population of adult workers’ reflections and found that almost all perceived that their CTE secondary experiences had left positive residual effects. Overall, these six findings revealed a linear developmental progression through Super’s life career development stages of (a) Crystallization, in which the adult workers, in their adolescence, selected programs of study in CTE secondary centers and were provided with transformative, learner-centered strategies, (b) Specification, in which the adult workers continued on their career pathways, taking various forms of adult learning opportunities, (c) Implementation, the stage in which many of the adult workers are currently continuing their training for careers and securing employment, and (d) Stabilization, the stage in which the remainder of adult workers are currently firmly entrenched in and satisfied with their chosen careers.

Theoretical Framework

As the adult workers were at the beginning levels of investigating career opportunities during their years at the CTE secondary centers, the foundation of this research built upon Donald Super’s Theory of Career Development (see Figures 1 and 9). Super’s theory was appropriate for the current research, which delineated the development of the self-concept through the life and career development opportunities provided by the CTE secondary centers.
Figure 9. Results of Super’s Stages of Career Development combined with Mezirow’s Theory of Transformational Learning.
and ensuing adult learning methods. The researcher investigated the adult workers’, who were former participants in CTE secondary centers, perceptions of their CTE secondary experiences and the personal and professional changes that have occurred in their lives since graduating from their CTE secondary programs. The research began with the adult workers’ experiences within the CTE secondary centers, when they were 16-18 years of age and in the Crystallization and Specification stages of Super’s theory of career development. The research concluded with the learners in present day, when they are moving into the Implementation and Stabilization stages of career development and are displaying the self-efficacy and maturity levels that are appropriate for this stage of development. The adult workers, now at the ages of 23-25, attributed perceived successes to the transformational learning experiences that began with their secondary technical education and continued through their chosen professional pathways. Sixty-nine percent of the interviewed population attributed their perceived successes to their CTE secondary experiences.

The current study also embedded Mezirow’s transformational learning theory, based on the premise that empowerment comes from higher levels of educational training. Transformational learning is facilitated by instructors who are capable of emphasizing the importance of critical thinking skills and personal reflections, along with having the sensitivity to maintain mentoring relationships with the students in their care. The interviewees identified (a) scaffolding the learner, (b) balancing lecture with discussion, (c) critical thinking and critical reflection opportunities and (d) group projects as being the most beneficial of the transformative learning strategies utilized by their instructors during their years at the CTE secondary centers. Furthermore, the vast majority of interviewees respected their instructors’ professionalism and identified their former CTE instructors as professional mentors, citing their instructors as
(a) exhibiting good teaching skills, (b) showing personal interest in their students’ lives and future careers, (c) having had high expectations of their students, (d) preparing their students for the real world, and (e) enhancing their students’ character.

**Methodology**

The current research was viewed from the pragmatic viewpoint of first defining a problem and then using all available data to achieve a greater understanding. The researcher chose to investigate the adult workers’ perceptions of their former experiences in secondary CTE centers, to consider the residual effects of their secondary experiences on their current lives. The sequential mixed-methods approach worked well for this relational study, which contained both quantitative and qualitative data collection. The research occurred in two sequential phases, the first phase using quantitative extant data to identify top-performing CTE secondary centers in Arkansas, and then the second phase accessing qualitative data through telephone interviews with adult workers who were participants of the top-performing CTE centers during the years 2003-2004 and 2004-2005.

Four of the five regions in Arkansas were represented through the current research, with five of the 24 CTE secondary centers submitting requested data. The CTE secondary centers submitted data in the form of student database information from the years 2003-2005, resulting in a total of 629 former CTE secondary students who were now adults in varying stages of career development. The adult workers were contacted through their Facebook inboxes, personal e-mails and telephone numbers. Interview protocol was followed for the protection of human subjects. The semi-structured interview guide contained both closed and open-ended questions, to provide demographics, relational data, and critical reflections of (a) former experiences, (b)
current career pathways, (c) continuing educational opportunities, (d) accomplishments and (e) perceptions of success.

The data presented in Chapter Four detailed findings that were both quantitative and qualitative in measure. Research Questions One through Three were statistically analyzed to investigate correlations between variables. Research Question Four involved a culmination of the entire data set, combining the quantitative findings from the first three questions with the qualitative data that the interview guide provided for three mixed-methods findings. An additional eight qualitative findings emerged from the adult workers’ responses to the interview guide questions, to provide a meaningful interpretation of all collected data.

Overall, the 29 adult workers who were interviewed for the current research met the criteria for being in the career development stages of implementation and stabilization, as defined by Super (1957). Seventeen of the 29 (58.6%) interviewees were comfortable with current career choices and were established in the workforce, meeting the criteria for the stabilization stage of career development, now entrenched in the establishment stage of life. Twelve of the 29 (41.4%) interviewees were still in the process of implementing their chosen careers, by continuing through the college route and pursuing jobs in their chosen career fields. These adults met the criteria for being in the exploration stage of life and the implementation stage of career development, as they were still in the process of training for a career and then securing employment. All of the interviewed adult workers, who were former participants of CTE secondary centers in Arkansas, were at an age where they were either nearing the age of being classified as an adult learner (23–24 years of age), or were already twenty-five years of age, with all of the experiences and needs that an adult learner entails.
A large majority of the interviewees were male and the vast majority of the interviewee population was Caucasian. Almost half of the participants were married, and a majority had no children. Over a quarter of the population had a minimum of a bachelor’s degree, and a majority of the participants made over $25,000 annually; both of these descriptive statistics are higher than the state average for each of the categories. Approximately one-half of the entire interview population had taken courses in high-growth programs of study, and a quarter of the interviewees continued to work in the high-growth career fields of information technology, construction and automotive services. Almost one-half of the interviewees are currently working in and are satisfied with the career fields that they had chosen at the secondary level.

