21st CENTURY BUSINESS EDUCATION:

PREDICTIONS FROM OKLAHOMA

CTE BUSINESS EDUCATORS

By

BEVERLY MCANALLY

Bachelor of Science in Business Education
Oklahoma State University
Stillwater, OK
1975

Master of Science in Occupation and Adult Education
Oklahoma State University
Stillwater, OK
2000

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Oklahoma State University
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Dissertation Approved:

Dr. Lynna Ausburn

Committee Chair and Dissertation Adviser

Dr. Mary Jo Self

Dr. Belinda McCharen

Dr. Ed Harris

Outside Committee Member

Dr. Sheryl A. Tucker

Dean of the Graduate College

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CHAPTER I

INTRODUCTION

Today's Oklahoma Business, Marketing and Information Technology Education (BMITE) instructors continually deal with revolutionary changes affecting their teaching field. Gardner (2006) claimed that education will need to cultivate capacities now in order to meet the new world on its own terms, indicating formal education primarily prepares students for the world of the past—not the future. Prensky (2010) also spoke of changes in education necessary to adapt to the future. He asserted that as the educational landscape continues to change, educators face the challenge of rethinking and adapting to the needs of the future, and that with students living in a world changing exponentially, teachers should always think with the future in mind.

The career and technical education (CTE) sector of education is particularly affected by technological change, and this is particularly true for business education CTE programs, with their emphasis on computers and communication. Training students for specific jobs no longer is effective in today's rapidly changing world. Technology is progressing at exponential rates as recognized by Intel's co-founder, Gordon Moore's in his "Law" that stated the number of transistors on a chip will double approximately every two years (Intel n.d.). Noted American inventor, author, and futurist Ray Kurzweil goes far beyond Moore's Law and predicts that "There will be a future period in which technological change will be so rapid and its impact so profound that every aspect of human life will be irreversibly transformed, or what he calls singularity (Ptolemy, 2011). Kurzweil (2005) foresees humans will have to enhance themselves with artificial

intelligence in order to keep up with rapidly evolving intelligent machines. He predicted that information-based technologies will encompass and surpass all human knowledge in what he calls *singularity* and will be defined by massive unstoppable change. This technology-based advance will allow humans to transcend the limitations of their biological bodies and brains in a process of exponential change.

Much of the change in socially interactive and collaborative learning is the result of new *disruptive technologies*, defined by Christensen (1997) as technologies introduced into markets with innovations that cost more and initially perform more poorly than existing products. Ausburn (2003) contended that disruptive technologies drive social networking, anywhere/anytime learning, and the use of non-traditional forms of education. It did not take long for the term, disruptive technologies, to be applied to education and to a variety of new tools and processes (Meyer, 2010). Disruptive technologies commonplace in today's classrooms include cloud computing, smart phones, tablet computers and e-books. E-books, once considered inferior to the printed text, are now accepted in educational institutions as administrators, students and teachers look for ways to bypass the exorbitant costs of printed books.

Since 2000, Internet usage in North America has increased 151.7 percent to over 144 million users and continues to rise (Internet Users in North America, 2011). Many attribute this increased usage to social networking. Nielsen recently reported Americans spend over 60 hours a month online with 22 percent of that being social networking. Among Americans, 67 percent of Internet users use social networking (VisualEconomics, 2012).

Eric Schmidt, Google's CEO, referred to today's environment as "everything is now" and everyone is connected (Schmidt, 2010). Teachers' efforts to keep up with emerging technologies are often overshadowed by the emerging students in the 21st century classroom. As personal computers increase, digitalization of content progresses, and work-flow software converge, the global interconnectivity called the *flat-world platform* by Friedman (2007) empowers. "Our students have changed radically. Today's students are no longer the people our educational system was designed to teach," warned Prensky (2001). The flat-world concept brought with it new realizations for students that they could access education globally. Educators are seeing a trend among students using technology today, with students acting as *free agent learners* controlling their own education (Evans, 2011). As these learners take education into their own hands, online education, home-based learning and informal education has become more attractive than traditional education formats (Johnson, 2011). Other educational formats such as corporate training programs have experienced extreme growth recently with at least 2,000 corporate universities in the United States. Christensen, Aaron, and Clark (2002) predicted corporate training posed a potential disruptive threat to the traditional MBA programs.

Scharmer (2009) claimed that "What we do is often based on habitual patterns of action and thought…. Moving toward a future possibility requires us to become aware of—and abandon—the dominant mode of downloading that causes us to continuously reproduce the patterns of the past" (p. 119). Business educators can no longer look upon history to guide them in determining emerging trends, but little research has examined predictive or emerging trends in the career and technology area–or the business education

field. One study, however, conducted by Ausburn (2003) found five trends from the literature she determined were pressing education's future: (1) rise and dominance of the Internet, (2) continuous advances in computer power, (3) increasing customization of learning, (4) increasing emphasis on return-on-investment (ROI) in education and training, and (5) convergence of trends 1-4 in a highly flexible "a-la-carte" learning model that support individualization, customization, and markets of one.

Statement of the Problem

A focused line of research is needed to address the massive, unprecedented change inherent in disruptive technologies, the Kurzweilian singularity and to prepare for the future of business education. At this time, nothing is currently known about how Oklahoma CTE business educators perceive the educational future and the forces that will influence and shape it. Understanding the views of business educators regarding perceived influences in 21st century business education is essential to sense emerging trends and to guide them toward a collective shaping of the emerging future. However, before the views of business educators can be heeded, they must first be identified.

Purpose of the Study

The purpose of this study was to describe Oklahoma CTE BMITE teachers' predictions about influences they perceive will shape 21st century CTE business education. Identifying these influences may assist teachers with shaping their instructional programs to prepare graduates to compete in a global, competitive world. In order to make the necessary changes, business educators must first recognize the emerging trends that may shape their teaching areas. However, just as the student

population has changed and continues to change, so too are faculty members changing. This need to examine predictions for the future of CTE business education as viewed through the lens of the CTE business educator provided impetus and defined the purpose for this study.

Research Questions

The following specific research questions guided this study:

1. What influences do Oklahoma BMITE division instructors predict will have the strongest effects on the future of CTE business education?
2. How do the individual influences identified by BMITE Division instructors cluster into identifiable factors?
3. What factors do BMITE Division instructors predict to be most influential in educational practice?
4. Are predicted factor influences perceived differently by subgroups of BMITE educators based on generational and other individual characteristics?
5. What are the similarities and differences between the predictions about the future of BMITE and the general population's baseline study predictions about the future of American public education?

Theoretical and Conceptual Framework

The theoretical foundation for this study was drawn from Scharmer's Theory U. Theory U is a theoretical framework and social technology that outlines principles and practices to sense the emerging future. This study is conceptualized as an application of

Theory U; it is an opportunity to *describe the emerging future* of CTE business education in Oklahoma as perceived by its practitioners as a first step in *collectively shaping its development.*

In addition, Generational Theory, popularized by Strauss and Howe's (1991) concepts of characteristics and differences among age generations, was used as an additional lens to further explore the predictions and perceived influences on the future of the BMITE division instructors in the Oklahoma CareerTech system. This is particularly appropriate due to the strong technology influences on emerging futures inherent in BMITE education and curriculum. The study also included other individual variables in addition to age/generation to describe their effects on "presensing" the emerging future as described in Theory U.

Theory U

Hayashi (2010) called Theory U a response to the times and an approach to address a complex issue which cannot be solved by versions of the past. The essence of Scharmer's Theory U's framework is based on traveling a non-linear *"U" shape journey*—a theory which describes uncovering the blind spot, letting go of the past and allowing for emergence of a new future. Scharmer (2008) describes this as a process of "observe, observe; access your sources of stillness and knowing; and act in an instant" (p 33).

Scharmer found while working with various groups, organizations or communities that the "U" image had two key dimensions. He asserted that the horizontal axis is defined by the distinction between perception and action, while the vertical axis shows the different levels of change (Scharmer, 2010, p. 29). Theory U is described as a

change process which consists of three main parts: sensing, presencing and realizing. "Presencing" is a blend of the words "presence" and "sensing" and refers to the ability to sense and bring into the present one's highest future potential, as an individual and as a group. This social technology offers leaders a way to identify the emerging future which is based on three instruments: open mind, open heart and open will (Scharmer, 2008, p. 41).

The left side or downward journey of the "U" is considered the opening process. The focus for this study was the left side of the "U" as it allows business educators to recognize their interconnectedness and their participation in shaping the emerging future's development of business education.