Conclusions and Implications

Conclusions and implications are presented for each of the research questions. Linear connections have been made between variables that were quantitative in nature. Themes have emerged from the synthesized qualitative data, pertaining to the adult workers’ perceptions of the residual effects of career education on their current lives.

Research Question One

Question One asked: Is there a relationship between the number of transformative learning strategies experienced in the crystallization and specification stages of life and the adult worker’s perceptions of current professional success, during the implementation and stabilization stages of life? Statistical analyses indicated that the number of transformative learning strategies was a slightly positive predictor of current perceptions of success. Those students who perceived that they had been provided with a number of transformative learning strategies such as (a) balancing lectures with a time for discussion, (b) times to work in group projects or team learning, (c) specific learning objectives, (d) critical thinking exercises, and (e) critical reflection,
during their years at the CTE secondary centers, were more likely to indicate that they were fairly successful, successful, or very successful.

**Conclusions for research question one.** The foundational belief of Mezirow’s transformational learning theory is that it is not the experience itself that brings about learning, but the meaning that is made from the experience, within the individual (Mezirow, 1975). The results of research question one are indicative of this belief; the adult worker’s reflections of their formative years at the CTE secondary centers were such that their perceptions of transformational learning experiences left a residual effect that encouraged the belief of higher levels of personal and professional success. The vast majority of interviewees who perceived that they had been provided with multiple transformative learning experiences also perceived themselves to be fairly successful or above, indicating a strong self-efficacy and an even stronger sense of self.

**Implications for research question one.** Research Question One emphasizes the importance of transformational, learner-centered strategies to heightened self-efficacy. While the researcher had no way of knowing if the CTE secondary instructors actually used best practice strategies in bringing about transformative learning, the adult workers’ perceptions of their adolescent academic experiences indicated that they had experienced learner-centered instruction. Furthermore, the CTE learner-centered instruction did appear to heighten the individuals’ sense of self and efficacy. Therefore, implications would suggest that transformative learning strategies be emphasized throughout the learning continuum. Professional development should be provided for instructors at all levels, in the adult learning basics of instruction, which encourage the transformative learning process.
Research Question Two

Question Two asked: Is there a relationship between the current socioeconomic statuses of the adult workers and the professional pathways offered through their participation in the secondary technical education centers? Statistical analyses indicated little or no relationship between the total number of professional pathways such as (a) college credit for courses taken, (b) scholarships, (c) course articulation into a college degree, (d) professional certification, (e) certificates of proficiency, or (f) technical certificates and the current socioeconomic statuses of the adult workers who were former CTE secondary students. When individual professional pathways were correlated to the adult workers’ socioeconomic statuses, a weak positive relationship was found between the ability to earn technical certificates at the CTE secondary centers and the interviewees’ current earning potential. While not statistically significant, this relationship is practically significant for the current research.

Conclusions for research question two. Super’s theory advocates providing experiences to encourage growth in development through the various career stages (Super, 1990). These experiences are meant to foster adjustment to the working stages of life. The offering of professional pathways to CTE secondary students, while not statistically significant in relation to the future socioeconomic opportunities, may provide the impetus needed to make career decisions during the adolescent’s formative life stage of career exploration.

Implications for research question two. Research Question Two was a disappointment to the researcher, who had hoped to find a significant correlation between the professional pathways offered to the CTE secondary students and their current earning potential as adult workers. However, the slight positive correlation between the interviewees’ socioeconomic status and their opportunities to earn technical certificates provided the hope that there is
practical significance in providing these professional pathways to students as early as the adolescent years. There are many technical certifications that may enhance a student’s earning potential, perhaps providing a professional pathway that would prove beneficial as the learner continues to pursue additional education. For example, technical certificates in early childhood education training at the CTE secondary level would allow the student to gain meaningful employment in a child care center, while continuing to pursue an advanced education. The same may be said for trainings in other fields, such as automotive or medical, which have various levels of certification.

**Research Question Three**

Question Three asked: Is there a relationship between best practice strategies utilized by the secondary technical education centers during the students’ crystallization and stabilization stages of life and the adult worker’s current education level? Best practice strategies listed in the interview guide question included (a) the number of extracurricular activities each interviewee engaged in during his or her years at the CTE secondary centers, (b) the number of ways that career information was made available to the students, (c) the number of ways that students were encouraged as future professionals, (d) the number of career pathways offered through CTE secondary center participation, (e) the perceptions of former CTE instructors’ qualifications, (f) mentor relationships with former instructors, and (g) the perceptions of the workforce preparation in the chosen programs of study. Statistical analyses investigated the relationship between the total number of best practice strategies and the current education levels of the adult workers who were former participants in the CTE secondary centers. With the analyses revealing a minimal relationship between the variables, the total number of best practice strategies could not be used as a predictor for educational success.
However, a significant relationship was found between extracurricular activities and the adult workers’ current education levels, when statistical tests investigated the relationships between the individual best practice strategies and the adults’ current levels of education. Other best practice strategies that were found to have weak relationships to the education levels of the adult workers included the adult workers’ perceptions of CTE instructor qualifications, and the adult workers’ identification of CTE instructors as professional mentors. Those students who perceived that their CTE instructors were professionally-qualified and were thought of as professional mentors were slightly more likely to have higher levels of education.