The first cognitive process in the Theory U model is downloading patterns from the past and seeing the patterns with fresh eyes. Scharmer (2009, 2012) described this as one of four types of listening. Listening 1 is reconfirming habitual judgments. Scharmer found in his investigations that moving down the U requires suspending judgment, having an open mind and paying attention to reality (2009, p. 120). Listening 2 is factual; here, you let the data talk to you, ask questions and pay attention to responses. Next the process moves to Listening 3: Empathic. At this step in the process you become aware, have an open heart and see the world from someone else's eyes. Listening 4: Generative, requires open will, a capacity to connect to the highest future possibility that can emerge. At this step, Theory U users have gone through a profound change and have connected to a deeper source of knowing. Scharmer calls this "presencing" the source of the emerging future (2009, p. 163). He explained presencing as the heart of the blind spot in our consciousness which helps focus us on a deeper way of operating (2009, p. 362).

According to Scharmer (2009), the journey down the U is the most difficult because it requires dealing with three inner voices of resistance. He referred to these voices of resistance as "enemies" that may block the entrance to one of the deeper territories of thought and sensing. The first enemy Scharmer (2009) considered the Voice of Judgment (VOJ). This enemy blocks the gate to the open mind and must be itself blocked to allow passage to the next step. The second enemy is the Voice of Cynicism (VOC), which requires putting oneself in a position of vulnerability and having an open heart to overcome. The third enemy, Voice of Fear (VOF), blocks the gate to the open will. Dealing with the voice of fear is considered by Scharmer to be the essence of leadership (2009, p. 43).

The right side and upward journey of the "U" continues using presencing–connecting and operating from the source. Crystallizing is the term Scharmer uses for the first stage upward to describe clarifying vision and intention from our highest future possibility. At this point, specific language is used to indicate what is to be created (2009, p. 192).

Progressing up the "U" process leads to prototyping. Prototyping is completed by doing and experimenting. Fast-cycle feedback learning and adaptation are characteristic of this process. The prototype of the sensed future contains essential characteristics of the final product but has many revisions or changes (Scharmer, 2009).

The last stage in the upward "U" is performing. Scharmer stated, "When moving from the field of prototyping to that of performing, the main focus shifts from shaping microcosms to shaping and evolving the larger institutional ecologies" (2009, p. 228). Figure 1 illustrates Theory U's journey graphically.

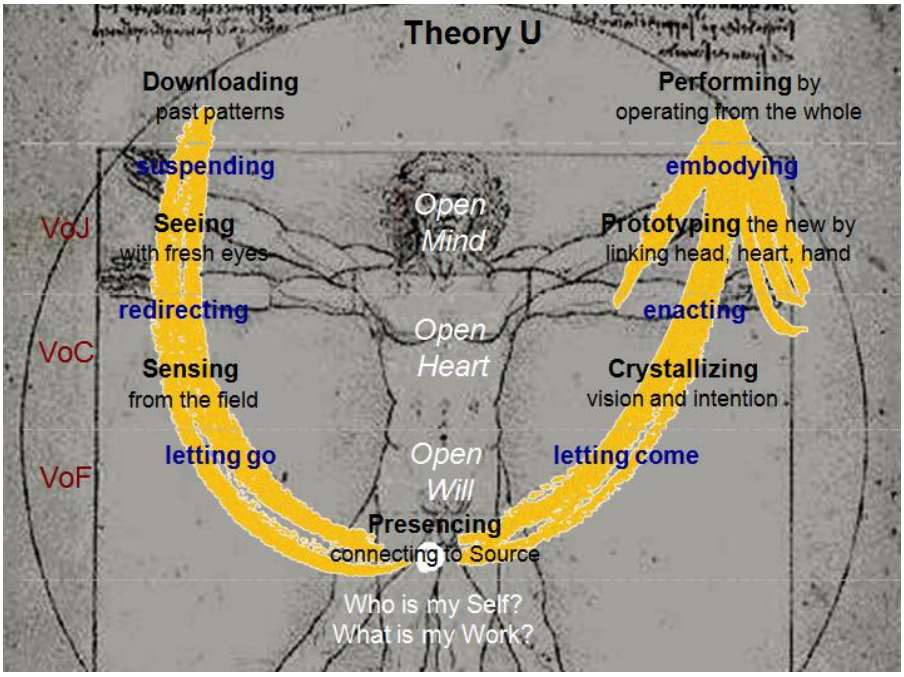

Figure 1. Diagram of the process of the Theory U journey.

Source: Scharmer, C. O. (2010) Theory U: From Ego- to Eco-Systems. Retrieved from Otto Scharmer website: http://www.ottoscharmer.com/publications/presentations.php

Generational Theory

The use of Generational Theory was appropriate for this study because the BMITE instructors come from varied generational subgroups, and their generational characteristics and experiences may have influenced their perceptions of the emerging future. Pendergrast (2009) claimed generational theory seeks to understand and describe cohorts or groups of people according to their birth generation. Kupperschmidt (2000) defined a generation as "an identifiable group (cohort) that shares birth years, age, location, and significant life events at critical developmental stages (times) divided by 5-

7 years into first wave, core group, and last wave" (p. 66). Descriptors for generational subgroups vary among researchers and sources. These subgroups are most often described by historical events influencing the generation. For example, the World War II era generation has been described by Zemke, Raines, and Filipczak (2000) as the Veterans generation, born before 1946. Howe and Strauss (2000) however, used the term Silent generation for those born from 1925 to 1942.

Due to the variance of year ranges for the generational categories, for clarity, this study used the descriptors Howe and Strauss (2000) identified through interviews and discussions with the various generations. These generational categories are: (1) Silent, those individuals born from 1925-1942; (2) Baby Boomers, born 1943-1960; (3) Generation X, born 1961-1981; and (4) Millennials or Generation Y, born 1982-2004. It should be noted, however, that much of the survey data collected for these descriptors may be collected from young people from middle and upper middle socioeconomic groups (Reeves, 2006). Principal characteristics of each generation are summarized below.

Silents (1925-1942)

This generation's historical influences included the Great Depression and World War II. Zemke, Raines, and Filipczak (1999) found this generation to be conformers, utilizing logic and discipline, disliking overly casual dress, and respectful of authority. Veterans in the workplace are motivated to learn when it is tied to the overall good of the company. This generation grew up as the seen-but-not-heard members (Howe & Strauss, 2007), and in the mid-60s often became activists in areas such as civil rights, anti-war and feminism.

Baby Boomers (1943-1960)

The Baby Boom generation began as World War II was ending. Over 78 million strong, the oldest Boomers are now in their late sixties (U.S. Census Bureau, 2006). This generation either participated in or protested the Vietnam War and experienced John F. Kennedy becoming president, television sets invading living rooms, man walking on the moon, civil rights movements, Watergate and the assassinations of King and Kennedy (Cordeniz, 2002). Called the indulged products of postwar optimism by Howe and Strauss (2007), the Baby Boomers resented authoritarian issues. Boomers have been characterized as workaholics, driven and dedicated (Cordeniz, 2002). Kupperschmidt (2000) stated, "They are described as the sandwich generation: sandwiched between remnants of their parents' culture and their subculture and between caring for aging parents and their own children" (p. 68).

Generation X or Xers (1961-1981)

This generation was born as the American global power started declining and was first generation to be told they would not be as well off financially as their parents (Tulgan, 1997). Considered the most impoverished generation, they experienced economic wars and layoffs. Kupperschmidt (2000) found "Xers" inheriting social debris: self-absorbed parents, soaring national debt, educational systems that emphasized social skills and self-esteem rather than academic achievement. Disappearing fathers resulted in children being raised in poverty. This generation experienced high divorce rates among their parents and the term "latch-key kids" was introduced to describe the children of working Boomers, at home alone (Kupperschmidt, 2000). Family structure changes

resulted in this generation being described as highly independent (Martin & Tulgan, 2006)

As employees, Xers are multitasking, parallel thinkers and problem solvers (Walker, Martin, White, Elliott, et al., 2006, p. 371). According to Zemke, Raines, and Filipczak (2000), Xers have a nontraditional orientation about time and space, and unlike their parents that "lived to work," Xers "work to live" and value balance in their lives. Xers experienced personal computers at home and at school and are technologically literate (Zemke, Raines, & Filipczak, 2000).

Millennials, NeXters or Generation Y (1982-2004)

This generation will be about 73 million strong and approximately 3 million fewer than the Baby Boomer generation. Historical events shaping this generation include sex scandals and violence. September 11 terrorists' attacks, Clinton's sex scandals, the Iraq War, the shootings of Columbine, and the Oklahoma City bombing were major influences framing their lives (Zemke, Raines, & Filipczak, 2000, p. 129). NeXters grew up immersed in technology; concomitantly, electronic devices were developing as well (Throckmorton & Kaminski, 2008).

As described above, Xers are multitasking, parallel thinkers and problem solvers at work (Walker, Martin, White, Elliott, et al., 2006, p. 371). Some researchers have claimed that, unlike the Xers, this generation exhibits a collaborative team mentality (Howe & Strauss, 2000). However, Taylor (2007) argued that there is little evidence of this characteristic, or the characteristics of social roles, team orientation, or service, as Howe and Strauss (2000) have suggested.

Generation NeXters have been characterized as being close to their parents. Technology has placed them in constant communication with their parents, even during the school day. This trend, according to Taylor (2007), continues as parents continue to monitor their children in their educational pursuits and employment opportunities.

Theoretical/Conceptual Framework for the Study

The theoretical/conceptual framework for this study is illustrated in Figure 2. The framework proposes that sensing the future in Theory U is filtered through Generational theory and other individual characteristics to determine perceived influences on 21st Century CTE business education.

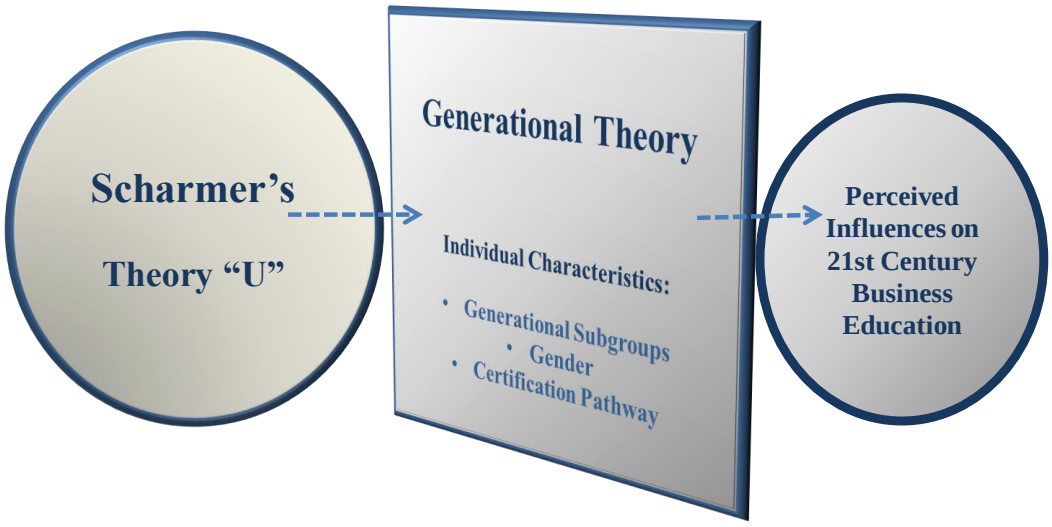

Figure 2. Theoretical/conceptual framework for the study.

Definitions of Key Terms

Conceptual Definitions:

1. Blind Spot: The place within or around us where our attention and intention originates that may or may not be visible to the individual or organization (Scharmer 2007).
2. BMITE: Business, Marketing and Information Technology Education is a division of the Oklahoma Career and Technical system. BMITE administers business education programs in technology centers, comprehensive high schools and skill centers. This Division of the Oklahoma Department of Career and Technology Education includes Business Education, Marketing Education, and Information Technology Education. For this study, the BMITE Division was treated as a single entity; responses from the three component areas were analyzed in aggregate and no attempt was made to separate or compare the responses across the three areas.
3. CTE: Career and Technical Education, prepares both youth and adults for a wide range of careers and further educational opportunities. These careers may require varying levels of education—including industry-recognized credentials, postsecondary certificates, and two- and four-year degrees (Oklahoma CTE State Profile, 2009).
4. Disruptive technologies: technologies introduced into markets with innovations that cost more and perform more poorly than existing products (Christensen, 1997).

5. Presencing: Presencing is defined as the ability to learn from the past to anticipate and create the future (Scharmer, 2009).
6. Singularity: A future period during which the pace of technological change will be so rapid, its impact so deep, that human life will be irreversibly transformed. Although neither utopian nor dystopian, this epoch will transform the concepts that we rely on to give meaning to our lives, from our business models to the cycle of human life, including death itself (Kurzweil, 2005).
7. Software Mashup: "A web application that mixes services and/or data from two or more online sources to provide a unique service that meets the situation needs of a particular group of users" (Easton & Easton, 2010, p. 480).
8. Theory U: A set of principles and practices for collectively creating the future that wants to emerge following the movements of co-initiating, co-sensing, co-inspiring, co-creating, and co-evolving (Scharmer, 2009).
9. Web 2.0: Called the 'social Web' because content can be easily generated and published by users. The collective intelligence of these users encourages more democratic use (Boulos & Wheeler, 2007).

Operational Definitions:

1. Demographic characteristics: Characteristics reported by participants in this study through self-report on the study's online survey.
2. Generational characteristics: Characteristics specific to various age groupings, as identified in the research literature by Howe and Strauss.

3. Perceptions of BMITE Division instructors: Perceptions about the future of business and information technology education by CTE instructors in the BMITE Division of the Oklahoma Department of Career and Technology Education. The perceptions were self-identified on the online survey instrument used in this study.

Limitations, Delimitations and Assumptions of the Study

Limitations

1. Career tech policy dictates that emails contacting the BMITE teachers must be distributed by the Oklahoma BMITE State Program Administrator. This could have been construed by some participants as a directive for them to complete the survey instead of a request. This perception may have influenced responses of some participants in ways that could not have been known to the researcher.

2. The researcher for this study was a full-time BMITE instructor and was known to some of the study's participants. This may have been perceived as either a positive or a negative factor to some participants. It was impossible to determine if such a reaction actually occurred among participants.

3. Because responses were anonymous, there was no way for the researcher to contact participants to clarify responses or ask for additional information.

Delimitations

1. This study was delimited to CTE BMITE educators in the state of Oklahoma. Generalization of this study would be unwarranted.

2. The sample was composed of volunteers and may not have accurately represented the population. Generalization from the sample to the study's population of Oklahoma BMITE educators must be done with caution.

Assumptions

1. The study used self-reported data. It assumed that participants understood the survey questions and answered them truthfully.
2. The list of email addresses used to contact and solicit participants was assumed to be current and correct. The list may not have included recent changes in teaching assignments. This may have had an effect on return rate for the questionnaire or on response information received. The researcher was unable to verify the accuracy and currency of the email addresses and cannot know what, if any, effects inaccuracies may have had.

Significance of Study

The information obtained through this study will provide, for the first time, insight to what BMITE instructors perceive as influences for the future in their specific area. BMITE programs served approximately 30,000 enrollments in 2011 (Oklahoma Department of Career and Technology Education, 2011), and it is vital for sustainability of the program to meet the needs of these students. These perceptions can provide guidance for discourse between teachers, administrators and stakeholders to sense the emerging forces that may change and shape the program's future. Furthermore,

comparing this study with the general population may give validation of the influences and trends that are significant in Oklahoma's CTE education.

CHAPTER II

LITERATURE REVIEW

The review of literature begins with a review of the studies and predictions on future trends for education. Secondly, there is a discussion of generational theory and the three generational cohorts dominant in the BMITE Division, i.e. Boom—or Baby Boomers, Generation Xers, and Millennials. Next is a review of teacher certification pathways in BMITE. Finally, there is a review of Theory U and its application in predictions for the future.

Trends in Education

Effective teaching requires effective technology use (Ertmer & Ottenbreit-Leftwich, 2010); however, previous studies (e.g., Cuban, Kirkpatrick, & Peck; 2001; International Society for Technology in Education [ISTE], 2008; Partnership for 21st Century Learning, 2007) indicate technology is not being used at the level necessary to meet the needs of the 21st century learner. Like other professionals, teachers are expected to be knowledgeable–even experts on the use of technology. BMITE teachers are confronted with technology that is changing at exponential rates, making it necessary to prepare students to have strong digital literacy skills and the abilities to communicate and

collaborate. In 1965, Intel's co-founder, Gordon E. Moore, estimated the number of transistors in computers would double approximately every two years. This progression has enabled chips to be embedded in smartphones, laptops, consumer electronics and watches. Increased computer powers, along with the ease-of-use of the Internet, and the wide-spread use of social technologies have changed the dynamics of the BMITE classroom. Keeping up with new technology changes and meeting work demands in the teaching domain can be overwhelming. Adding to these demands are forecasts concerning cognitive modification such as Ray Kurzweil's statement, "We'll get to a point where technical progress will be so fast that unenhanced human intelligence will be unable to follow it. That will mark the Singularity." (2011, Retrieved from http://www.kurzweilai.net/singularity-q-a).