Investigations then focused on the relationships between current education levels and the individual extracurricular activities, including (a) student organizations, (b) service opportunities, and (c) other extracurricular activities such as sports and high school clubs not offered through the CTE secondary centers. Significant relationships were found between the adult workers’ current education levels and their participation in student organizations and/or service opportunities. A minimal relationship was found between the current education levels and participation in the other forms of extracurricular activities. The strongest relationship was found between participation in multiple extracurricular activities and current education levels.

**Conclusions for research question three.** The statistical findings are practically significant, as they show that participation in extracurricular activities is a positive force in the lives of students. However, the findings are less positive for those proponents of only certain activities, as they cannot point to theirs as being the magic bullet for future academic success and attainment. The most significant participation benefit was not limited to a few activities, but by the engagement of the student in multiple non-academic pursuits. The other statistically-
significant findings are indicative of the important, long-term role that instructors play in the lives of their students.

Implications for research question three. Research Question Three was an exciting statistical revelation for the researcher, in finding the correlation between current education levels and (a) participation in extracurricular activities, (b) the perceptions of former CTE instructors’ qualifications, and (c) mentor relationships with former instructors. The implications of this finding emphasize that educators who exhibit qualities that are perceived as being professionally-qualified, along with providing a nurturing mentorship with students, are able to have long-term educational influence on their students’ participation in higher education. Furthermore, student participation in extracurricular activities needs to be encouraged by these instructors, emphasizing the importance of establishing a connection to advanced education through participation in these activities.

Research Question Four

Question Four asked: Are adult workers in the implementation and stabilization stages of career development influenced by their former experiences in the secondary career technical education centers? This question was viewed as a mixed-methods compilation of the earlier statistical analyses in the first three research questions and the qualitative data gathered through the participant interviews. Mixed Methods Finding One revealed that statistically, a significant positive correlation had been found between the variables of transformative learning strategies and perceptions of current levels of success. Qualitatively, the participants spoke to the importance of such learner-centered strategies of scaffolding (attaching content to prior knowledge) the learner and balancing lecture with time for discussion. Interestingly, participants
also reflected on the importance of critical thinking and reflection skills, as important leadership and problem-solving tools.

Mixed Methods Finding Two explored the relationship between the number of professional pathways offered to the CTE students, and the current socioeconomic statuses of the adult workers who were former participants. Statistically, there was no relationship between the total number of professional pathways offered to the CTE students and their current earning potential. However, a minimally-positive relationship was found between those who were offered technical certificates as part of their programs of study, and their current socioeconomic statuses. Qualitatively, the participants expressed appreciation for scholarships offered, college credit received and professional certifications earned during their courses of study. The vast majority of interviewees identified professional pathways that were offered during their years at the CTE secondary centers.

Mixed Methods Finding Three examined the relationship between CTE best practice strategies utilized by the CTE secondary centers and the adult workers’, who were former participants, current education levels. A significant relationship was found between the two variables of total extracurricular activities and current education levels. Weaker relationships were also found between the specific extracurricular activities of student organizations and service opportunities, and higher levels of educational attainment. The adult workers who identified participating in multiple extracurricular activities were more likely to have continued to obtain educational credits. Qualitatively, the importance of extracurricular student organizations focused on the CTE organization of SkillsUSA. Many of the adult workers spoke fondly of SkillsUSA competitions, including scholarships awarded through winning. Others referred to their service opportunities, reflecting on the value of the real-life experiences.
The relationships between the CTE secondary instructors and their former students were investigated in the adult workers’ perceptions about their instructors’ professional qualifications and whether they perceived their instructors to be professional mentors. A significant, albeit weak, correlation had been found between these perceptions and the adult workers’ current levels of success. However, the qualitative findings were much more suggestive of the importance of the instructor/student relationship. The vast majority of interviewees identified having a mentoring relationship with their former instructors, and spoke positively about their professional qualifications, if they perceived their instructors (a) had high expectations for their students, (b) had relayed that they cared for the student beyond the classroom, (c) had professional certifications and expertise in their field, (d) had enhanced their students’ character development, (e) had prepared their students for the workforce and (f) had exhibited good teaching skills and professionalism.

One best practice strategy that had not indicated a statistical significance, but was qualitatively important, was the CTE secondary centers’ workforce preparation of the adult workers who were former participants. The vast majority of interviewees indicated that they had felt prepared for the workforce and felt that the CTE secondary centers (a) taught skills that the participant still used daily, (b) gave the participant information that helped in further academic pursuits, (c) encouraged critical thinking skills that were useful in their career fields, (d) helped the participant in dealing with other professionals, (e) helped the participant narrow-in on career decisions or (f) provided hands-on experiences that proved valuable. The few who did not feel that they had been prepared for the workforce spoke of (a) needing more realistic feedback about what to expect in working life and (b) needing more hands-on experiences. The suggestions for
improvement were valid for adult learning theory, in advocating continuing education that is meaningful and applicable to the adult’s life.

**Conclusions for research question four mixed methods findings.** The reflections of the interviewees indicated that they did find value in the transformative learning experiences provided by the CTE secondary centers, and were very likely to consider themselves at least fairly successful. Several of the participants were potential change agents, advocating the importance of their prior CTE experiences and education itself, just as transformational learning theory would predict. The qualitative data also explored the value of group projects and open discussion, both of which are important to adult learning theory, in advocating the value of learning from peer groups. When reflecting on the qualifications and mentorship of former CTE secondary instructors, the vast majority of interviewees spoke in terms that were nothing short of glowing. While statistical connections were weak among the mixed-methods findings, the qualitative data gathered from the interviewees were rife with perceptions that revealed a much stronger connection between current personal and professional outcomes and the former CTE secondary experiences.

**Implications for research question four mixed methods findings.** The three mixed methods findings provided ample revelations pertaining to the residual effects of CTE experiences in the lives of the sampled population of adult workers who were former participants. The implications encourage the use of transformative learning strategies, such as (a) attaching content to prior knowledge, or scaffolding, the learner, (b) balancing lecture with times of open discussion, and (c) critical thinking and reflection. These strategies appear to have long-term effects on student perceptions of success, providing a well-rounded sense of self. Professional pathways should continue to be offered to students, to encourage development
through the stages of career development. Furthermore, instructors at all levels should strive to attain an authoritative mentorship presence in the lives of their students, providing a warm, nurturing environment while having high expectations for the students in their care. Instructors need to encourage student growth, both personally and professionally, through active engagement with their charges in student organizations and service opportunities, both of which will provide the students with long-term academic benefits.

Qualitative Finding One indicated that adult workers, who were former participants of the CTE secondary centers, were able to make career decisions during the stages of crystallization and specification, which were satisfying into the implementation and stabilization of their career development. Almost half of the interviewed population stated that they had remained in the career fields they had chosen at the CTE secondary centers and went on to say that they were currently satisfied with the choices made during their adolescence. Of the remaining interviewees who were currently in different career fields, half stated that they had taken steps to continue towards the original goal established at the CTE secondary centers, but found themselves in different situations for various reasons. The CTE secondary centers provided the students opportunities during their formative crystallization stages that allowed the participants to make career decisions that were satisfying into the adult stages of implementation and stabilization.

Qualitative Finding Two indicated that hands-on experiences were perceived as being extremely beneficial during the interviewees’ years at the CTE secondary centers. Other perceptions mentioned the importance of the (a) coursework, (b) values gained, and (c) career expectations. Hands-on, real-life experiences were mentioned throughout the interview guide
process, as the interviewees reflected on former field experiences, instructor techniques, and as the most beneficial experience during their years at the CTE secondary center programs.

Qualitative Finding Three found that almost half of the interviewed populations were unable to think of any CTE secondary center experiences that were not beneficial. Of those who were able to identify negative experiences, they included (a) that they would have chosen a different program of study, (b) their reflections on the class structure, (c) their reflections on the coursework, (d) that they felt that they would have benefitted from counseling to prepare for postsecondary academics and (e) their reflections on the CTE instructors’ teaching styles. This finding illustrates the benefits that are found in the CTE secondary centers, as perceived by the former participants, as so many of the interviewees had only positive comments to share about their former experiences. For those who were unable to identify any negative experiences, their reflections were on their overall experiences at the CTE secondary centers, and many were emphatic about the total benefits.

Qualitative Finding Four indicated that the entire interviewed population of adult workers identified at least one form of adult learning that had been accessed, since their participation at the CTE secondary centers. Over half of the interviewees had participated in continuing education through their current jobs, the vast majority had attended institutions of higher education, and almost half identified some form of personal enrichment opportunities through church or social organizations. The numbers of students who had a minimum of an associate’s degree were much greater than the state average for two-year degrees, and several of the interviewees were continuing on their educational pathways.

Qualitative Finding Five indicated the experiences that were found most beneficial from the accessed forms of adult learning, including trainings that related to (a) job-related continuing
education, (b) specific college courses, (c) job experiences, (d) preferred learning styles, (e) communication skills, (f) realistic expectations and (g) networking. One of the interviewees could not identify just one type of adult learning, as she felt that all types of trainings were beneficial. This finding once again confirmed the importance of the hands-on experience to the adult learner, as almost half of the interviewees elaborated on the benefits of the trainings that appealed to the kinesthetic learning style. The trainings that were mentioned as pertaining to current jobs could also be perceived as meeting the hands-on criteria, providing real-world experience that is useful in the workforce.