With individuals empowered by the forces of Globalization 3.0, methods historically successful in the classroom are no longer proving useful. Friedman (2007) described Globalization 3.0 as the power for individuals to collaborate and compete globally. Adapting to changing technology and the changing rules of technology is necessary or Digital Darwinism will mean the end of companies stuck in the Industrial Age (Canton, 1999). Schools are normally slow in adapting to change. BMITE teachers face a volatile landscape in their classrooms caused by disruptive social technologies and empowered students. Canton (1999) viewed the digital influx as a vehicle for revolutionary change for all disciplines (p. 13), projected that the power shift caused by technology will realign social boundaries, and urged planning for the 21st century and the need to "identify our own trends" (p. 3). For Business Education to *identify their own trends*, they must first be heard. Scharmer et al. (cited by Arthur, et al., 2002) found the

challenge for leaders today is the ability to sense emerging patterns and create innovative responses (p. 12). Predictive studies in the BMITE area were not found by this researcher, and few studies in the CTE area were found that investigated future trends. References to business education in the literature are usually restricted to higher education and business management programs.

Nearly a decade ago, Ausburn (2003) suggested five trends from the literature pressing on its future. These trends included:

1. *Rise and dominance of the Internet*
2. *Continuous advances in computer power*
3. *Increasing customization of learning*
4. *Increasing emphasis on return-on-investment*
5. *Return-on-investment in education and training.*
6. *Convergence of all of these in an "a-la-carte" learning model that supported individualization, customization and markets of one.*

Several researchers build upon or offer similar trends to the Ausburn study. Frey (2007) made several projections on what might be considered to be driving forces in the world of education. This study projected trends such as:

1. Transitioning from teaching to learning
2. Experts creating courseware so students would be able to learn anytime and anyplace, and
3. The changing dimensions and growth of information.

A 2008 report of the National Science Foundation Task Force on Cyberlearning (2008) identified areas of opportunity and challenge for cyberlearning. These areas included:

1. A new participatory web culture
2. The ease of deploying software at Web scale
3. Open educational resources
4. Web-based businesses and marketing
5. Ubiquitous computing
6. Mobiles and broadband networking, and
7. New collaborative modes, media richness and virtual worlds

The National Science foundation task force recognized the need to interface with complex social systems and suggested that for innovations to succeed, customization may need to work across various hardware and software platforms.

Ausburn, et al. (2011) conducted a survey in the state of Oklahoma of educators and the general population to determine what influences they predicted would have the strongest effects on American public education. This study supported the following areas as being the top six influences educators and individuals felt will be the most influential in American public education. The top-rated influences in order of preferences were as follows:

1. Efforts to keep up with current technology
2. Meeting individual learner needs
3. Gaining adequate funding
4. Promoting technological literacy skills

5. Efforts to make technology available to everyone
6. Providing access to education anytime and anywhere

Canton (1999) projected lifelong e-education would reinvent the global education system. He predicted that access to learning resources on-demand will produce a powerful educational system. Today's student expects a personalized learning process, one that empowers them to explore and be creative (Project Tomorrow, 2011). Meeting the demands of these free agent learners is expensive. Furthermore, education's red tape and inflexibility are often barriers to meeting student's learning needs.

Gaining adequate funding is an upmost concern for Oklahoma's BMITE teachers. According to the OKPolicyBlog (Blatt, 2012) Oklahoma's state budget for common education has been cut for three straight years, and an estimated 1000 teachers cut between 2010 and 2011. The budget cuts prove even more critical when the public school enrollment has grown by 22,000 students, and educational funding budgets are continually being cut.

Generational Theory and Generations of BMITE Teachers

BMITE teachers fall into three different generational cohorts, Baby Boomers, Generation X and Millennials. William Strauss and Neil Howe and popularized "generational theory" and are a commonly cited source for this information. They defined a generation as a special cohort-group whose length approximately matches that of a basic phase of life (2006, p. 34).

German Sociologist and generational theorist Karl Mannheim (1996) suggested that a generation has the following characteristics:

> (a) new participants in the cultural process are emerging; (b) former participants in that process are continually disappearing; (c) members of any one generation can participate only in a temporally limited section of the historical process and (d) it is therefore necessary continually to transmit the accumulated cultural heritage; (e) the transition from generation to generation is a continuous process (pp. 124-125).

Similarities among authors can be found for generational cohort descriptions. Cohorts are described by Howe and Strauss (2000) as a society-wide peer group, born over a period approximately twenty or twenty-one years, or the length from youth to adulthood. Martin and Tulgan (2006) found trends in attitudes and behavior were directly tied to growing up and coming of age during the same historical period, and the same key historical influences defined the generational identities. Generational experts Zemke, Raines, and Filipczak (2000) indicated generational cohorts were a product of their times (social, economic, demographic), each having their own unique personalities, although not all individuals may fit the profile. Similarly, Gentile, Twenge and Campbell (2010) referred to the cohort (generation) being shaped by the larger sociocultural environment of different time periods.

When looking at the personality of a generation, Howe and Strauss (2000) used three different attributes: perceived members in a common generation; common beliefs and behaviors; and a common location in history (p. 41). Strauss and Howe went on to

explain, “Generations come in cycles. Just as history produces generations, so too do generations produce history” (1991, p. 35).

Pew ResearchCenter (2010) explained a similar viewpoint:

> At any given moment in time, age group differences can be the result of three overlapping processes: 1) *Life cycle effects*. Young people may be different from older people today, but they may well become more like them tomorrow, once they themselves age. 2) *Period effects.* Major events (wars; social movements; economic downturns; medical, scientific or technological breakthroughs) affect all age groups simultaneously, but the degree of impact may differ according to where people are located in the life cycle. 3) *Cohort effects.* Period events and trends often leave a particularly deep impression on young adults because they are still developing their core values; these imprints stay with them as they move through their life cycle. (p. 4)

As is evidenced by Table 1, sources do not agree on the nomenclature or age parameters and descriptors for the generations.

Table 1

Generational Description by Source

	Source			
Howe & Strauss 2007	Zemke, Raines & Filipczak 1999	Tapscott 1998	Oblinger & Oblinger 2005	Martin & Tulgan 2002

Silent Generation 1925-1943	Veterans 1922-1943		Matures 1900-1946	Silent Generation 1925-1942
Boom Generation 1943-1960	Baby Boomers 1943-1960	Baby Boom 1946-1964	Baby Boomers 1947-1964	Baby Boomers 1946-1960
Generation X 1961-1981	Gen-Xers 1960-1980	Generation X 1965-1975	Gen-Xers 1965-1980	Generation X 1965-1977
Millennial Generation 1982-2004	Nexters 1980-1999	Digital Generation 1976-2000	Net Generation 1982-1991	Generation Y 1978-1989

Boom Generation (1943-1960)

Howe and Strauss (2007)defined the Baby Boom generation as individuals born between 1943 and 1960. Until the Millennials, this generation was the largest generation in history. The Boom Generation, characterized as Dr. Spock's permissive babies, grew up in an optimistic and positive time period (Howe & Strauss, 2007). These "Victory children" were considered by some to be the first "me" generation; they were spoiled, self-indulgent and demanded immediate gratification (Martin & Tulgan, 2006, p. 22). This post-war fertility boom witnessed several historic events which shaped their generational views such as three assassinations (John Kennedy, Martin Luther King and Robert Kennedy), the introduction of birth control pills, the Cuban missile crisis, the first lunar landing and Woodstock (Zemke, Raines, & Filipczak, 2000, p. 65). Boomers also remember the war that was never won, Vietnam, and the killing of student protesters at Kent State.

This generation went through schools when the teaching profession was considered prestigious (Howe, 2010). In education, teachers and principals from this generation are the most experienced. Boomers' work ethic and learning characteristic is often described as dedicated and driven (Zemke, Raines, & Filipczak, 1999).

Technology among Boomers has increased dramatically since 2005. Internet usage has increased among this generation with email being the most popular online activity (PEW/INTERNET, 2009). A 2009 report sponsored by AARP and Microsoft (Rogers, 2009) found that Boomers were active adopters of technology. This was attributed to being early adopters of technology such as the first pc computers, digital native children and meeting the needs of aging parents. Bringing "their own values" to technology was a consistent theme running through this generation. Boomers want technology to fit the lives they have made and the values they hold dear (Rogers, 2009, p. 6) Famous members of this generation include Spike Lee, Bill Gates, Tony Blair, Bill Clinton and Steven Spielberg (Strauss & Howe, 1997).