Qualitative Finding Six found that education was considered to be an incredible accomplishment in the lives of many of the adult workers who were former CTE secondary center participants, no matter the amount of education pursued. The most touching example came from a first generation high school graduate, who emphasized the important role that his CTE secondary experiences played in his high school completion and current success level. Other interviewees mentioned accomplishments of (a) family relations, (b) job positions, (c) service opportunities, (d) military experiences and (e) financial stability, all of which illustrate the various roles that are found in the lives of adult learners. The interviewees had taken charge of their educational experiences, reflecting the adult learner attribute of being self-directed learners. Furthermore, several of the adult workers were very socially-aware and engaged in service to the country and their local communities.

Qualitative Finding Seven indicated that the majority of interviewed adult workers, who were former participants of the CTE secondary centers in Arkansas, attributed personal and professional successes to their CTE experiences, including the CTE secondary personnel and experiences through SkillsUSA. The remaining participants identified college professors, family
members, all teachers and professors encountered, or no one person or experience in particular. This finding was indicative of the residual effects that the CTE secondary experiences, along with higher education, continue to play in the adult workers’ lives.

The final finding, Qualitative Finding Eight, revealed that only one of the participants who were interviewed claimed to have no residual effects of his CTE secondary experiences. All other interviewees reflected on the positive residual effects of their CTE secondary centers’ programs of study. This finding, when combined with the other qualitative, quantitative and mixed method findings, emphasized the important role that the CTE secondary centers played in the lives of the adult workers, who were former participants.

**Conclusions for research question four qualitative findings.** The eight qualitative findings conclusively spoke to the benefits of CTE secondary instruction, for the sampled population. The interviewed population of CTE former participants appeared to be self-assured individuals, confident that the decisions made in their adolescent years were worthy, even if their career pathways veered off of their original programs of study. They provided affirmation that the hands-on experiences, found in secondary and adult CTE, provide a wealth of residual knowledge. Furthermore, the interviewees reflected on ways to enhance the CTE experience, such as providing intensive counseling in preparation for postsecondary academics, to encourage progression through the stages of career development.

Adult learning seemed to be an important component of the adult workers’, who were former CTE secondary students, current lives, as the vast majority had been involved in continuing education of various forms. The adults especially appreciated trainings that prepared them further for the workforce, using the preferred hands-on methods to provide experiential learning. Furthermore, education itself was regarded as the ultimate accomplishment for many
of the participants, who valued learning at all levels of the educational continuum. The educational experiences, beginning with the CTE secondary years, were perceived as attributing to the current personal and professional successes of the majority of the interviewed adult workers. All but one of the interviewees reflected on the positive residual effects of their former CTE secondary experiences.

Implications for research question four qualitative findings. The eight qualitative findings contained perceptual data that indicated the importance of education at all levels. The interviewed adult population reflected on their educational experiences, ranging from their years in the CTE secondary centers, to the continued educational emphasis in their current lives. Implications for the qualitative findings are beneficial for both the CTE secondary centers and postsecondary continuing education, as the results that have emerged are all positive indicators that career technical education will continue to meet the needs of adolescents and adults, as they go through the life and career development stages. The perceptions of the former CTE students were reflective of educational needs that have been met and are long-lasting. The participating CTE secondary centers are supporting the mission of the Arkansas Department of Career Education, as they are providing leadership and contributing the resources necessary to meet the ever changing career and technical education needs of the youth in Arkansas.

Research Question Four asked: Are adult workers in the implementation and stabilization stages of career development influenced by their former experiences in the secondary career technical education centers? The descriptive statistics, quantitative, qualitative and mixed-methods findings all suggest that the overwhelming majority of adult workers, who were former participants of CTE secondary centers, were positively influenced by their CTE experiences, and had strong residual effects still felt in their current lives. While the results are not generalized to
the overall population, they are practically-significant for the adult worker participants of the
current study.

Recommendations

In closing the current research study, the researcher feels that the findings are
overwhelmingly positive in reflecting on the residual effects of secondary career education. The
vast majority of adult workers who were interviewed perceived that their years at the CTE
secondary centers entailed experiences that were lasting and satisfying. These findings, while
not generalizable to the overall population, are encouraging and detail the needs that career
technical education can meet at all levels of instruction. The researcher offers recommendations
based on the mixed-methods findings, analyses, conclusions and implications of the current
study. The recommendations that follow are for practice and for future research.

Recommendations for Practice

The current research findings indicate the importance of transformative, learner-centered
instruction as early as secondary education:

1. Instructors at all levels should be encouraged to use transformative learning strategies
   such as (a) scaffolding the learner, (b) balancing lectures with discussion, (c) using
critical thinking and reflection exercises and (d) encouraging peer interaction through
group projects and team learning. Professional development should be provided for those
instructors who need additional training in these basics of learner-centered instruction, to
encourage the transformative learning process.

2. CTE instructors need to be acknowledged for the important roles they are playing in their
   students’ lives. The vast majority of the interviewed adult workers, who were former
   participants of CTE secondary centers, identified strongly with their CTE instructors as
mentors and respected the instructors’ traits of professionalism. These instructors are meeting the needs of their students through educating the whole child, providing the social and emotional component necessary for true learning to occur.

3. The statistical findings are significant in justifying funds allocated for CTE secondary and postsecondary extracurricular organizations, such as SkillsUSA. Furthermore, those CTE secondary centers that already embed a service component in their curricula, as a way of teaching their students the importance of giving time to help their communities, should be recognized as providing an important service.

4. The adults in the research sample were adamant about the importance of real-life, experiential learning in preparation for the workforce. The CTE programs of study should continue to fill the important need of providing high-growth career field options to the current students, along with offering opportunities for increased professional development in these areas. Professional pathways should encourage a linear progression through the stages of career development, beginning with secondary CTE courses that articulate into college credit and continuing through postsecondary CTE learning experiences, such as career training through higher education and meaningful professional development geared toward the working adult.

5. The CTE secondary centers need a reliable tracking system for their students, past high school graduation, so that future research could reach a larger population of former participants, thus providing generalizable findings.

6. The cumulative findings of the current research indicate that the CTE secondary centers are meeting a very real need in the lives of their students. The researched sample of adult workers, who were former participants of CTE secondary instruction, had higher
socioeconomic statuses than the average Arkansas citizen, along with having higher levels of education. The interviewees’ reflections were rich with perceptual data, almost all of which indicated that the residual effects of CTE secondary education are positive and long-lasting.

**Recommendations for Further Research**

The current research process illuminated possibilities for future research. Future research could include the following:

1. The residual effects of CTE secondary experiences through all of the stages of Super’s Theory of Career Development to determine linear progression of adult workers. The findings in Research Question Four indicated positive residual effects of CTE secondary experiences on the sample of adult workers currently in the stages of implementation and stabilization. Therefore, future research would contact adult workers in the stages of consolidation and readiness for retirement.

2. CTE secondary instructors trained in Mezirow-inspired, transformative learning strategies and the subsequent effect on student outcomes. The finding in Research Question One indicated that the total number of transformative learning strategies was a slightly positive predictor of current perceptions of success. Therefore, future research could focus on the before and after student outcomes of teachers who are provided with training in transformative, learner-centered instruction.

3. Value-added assessments of individual CTE secondary centers, facilitating accurate and just evaluations of student outcomes to ensure accountability for state and federal legislation. In the current research, 19 out of 24 CTE secondary centers were unable to submit former student data.
References


Swartz, J. (2011, July 7). 750 million users befriend Facebook. *USA Today*, pp. 1B and 5B.


APPENDIX A: Interview Protocol
INTERVIEW PROTOCOL

1. Researcher writes name of selected participant, date and time of telephone call on the interview guide, even if the person declines the interview.

2. Researcher dials selected participant’s phone number, and then awaits an answer.

3. Upon hearing, “Hello,” the researcher says the following:
   a. May I speak with (name of participant)?
   b. Hello, (name of participant), my name is Shelli Henehan, and I am currently gathering research concerning the Arkansas secondary technical education centers and their lasting effects on the adults who were former participants. You have been selected as a former participant of one of the top-performing centers, (name of secondary technical education center) to participate in an interview about your experiences.

4. Confidentiality Protocol (University of Arkansas, 2002) to be followed:
   a. The purpose of this interview is to gain information connecting your prior experiences in secondary technical education to the current career pathways you have chosen. This interview will provide information that will be used to determine the lasting effects that secondary technical education opportunities have on the lives of adult workers.
   b. There are no risks associated with your involvement in this interview. The benefits will include the satisfaction of knowing that your experiences provided information that will determine best practice strategies for secondary technical education and beyond.
c. Your participation in this interview is voluntary and there is no monetary compensation of any type for your involvement.

d. You will be assigned a number, to protect your anonymity. This number will be attached to your demographics and to your interview. Your reflections may be quoted in the final presentation, but will in no way be attributed to you personally. I appreciate your willingness to be involved in this project.

e. Our interview will be recorded, so that I will be able to transcribe it exactly as it happens.

f. This interview will take approximately thirty minutes of your time, so I want to be sure that we select a time that is most convenient for you. Would it be possible to answer questions now?

5. If participant is reluctant, the researcher will say:

   a. I really would appreciate your time in answering a few questions, as your input would make the research much more meaningful.

6. If participant is willing, the researcher will say:

   a. Thank you so much! I am looking so forward to visiting with you about your experiences!

7. After completion of interview guide, the researcher will ask:

   a. When I finish transcribing our interview, would you like for me to send you a copy, so that you may check that I have your statements written correctly? At this point, you can change anything that you feel in incorrect.

8. After completion of interview guide, the researcher will ask:

   a. Would you like to know the results of this research?
b. If yes, then: Could you provide me with an e-mail address, so that I can send you an electronic copy of the research in approximately six months?

c. If no, then: Thank you again for your participation!
APPENDIX B: Letter of Permission
January 28, 2011

Ms. Shelli Henchan
5600 Hardscrabble Way
Fort Smith, AR 72903

Dear Ms. Henchan:

This letter confirms permission for you to conduct research using data stored within the Department of Career Education. I understand Dr. Bobbie Biggs from the University of Arkansas is your major advisor for your doctoral dissertation, *The Adult Workers’ Perceptions of the Residual Effects of Quality Career Education*. You have permission to:

1. Access annual reports from the 24 secondary technical education centers.
2. Review subject area data from student performance indicators.
3. Access miscellaneous reports within the Department’s database.
4. Contact the secondary technical education centers, to obtain former graduates’ contact information.

I look forward to receiving the results of this research.