Generation Xers (1961-1981)

This generation was the most prevented due to the birth control pill being approved in 1962 (Zemke, Raines, & Filipczak, 2000). Described as the generation of "latchkeys", children of divorce, and devil-child movies, this generation was the first to be told they would not be as well off as their parents (Martin, 2006, p. 39). The trend for this generation is to marry and have children later in life; a result of being raised by self-absorbed adults when their needs as children were often overlooked (Howe and Strauss, 2000). Martin and Tulgan (2006) considered Xers to be the most unsupervised generation in a "most blatantly anti-child phase" (p. 39). As students, Xers considered winning to be

the only reward (Howe & Strauss, 2003). Their survivor mentality was summed up by Zemke et al., (2000) by one question, "Just tell me if this is going to be on the test?" (p. 94). Gen Xers have a nontraditional orientation to time and space but are considered highly motivated learners, especially when it is fun, and often think of themselves as free agents. Growing up during the first digital generation, they are the most likely group to bank, shop and look for health information online (PEW/INTERNET, 2009).Gen Xers are considered to have strong business savvy skills as evidenced by people such as Michael Dell (Dell Computers) and Amazon's Jeff Bezos (Zemke, Raines, & Filipczak, 1999). However, Xers are cautious in the world of work and often have a cynical mistrust of institutions (Martin, 2006). Famous members of this generation include Barack Obama, Eddie Murphy, Mary Lou Retton, Brooke Shields, Sarah Palin, Michael Jordan and Tom Cruise (Strauss & Howe, 1991; Howe & Nadler, 2010).

Millennials (1982-2004)

Millennials are the most racially and ethnically diverse and least Caucasian, generation in U.S. history (Howe & Strauss, 2003, p. 37). This generation has been labeled Nexters, Gen Y's, NetGens, and Echo Boomers and arrived as the "on Board" signs were seen in minivans across the country. Family values, with two parents in three indicating they would take a pay cut in return for more family time, and stricter parental rules about child behavior became the "gist of Millennial nurture" (Howe & Strauss, 2000, p. 36). Interestingly, Zemke, Raines, and Filipczak (2000). concluded they may become known as the "gender bending" generation in the sense that males will be more likely to play the traditional female roles and vice versa. The persona exhibited by the Millennials includes seven identifiable traits: special, sheltered, confident, team-oriented,

achieving, pressured and conventional (Howe & Strauss, 2000).Millennials want to know exactly why they are doing something and want to feel they are having a personal impact. If they understand the deeper meaning behind a task, they will bring their energy and passion to a project (Twenge, 2009)

Howe and Strauss (2000) argued that Millennials have become better-rounded and less focused on one life goal, with balance between family and work especially important (p. 179). Pew ResearchCenter (2010) further described Millennials as confident, self-expressive, liberal, upbeat and open to change. Howe and Nadler (2010) confirmed Millennials were known for their confidence but added that even when grown up and leaving home, parents remain very involved in their lives (p. 93). Subsequently, higher education institutions have implemented programs to accommodate these helicopter parents. This parent involvement has evolved to the workplace as parents research potential employers or advise their Millennial child on job offers.

After a million-dollar research project consisting of over 10,000 interviews, Don Tapscott wrote the book *Grown Up Digital.* From this research, Tapscott generated the label of the Net Generation and found them to be multitaskers that text incessantly while surfing the Web and using Facebook at every opportunity (Tapscott, 2009, p. 9). The one unique characteristic about this generation born in the digital age is they are all digital natives (Prensky, 2010). This generation has spent more time using the Internet for entertainment, playing video games, watching TV and instant messaging than reading. Not surprisingly, this generation is also the highest user of social media sites, and many have found this generation's uses of technology challenging traditional educational

practices (Taylor, 2007). Educators often report struggles to motivate these students to achieve the learning outcomes in academic courses (Eisner, 2004).

Teacher Certification Pathways

BMITE's division has 436 active teachers (R. Peace, personal communication, April 12, 2012) located at comprehensive middle schools/high schools, career tech centers or skill centers. All teachers in Oklahoma must have appropriate teacher certification.

CTE instructors in Oklahoma may obtain their teacher certification through four different paths depending on their education and/or experience as outlined by the Oklahoma State Department of Education. These paths include Standard Teaching Certificate, Provisional *CareerTech* Certification, T&I 1 or License for BITE, Alternative Certification or be certified in a different area (Career Tech, 2012).

Additionally, teachers in the BMITE program are required to obtain the Business Education CareerTech Endorsement (Career Tech, 2012) within three years. This endorsement requires an Oklahoma Teaching Certificate in Business Education, nine hours of coursework at a higher education institution and one year of work experience related to their subject area other than teaching experience.

Social Leadership Technology and Scharmer's Theory U

As BMITE attempts to adapt to a changing future, it needs a new social leadership technology to guide them through the process. Scharmer (2009) stated, "To lead profound change is to shift the inner place from which a system operates. This can be done only

collaboratively." Scharmer refers to this practice as a “social technology” (Scharmer 2009, p. 377). Scharmer’s interest in the use of a social technology for understanding and collectively shaping an emerging future developed into his Theory U. The social technology underpinning Theory U is based on five movements of a U-shape. The U-shaped path is how Scharmer (2009) represents the process by which organizational leaders move through seven cognitive spaces:

- *Downloading:* reenacting patterns of the past—viewing the world through one’s habits of thought;
- *Seeing:* suspending judgment and seeing reality with fresh eyes—the observed system is separate from those who we observe;
- *Sensing:* connecting to the field and attending to the situation from the whole—the boundary between observer and observed collapses, the system begins to see itself;
- *Presencing:* connecting to the deepest source, from which the field of the future begins to arise—viewing from source;
- *Crystallizing* vision and intention—envisioning the new from the future that wants to emerge;
- *Prototyping* living microcosms in order to explore the future by doing—enacting the new through “being in dialogue with the universe”;
- *Performing and embodying* the new in practices and infrastructures—embedding the new in the context of the larger co-evolving ecosystems (p. 39).

These cognitive spaces include the additional concepts of *instruments* that form the “U” shaped path. Scharmer (2008) categorizes the cognitive spaces into three

instrument types that focus on the *open mind, open heart,* and the *open will.* These instrument types correspond to horizontal locations along the "U". Starting with the upper portion of the "U", you have *seeing,* and *prototyping,* instruments of the open mind (ability to access our intellectual). Occurring at the middle portion of the U-shaped path are *sensing* and *crystallizing,* instruments of the open heart (our ability to access our emotional intelligence). At the bottom of the "U" is *presencing,* representing the deepest place at which leaders operate—*open will* (p. 41).

Theory U is a social technology of transformational change that will allow all segments of human society, including our individual lives, to meet their existing challenges. The practice of social technology as discussed by Scharmer (2009, p. 377), can only be done collaboratively.

A critical component of Scharmer's Theory U is the concept of *presencing.* *Presencing* is described as "connecting to the deepest source, from which the field of the future begins to arise—view from the source" (Senge, Scharmer, Jaworshi, & Flowers, p. 39) Scharmer derived at the work *presencing* by blending the words *sensing* and *presence.* "*Presencing* is a movement where we approach our self from the emerging future." (Scharmer, 2008, p. 163") There are five movements at the core of *presencing* as shown in Figure 3 below. As you move down the left side of the "U" you connect to the world that is outside of your bubble—and data loading or input takes place. The cup of the "U' connects to the world that emerges from within—or data processing. *Presencing* is located at the bottom of the U and happens when our perception begins to connect to the source of our emerging future (Scharmer, 2008, p. 165). The upward journey of the right side of the "U" is where we develop and refine future scenarios. The movements of

co-creating and co-evolving allow for prototyping and exploring the future—then exploring from the emerging whole. Figure 3 displays the five movements of the "U" process.

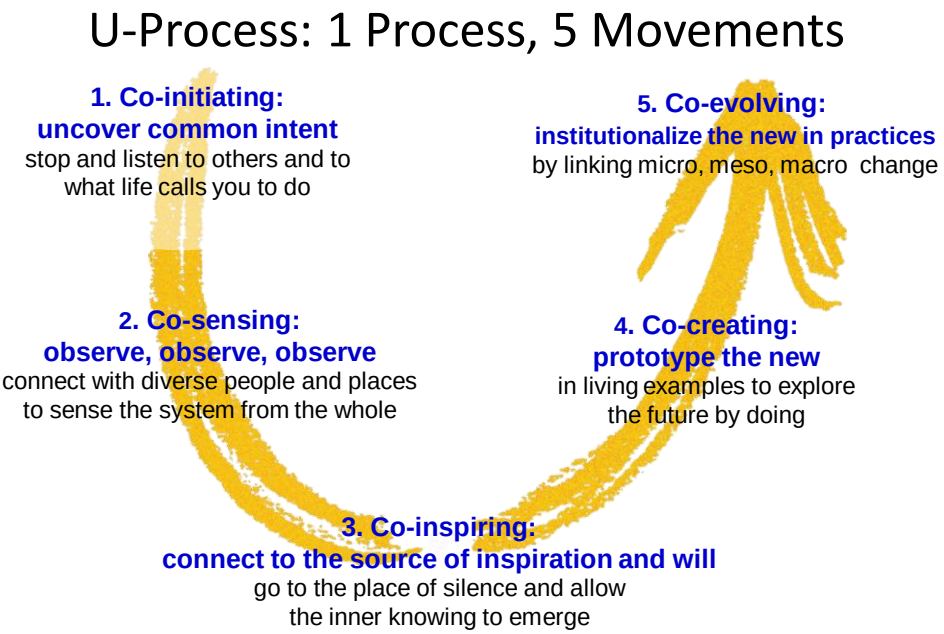

Figure 3. The Five Movements of the U Process *in Scharmer's Theory U.*

Scharmer's Theory U, using the concept of presencing to sense an emerging future, lead from the future, and guide the shaping of a future that is trying to emerge (Scharmer, 2009), was the theoretical foundation for the present study. Using Theory U's *presencing* will hopefully allow BMITE to suspend the habitual judgments of the past and to redirect their attention, to learn from the future as it emerges. The downward "U' process begins on the left side with seeing, sensing and letting go before arriving at the presencing stage (Scharmer, 2009, p. 38). Before progressing up the "U"

toward letting come, enacting, and embodying, individuals must travel through and overcome the right side—seeing, sensing, and letting go. This researcher viewed the present study as the beginning of the down stroke–information input–of the U-shaped journey to sense an emerging future for BMITE education in Oklahoma's Career and Technology Education system.

CHAPTER III

RESEARCH DESIGN AND METHODOLOGY

The study explored the concerns for Business, Marketing, and Information Technology Education (BMITE) in the 21st century. BMITE instructors are a diverse group of Business educators, Marketing educators, and Information Technology instructors teaching secondary and post-secondary students. This study utilized full-time BMITE CTE instructors to replicate a 2010 examination of educators and the general public about the future of American public education (Ausburn, Ellis, & Washburn, 2011) in the 21st century. The Ausburn et al. study served as the research model and as a baseline to compare the responses of the BMITE instructors to a more general population. The purpose of the original study was to describe current predictions from classrooms and communities about influences that would shape 21st century American education.

Research Model and Design

The study used survey methodology and descriptive quantitative research design to gather data and describe the results. Gay, Mills and Airasian (2006) stated, "Descriptive research determines and reports the way things are; it involves collecting numerical data to test hypotheses or answer questions about the current status of the subject of study" (p. 11). Weinstein (2010) defined descriptive research as the process of organizing

observations and turning data into information. Survey research was defined by Pinsonneault and Kraemer (1993) studies using questionnaires that were conducted to advance scientific knowledge. Surveys are the most commonly used descriptive methodology in educational research, with the major purpose being to describe the characteristics of a sample or population (Fraenkel & Wallen, 2003).

The following specific research questions guided this study:

1. What influences do Oklahoma BMITE division instructors predict will have the strongest effects on the future of CTE business education?
2. How do the individual influences identified by BMITE Division instructors cluster into identifiable factors?
3. What factors do BMITE Division instructors predict to be most influential in educational practice?
4. Are predicted factor influences perceived differently by subgroups of BMITE educators based on generational and other individual characteristics?
5. What are the similarities and differences between the predictions about the future of BMITE education and the general population?

Procedures

Population and Sample

The population for this descriptive study was Oklahoma's Business, Marketing and Information Technology Education (BMITE) Division full-time CTE instructors. Gay, Mills, and Airasian (2006) defined a population as the larger group from which the sample is selected. The population, or as Weinstein (2010) termed it, the sample

universe, for this study consisted of 436 active full-time CTE BMITE Division instructors at comprehensive high schools, career and technical centers, and skill centers throughout the state of Oklahoma. The instructional sites were located in rural and urban locations.

A sample is a subset of elements from the population which is selected according to a sample design (Pedhuzer, 1991). The purposive sample for this study was 146 full-time CTE BMITE instructors who agreed to participate in the online survey. Online survey research was the preferred type of data collection procedure for this study because the population, BMITE teachers, accesses e-mail and Internet on a daily basis. Consequently, they are familiar with using this interactive format and could complete the survey whenever and wherever they chose.

After agreeing to participate in the study, participants provided the demographic and profile information from nine questions in the first section of the online survey. The profile data that describes the sample (N=146) are presented in Table 2.

Table 2

Sample Descriptive Demographics and Profile Information (N=146)

Demographic Variable	*N*	% of Sample
Gender		
Male	20	13.7
Female	114	78.1
Missing	12	8.2
Generational Group and Birth Years		
Boom Generation - 1943-1960	48	32.9
Generation X - 1961-1981	78	53.4
Millennial Generation - 1982-2004	5	3.4
Missing	15	10.3
Educational Attainment		
Completed 4-year Bachelors Degree	71	48.6
Completed a Graduate Degree (Masters or Better)	62	42.5
Missing	13	8.9
Ethnicity/Racial Group		
Caucasian/White	117	80.1
Native American	9	6.2
Hispanic/Latino	2	1.4
African American	3	2.1
Other	2	1.4
Missing	13	8.9
Certification Path Followed		
Alternative	44	30.1
Standard	78	53.4
Provisional T&I	4	2.7
Certified in a different area	7	4.8
Missing	13	8.9
Work Location		
Career Tech Center	55	37.7
High School/Middle School	78	53.4
Missing	13	8.9
National Board Teacher Certification		
Yes	33	22.6
No	95	65.1
Applied	5	3.4
Missing	13	8.9

A total of 146 (*N=146)* BMITE teachers participated in the survey. This sample included teachers from career and technology centers, and comprehensive high schools/middle schools throughout the State of Oklahoma. Over half of the participants taught at a middle school or high school. Generation Xers, females, and Caucasian participants dominated the survey. All participants had a minimum of a 4-year Bachelor's degree and most held a Standard teaching certificate. Approximately one-third of the participants were National Board Certified Teachers.

Additional demographic information was obtained from the survey for the BMITE Division's informational purposes but was not included in this table. This information included the following: retirement plans, ethnic or racial group, and if the teacher had obtained a National Board Certification.

In addition, three open-ended questions were included on the survey but were not included in the study's findings. The responses for these three questions may be used for further study.

Instrumentation

Questionnaires are one of the most common survey research instruments and normally are self-administered (Fraenkel & Wallen, 2003). Participants self-administered the online questionnaire for this study. The researcher was granted permission to use and modify a questionnaire developed by Ausburn, Ellis, and Washburn (2011). This instrument was developed using previous predictive studies by Ausburn (2003) and education and social futures literature (e.g. Berg, 2005; Canton, 1999, Cross, 2007; Darling-Hammond, 2010; Egan, 2008; Friedman, 2007; Marx, 2006; Phillips & Phillips, 2007; Pine, 1993; Tapscott & Williams, 2007). The original questionnaire had 13

individual literature-based items representing concepts or issues that could influence the future of education. These issues were:

1. Keeping up with current technology
2. Providing access to education anyplace, anytime (such as through on-line courses)
3. Promoting technology literacy and skills
4. Making technology available to everyone
5. Being service oriented
6. Meeting individual learner needs
7. Serving a culturally diverse population
8. Providing for on-job training, continuing education, and life-long learning
9. Gaining adequate funding
10. Demonstrating positive return-on-investment for money spent
11. Competing with new non-traditional types of educational providers (on-line universities, alternative schools, home schooling, charter schools, etc.)
12. Meeting new federal, state, and local legislative mandates
13. Promoting understanding of ethical considerations related to technology, social, and global issues

Small focus groups were used to validate and determine understandability and coverage of the 13 items. The items were then tested for internal consistency reliability with coefficient alpha and for underlying structure with exploratory factor analysis. The internal consistency was satisfactory at $\alpha = .83$. The factor analysis yielded a four-factor structure for the 13 items, with significant factor loadings defined as $\geq .30$ (Ausburn et al., 2011)

According to Ausburn et al. (2011), the four factors that organized the 13 items and the items that loaded on each factor were as follows:

Factor 1. *Performing General Education Requirements*

Item 1. Keeping up with Technology

Item 2. Promoting technology literacy and skills

Item 3. Making technology available to everyone

Item 4. Providing access to education anyplace, anytime

Factor 2. *Servicing Learning Needs*

Item 4. Proving access to education anyplace, anytime

Item 5. Being service oriented

Item 6. Providing for on-job training, continuing education, and life-long learning

Item 7. Meeting individual learner needs

Item 3. Making technology available to everyone

Item 12. Serving a culturally diverse population

Item 10. Competing with new non-traditional types of educational providers

Factor 3. *Maintaining Fiscal Accountability and Competitiveness*

Item 8. Gaining adequate funding

Item 9. Demonstrating positive return-on-investment (ROI) for money spent

Item 10. Competing with new non-traditional types of educational providers

Item 11. Meeting new federal, state, and local mandates

Factor 4. *Meeting Ethical Responsibilities*

Item 7. Meeting individual learner needs

Item 11. Meeting new federal, state, and local mandates

Item 12. Serving a culturally diverse population

Item 13. Promoting understanding of ethical considerations related to technology, society and global issues

For the present study, modifications were made to the demographic content to fit the population and purposes applicable to this study. No modifications were made to the original 13 items. Then the instrument was again validated with a small group of educational professionals. Additional demographic content was added beneficial to the BMITE division upon that group's recommendations.