Sincerely,

Sandra Porter, Associate Director
Workforce Training
Arkansas Department of Career Education
Three Capitol Mall, Suite 402
Little Rock, AR 72201-1083
Phone: 501-682-1809
Fax: 501-682-1501
sandra.porter@arkansas.gov
APPENDIX C: University of Arkansas IRB Approval
MEMORANDUM

TO: Shellie Henahan
    Bobbie Biggs

FROM: Ro Windwalker
      IRB Coordinator

RE: New Protocol Approval

IRB Protocol #: 11-02-465

Protocol Title: The Adult Workers’ Perceptions of the Residual Effects of Quality Career Education

Review Type: ☑ EXEMPT ☐ EXPEDITED ☐ FULL IRB

Approved Project Period: Start Date: 03/02/2011 Expiration Date: 03/01/2012

Your protocol has been approved by the IRB. Protocols are approved for a maximum period of one year. If you wish to continue the project past the approved project period (see above), you must submit a request, using the form Continuing Review for IRB Approved Projects, prior to the expiration date. This form is available from the IRB Coordinator or on the Compliance website (http://www.uark.edu/admin/implfio/compliance/index.html). As a courtesy, you will be sent a reminder two months in advance of that date. However, failure to receive a reminder does not negate your obligation to make the request in sufficient time for review and approval. Federal regulations prohibit retroactive approval of continuation. Failure to receive approval to continue the project prior to the expiration date will result in Termination of the protocol approval. The IRB Coordinator can give you guidance on submission times.

If you wish to make any modifications in the approved protocol, you must seek approval prior to implementing those changes. All modifications should be requested in writing (email is acceptable) and must provide sufficient detail to assess the impact of the change.

If you have questions or need any assistance from the IRB, please contact me at 120 Ozark Hall, 5-2208, or irb@uark.edu.
APPENDIX D: CTE Center Directors’ Meeting
I. Introduction of Topic

a. The Adult Workers’ Perceptions of the Residual Effects of Secondary Career Technical Education

II. Purpose of Study

a. To investigate the perceptions of adult workers who have had prior engagement in quality career education.

III. Personal Significance

a. I was involved in an Arkansas Secondary Career and Technical Education center, both as an instructor and as an administrator of an AAS degree program.

b. I worked with adult learners attending ECE professional development as the administrator of the early childhood education program.

c. I am interested in seeing if the quality career classes, beginning in secondary and extending through the adult worker’s professional life, have lasting effects on their lives.

IV. Research Significance

a. Examining the relationships between the CTE experiences and the adult worker’s progression through career development stages will be useful in identifying strategies that contribute to academic, personal and professional success.

b. The research will benefit the Arkansas Department of Career Education’s Secondary Career and Technical Education Centers, as best practice strategies will be identified that appear to have lasting benefits throughout the participants’ work lives.

c. Despite the attention given to the importance of career technical education, few studies have investigated the lasting effects of the experiences on the adult workers. Research is warranted, as there are no current findings documenting research of technical education benefits past the community college level (Lewis, 2008).

V. Research Strategy (Sequential, mixed-methods study)

a. Phase I – Identifying CTE centers in the five geographic regions of the state.
b. **Phase II** – Interviewing participants who were completers from the centers during the 2003-2005 academic years.

c. Statistical analyses will be run to determine the relationship between close-ended questions.

d. Qualitative data from reflective, open-ended questions will be coded, to locate themes and indicators of the lasting effects of quality CTE experiences.

VI. **CTE Center Contribution**

   a. **Population Sample** – Names and contact information (no personal identifiers) of those participants identified as completers of the career and technical education programs.

VII. **Interview Procedure**

   a. The interviews will be semi-structured in form, including both open- and closed-ended questions. Statistical analyses will determine the relationship between several of the closed-ended questions/variables. The interviews will be audio taped and transcribed verbatim. Peer debriefing, revisiting with the interviewees to have them look over the transcriptions for accuracy, will occur with each interview.

   b. The confidentiality of all participants will be protected by assigning numbers or pseudonyms to each interviewee. The assigned numbers/pseudonyms will be attached to the participants’ demographics and to their interviews. The interviewees’ reflections may be quoted in the final document, but will in no way be attributed to them personally. The names of the participants and their assigned numbers/pseudonyms will not be kept together. The names of the participants, contact information and the oral interviews will be kept in a locked file drawer in the researcher’s home. The researcher will work from the assigned number/pseudonyms and the interview transcriptions.

   c. There are no risks associated with the participants’ involvement in the interview. The benefits will include the satisfaction of knowing that their personal experiences provided information that will determine best practice strategies for secondary technical education and beyond.

VIII. **References**

APPENDIX E: Interview Guide
INTERVIEW GUIDE

1. What was your chosen program of study at the secondary technical education center?

2. What is your current position?

3. Is this job in the field that you studied at the secondary technical education center?
   o If no, then: Did you try to get a job in the field that you studied?
   o If yes, then: Are you satisfied with your current career choice?