The survey questionnaire for this study (Appendix D) had three sections: demographics, 13 items that could influence the future of BMITE education that were to be rated and ranked, and a third section which presented three open-ended questions

asking participants to identify their greatest concerns about the future of education and society. Data from the first two quantitative sections described below were analyzed for the purposes of this study.

The first section utilized demographic questions that were pertinent to Oklahoma's BMITE teachers. This Division of the Oklahoma Department of Career and Technology Education includes Business Education, Marketing Education, and Information Technology Education. For this study, the BMITE Division was treated as a single entity; responses from the three component areas were analyzed in aggregate and no attempt was made to separate or compare the responses across the three areas. These items were selected in consultation with senior Oklahoma CTE BMITE personnel at the Oklahoma Department of Career and Technology Education (ODCTE). The items included: gender, age, retirement projections, educational level and degree area, CareerTech environment in which they teach, ethnicity or racial group, whether they are National Board Certified Teachers, teacher certification path, and what career cluster they taught.

The second section, derived and modified from the Ausburn *et al*. study (Ausburn, Ellis, & Washburn, 2011) included 13 items that could influence the future of BMITE education. Using the procedure used by Ausburn *et al.*, a 5-point, Likert-type scaling system asked participants to rate each item as follows: (a) no influence = 1; (b) minor influence = 2; (c) moderate influence = 3; (d) major influence = 4; (e) extreme influence = 5. Participants were then asked to select the six items they felt most critical for education to address in order to have a successful future and to rank their choices with 1 being the highest rank (most influential).

The third section included 3 open-ended questions, again derived and modified from the Ausburn *et al*. study (2011). These qualitative questions asked participants to identify their greatest concerns about the future of people and society, their greatest concern about the future of education and their single strongest recommendation to public education to help make it successful in the future (Ausburn et al., 2011). Data from this section was not included in the purpose of this study and will be used for future research.

Procedures

To access the participants, permission was granted from the state program administrator for the BMITE division in Oklahoma. As agency policy, emails to the BMITE instructors were channeled through the division administrator. The introductory email (Appendix A) was sent from the BMITE division program administrator at the ODCTE encouraging participation and contained a link to the survey (Appendix D). The survey was estimated to take approximately 15-20 minutes to complete and was administered through the Oklahoma State University College of Education QUALTRIX server. Participants for this study were volunteers who completed the research questionnaire online. After reading the informed consent information (Appendix C), participants chose to proceed to the questionnaire or not. Proceeding with the questionnaire indicated the participant's acceptance of the informed consent conditions and agreement to participate. All data were submitted online and then returned to the researcher for analysis.

Data Analysis

Quantitative data was entered into the SPSS program for statistical analysis. Analysis of data was completed using descriptive statistics (i.e., frequencies, minimum,

maximum, standard deviation, and mean ratings), rating, and ranking analysis using a sigma rank points (∑RankPoint) procedure, t-tests and/or one-way ANOVAs as appropriate depending on the number of sub-groups to be compared. A confirmatory factor analysis was conducted to analyze the clustering of individual influence items into groups of items and compared to the structure found in the original Ausburn, *et al.* (2011) study. Coefficient alpha was used to analyze the internal consistency of the questionnaire in this sample.

CHAPTER IV

FINDINGS

Overview of the Study and Research Questions

The purpose of this study was to describe Oklahoma CTE BMITE teachers' predictions about influences they perceive will shape 21st century CTE Business, Marketing and Information Technology Education; and, to compare the predictions of BMITE teachers to those of a more general population reported by Ausburn *et al*. (2011). Several statistical analyses were conducted to address the five research questions that guided this study.

The data and data analysis process, along with the findings from the analyses of data taken from the BMITE instructor surveys, will be presented in this chapter. The findings are organized here by the specific research question to which they relate.

Research Question 1:

What influences do Oklahoma BMITE division instructors predict will have the strongest effects on the future of CTE business education?

This question was analyzed using descriptive statistical analyses. Participants were asked to rate all 13 individual influences listed on the questionnaire, and then to select and rank a sub-set of influences. Rating and ranking data from the survey were used to examine the participants' absolute (i.e., rating) and relative (i.e., ranking) predicted strengths of the 13 items.

Ratings assigned to each item on the 5-point Likert-type scale assessed the participants' predictions of the *absolute* strengths of the 13 influences on the future of BMITE CTE education. Because these items required no comparison among the items, these data were interpreted as absolute measures of the predicted influence of each item. The *relative* predicted strengths of the 13 influences were assessed using *rankings* assigned by calculating ∑RankPoint scores, which were interpreted as relative measures of the perceived influence of each item.

To calculate ∑RankPoint scores for items, statistical procedures used by Ausburn *et al.* (2011) were followed. Participants were asked to select from the 13 items the six items they felt were most critical for education to address in order to have a successful future, and then to rank their choices. The ranks were assigned points with rank 1 being the highest rank (most influential) = 6 points; rank 2 = 5 points, rank 3 = 4 points; rank 4 = 3 points; rank 5 = 2 points; and rank 6 = 1 point. If an item was not selected in the top six it received 0 points. The sum of ranked points (∑RankPoint) score was determined for each of the 13 items by adding the ranking points the items received from all subjects. Table 3 shows the minimum, maximum, mean, and standard deviation of the ratings for each item, as well as the ranking data for each of the 13 items. Ranking data include the ∑RankPoint score and the overall ranking of the items by the entire sample based on the ∑RankPoint scores.

Table 3

Rating and Ranking Descriptive Statistics for 13 Influences on the Future of BMITE (N=127)

Influences	Min	Max	Mean	∑ Rank	Overall

		Rating	Rating	Rating	SD	Points	Rank
1.	Keeping up with current technology	1	6	4.60	0.664	521	1
2.	Gaining adequate funding	1	6	4.54	0.710	280	2
3.	Promoting technology literacy and skills	1	6	4.38	0.745	236	3
4.	Providing access to education anyplace, anytime (such as through on-line courses)	1	6	4.13	0.836	233	4
5.	Meeting individual learner needs	1	6	4.31	0.649	228	5
6.	Providing for on-job training, continuing education, and life-long learning.	1	6	4.29	0.643	203	6
7.	Competing with new non-traditional types of educational providers (such as on-line universities, alternative schools, home schooling, charter schools, etc).	1	6	4.20	0.946	187	7

8.	Meeting new federal, state, and local legislative mandates.	1	6	4.24	0.781	160	8
9.	Making technology available to everyone	1	6	4.35	0.739	149	9
10.	Demonstrating positive return-on-investment for money spent.	1	6	4.17	0.796	136	10
11.	Being service oriented	1	6	4.14	0.732	79	11
12.	Promoting understanding of ethical considerations related to technology, social, and global issues.	1	5	4.01	0.716	68	12
13.	Serving a culturally diverse population.	1	6	4.04	0.830	61	13

Stronger predicted influences on the future of BMITE were indicated by higher mean rating and ∑RankPoint scores. As shown in Table 3, the rank orderings of the 13 items using the ∑RankPoint scores were similar to the rankings based on the mean ratings. Because the ∑RankPoint procedure forced comparisons among items, this score was considered the primary

indicator to determine rank-ordering of the 13 items. Mean rating was utilized as the secondary indicator.

Using the ∑RankPoint scores, the study's participants' indications of the predictions about what influences would be strongest on the future is shown in Table 3. Using the ∑RankPoint scores given on the 13 items, 1. *Keeping up with current technology* showed strongly it would have the greatest influence on BMITE in the future with 521 points. This is demonstrated by the large gap in ∑RankPoints between this item and the second-ranked item. The top-ranked item was followed by 2. *Gaining adequate funding,* with 280 ranking points. Three, four and five were all ranked closely by participants and are: 3. *Promoting technology literacy and skills,* garnering 236 points; 4. *Providing access to education anyplace anytime* with 233 points; and, 5. *Meeting individual learner needs* with 228 points. The remaining top six of the influences was 6. *Providing for on-job training, continuing education, and lifelong learning* which obtained 203 points.

Research Question 2:

How do the individual influences identified by BMITE division instructors cluster into identifiable factors?