4. Were you involved in any extracurricular activities during your years at the secondary technical education center? Please answer yes or no to the following.
   o Student organizations
   o Service opportunities
   o Other

5. Was career information made available to you, through any of the following ways?
   o Career reference room or a career section in the library
   o School website/newsletter
   o School e-mail network for students
   o Computer/Internet access
   o Guest speakers
   o Job fairs
   o Other

6. Please tell me if any of these services were made available to you?
   o Practice job interviews
   o Resume building
   o Cover letters
   o Field experiences
   o Professionalism tips
   o Placement files
   o Other
7. Where the following professional pathways made available to you, as a result of participation in the secondary education center?
   - College credit for courses taken
   - Scholarships
   - AAS degrees and beyond
   - Professional certification
   - Certificates of proficiency
   - Technical certificates

8. Do you feel that your instructors were professionally qualified to teach in your program of study?
   - Why do you feel that way?

9. Did your instructors use the following learner-centered strategies in teaching your courses?
   - Specific learning objectives
   - Critical thinking exercises
   - Group projects
   - Lectures with time for discussion
   - Critical reflection opportunities

10. Do you identify any of your former CTE instructors or counselors as professional mentors?
    - If so, then how were they helpful to you, in your program of study and beyond?

11. Did your technical program of study prepare you for the workforce?
    - If so, how?
    - If not, what should it have done for you?

12. What was the one thing that really stood out to you as the most beneficial in your high school program?

13. What was the one thing that stood out as the least beneficial in your high school program?
14. What learning opportunities have you had, since your participation at the secondary technical education center?

   - Continuing education through your job?
   - Academic opportunities through institutions of higher education?
   - Personal enrichment opportunities through church, social organizations?

15. What types of trainings have proven beneficial, beyond your secondary experience?

16. Of which accomplishment in your life are you most proud?

17. In your current position, how successful do you consider yourself to be? Please choose one of the following options:

   - Not successful
   - Fairly successful
   - Successful
   - Very successful

18. Is there anyone you would like to thank, from your secondary technical education or post-secondary education experiences, for the personal and professional successes in your life, and why?

19. Additional notes:

Now, I need to ask you a few demographic questions. I again want to assure you, I will never identify you nor will I describe any situation in which you could be identified.

20. Gender:

   - Male
   - Female

21. Age:

   - 24 or younger
   - 25 or older
22. Ethnicity

- American Indian or Alaskan Native
- Hispanic or Latino
- Asian
- Native Hawaiian or other Pacific Islander
- African American
- White

23. Socioeconomic status

- Less than $14,999
- $75,000 to $99,999
- $15,000 to $24,999
- $100,000 to $149,999
- $25,000 to $34,999
- $150,000 to $199,999
- $35,000 to $49,999
- $200,000 or more
- $50,000 to $74,999

24. Education level

- High School Graduate
- Bachelors Degree
- Some College
- Masters Degree
- Associates Degree
- Doctoral Degree

25. Number of children

26. Marital status

- Married
- Divorced
- Single
- Other

27. Military involvement
APPENDIX F: Example of Facebook Solicitation
Dear (participant),

I would love to speak to you about your career education experiences from your years at (name of high school). Your name was given to me, as a completer of career technical education classes through the (name of CTE secondary center). I am currently working through the University of Arkansas and the Arkansas Department of Career Education, to investigate the lasting effects of these classes on your current career. Even if you are not currently employed, your thoughts would be helpful to the research.

Would you please reply to me, letting me know if you would consent to a 15-20 minute interview? I would call you from my computer, so that our conversation would be recorded. I would greatly appreciate adding your opinions to my research!

Thanks so much,

Shelli Henehan
APPENDIX G: CTE Secondary Center Directors’ Initial E-mail Request
Dear (CTE Secondary Center Director),

I so enjoyed meeting with the CTE Secondary Center directors this past month, as I shared my research with your group. With approval from the UA Fayetteville IRB Committee to begin the interview process, I am writing to you to ask for your assistance.

I am requesting contact information for those students who were identified as "Completers" during the 2003-2005 school years. I am looking forward to contacting these former participants, to investigate the residual effects of their CTE experiences.

I am attaching our agenda from the CTE directors’ meeting, along with my signed letter of permission and the IRB approval letter. I am looking so forward to hearing back from you, as I am hoping to begin the interviews as soon as possible.

One more thing - we both know that the CTE centers provide numerous opportunities for participants to excel. If you are aware of any "success stories" that you would like to share with me, I would love to hear them! Even if the participants are from other years than my chosen population, I would be very interested in interviewing them.

Again, I am eagerly awaiting your reply - I have been working on this project for almost a year, and I am excited to finally be at the point of interviewing former participants!

Thank you so much,

Shelli Henehan
Assistant Professor of Education
(Name of institution)
(Home telephone number)
(Work telephone number)
(Cell telephone number)
(Work e-mail address)
APPENDIX H: CTE Secondary Center Directors’ Second E-mail Request
Dear (CTE Secondary Center Director),

I am checking in, to see if you have been able to access the requested data. I am looking for contact information for completers from the years of 2003-2005: Names, telephone numbers, possibly parents’ names. Please let me know if you are unable to do so at this time, so I can eliminate your center from the study. My deadline for completion of the interviews is June 30, so I am anxiously waiting to hear from you.

Thank you so much,

Shelli Henehan
Assistant Professor of Education
(Name of institution)
(Home telephone number)
(Work telephone number)
(Cell telephone number)
(Work e-mail address)