A factor analysis was performed to examine the underlying structure of the 13 items, or how they clustered into groups of related items. Rating scores of the 13 items were used as inputs for the factor analysis. To verify internal consistency reliability, a Cronbach's coefficient alpha was determined. The value of Cronbach's coefficient alpha for this study was (α =.85) and

exceeded the acceptable level (α =≥.70) as cited by Nunnally (1978), indicating that the 13 items of the study's survey were internally consistent.

Green and Salkind (2011) explained the following about factor analysis procedure: Factor analysis requires two stages, factor extraction and factor rotation. The primary objective of the first stage, factor extraction, is to make an initial decision about the number of factors underlying a set of measured variables. The goal of the second stage, factor rotation, is twofold: (1) to statistically manipulate (i.e., to rotate factors) the results to make the factors more interpretable and (2) to make final decisions about the number of underlying factors" (p. 314).

During the first processing step of the factor analysis (i.e., factor extraction using the maximum likelihood method), the factor eigenvalues or numerical indices indicating the relative strength of each of the factors (Sheskin, 2007); scree plot (diagram of the eigenvalues); and variances suggested that a two-factor solution (47.6% of variance), a three-factor solution (55.8% of variance), or a four-factor (65.5% of variance) could be effective in explaining the underlying grouping patterns of the 13 influences. Two criteria were used in the first step to determine the best number of factors to retain: Number of components with absolute eigenvalues greater than one (Green & Salkind, 2011, p. 315) and visual examination of the scree plot. The scree plot for the extracted components is shown in Figure 4.

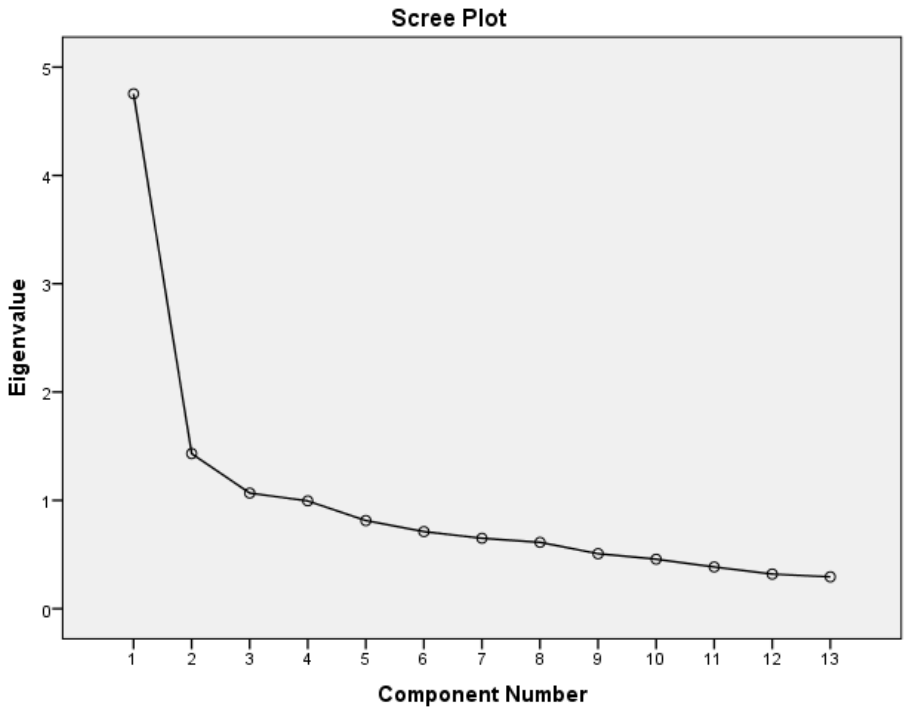

Figure 4. Scree Plot of 13 items.

Four factors had eigenvalues greater than one. This suggested that a four-factor solution should be the starting point for examination. The scree test examining the graph of the eigenvalues showed a natural break point at three factors—not including the point at which the break occurs, which according to Costello and Osborne (2005) is usually the number of factors to retain.

Based on the eigenvalues and scree plot, the researcher chose to examine two-, three-, and four-factor solutions. Factors were extracted and then rotated to Varimax criterion as suggested by Green and Salkind (2011) and Kachigan (1991). According to Sheskin (2007), factor rotation "…allows a researcher to derive the simplest possible factorial structures for the data" (p. 1624). The rotated factor matrices and loadings were examined for two, three, and four factors. After analyzing the trial solutions, the final choice of a three-factor solution was selected

due to the stronger interpretability (Green & Salkind, 2011, p. 315). In the three-factor solution, Factor 3 was defined by and separated from the other two factors with only one item loading: *Serving a culturally diverse population.* The three-factor solution's matrix of statistical data for the 13 influence items is shown in Table 4.

Table 4

Rotated Factor Matrix for Three-Factor Solution of 13 Influence Items

		Factor Number and Loadings		
ID		1	2	3
a.	Keeping up with current technology	.370**	.494*	-.022
b.	Providing access to education anyplace, anytime (such as through on-line courses)	.458*	.255	.058
c.	Promoting technology literacy and skills	.131	.753*	.123
d.	Making technology available to everyone	.113	.678*	.262
e.	Being service orientated	.280	.446*	.103
f.	Meeting individual learner needs	.313**	.470*	.425*

g.	Serving a culturally diverse population	.142	.203	.968*
h.	Providing for on-job training, continuing education, and life-long learning	.383**	.275	.178
i.	Gaining adequate funding	.482*	.269	.141
j.	Demonstrating positive return-on-investment for money spent	.514*	.200	.096
k.	Competing with new non-traditional types of educational providers (on-line universities, alternative schools, home schooling, charter schools, etc.).	.742*	.132	.035
l.	Meeting new federal, state, and local legislative mandates	.738*	.060	.200
m.	Promoting understanding of ethical considerations related to technology, social, and global issues	.324**	.389**	.303**

Extraction Method: Maximum Likelihood

Rotation Method: Varimax with Kaiser Normalization

Total variance accounted for = 46.02%

*Meets or exceeds primary factor load required for this study (≥.40)

**Meets or exceeds secondary factor load required for this study (≥.30)

The factor loadings indicate the degree to which each of the variables (i.e., each of the 13 prediction items) correlates with each of the factors (Kachigan, 1991). Because they are correlation coefficients, factor loadings are in the range of -1.0 to 1.0 and the higher the absolute value of a loading, the more closely linked an observed item is to a factor. For this study, if a factor loading was ≥.40 it was considered to load on or help define or identify a factor (Green & Salkind, 2011) as a primary component of the factor. Factor loads of ≥.30 were considered secondary loads. These loadings fall within lower limits accepted by Kachigan (1991) for exploratory factor analysis.

The three- factor solution accounted for 46.2% of the total variance among the items. Sheskin (2007) pointed out that,

> There is no set rule with respect to how much of the total variance must be accounted for by the factors a researcher derives…In essence, how many factors one decides to employ will ultimately depend on the purpose for which one intends to use the results of the analysis. (pp. 1623-1624)

He also maintained that the research must balance accounting for as much total variance as possible ("comprehensiveness") with doing so in the simplest possible way, or the fewest possible number of factors ("parsimony") (p.1623).

Based on these guidelines and its interpretability, the 3-factor matrix appeared to the researcher to be both defensible and the best factor solution for the data. Data for the three-factor solution shown in Table 4 produced the following findings, based on the factor loadings. Based on what items did and did not load on each factor, the factors were assigned names and descriptions as follows:

Factor 1: *Competitiveness:* Underlying themes for naming this factor enforced the need to compete in a global workforce such as meeting mandates and fiscal accountability. Very strong loads for this factor (≥.70) were derived from (k) competing with new non-traditional types of educational providers and (f) meeting new federal, state and local legislative mandates. Other areas meeting the ≥.40 loading criterion selected for this study included (j) demonstrating positive return-on-investment for money spent, (i) gaining adequate funding, and (b) providing access to education anyplace, anytime (such as through online courses.) Moderate secondary loads (≥.30) came from (a) keeping up with current technology and (h) providing for on-job training, continuing education, and life-long learning.

Factor 2: *Customer Service:* This factor's overall theme is providing good service to the customers of education such as making technology available to everyone. The strongest loads for this factor (≥.60) came from (d) making technology available to everyone and (c) promoting technology literacy and skills. Other loads within the primary-load cut zone included (a) keeping up with current technology, (e) being service orientated, and (f) meeting individual learner needs. A moderate load (≥.30) was received for (c) promoting understanding of ethical considerations related to technology, social, and global issues.

Factor 3: *Diversity:* This factor was named Diversity due to the one strong load (.968) received from (g) serving a culturally diverse population. Another load within the previously established guideline (≥.40) was from (f) meeting individual learner needs. Promoting understanding of ethical considerations related to technology, social and global issues (m) received a moderate load (≥.30).

One influence, (f) meeting individual learner needs was perceived as being part of more than one factor. This influence was viewed by participants as part of customer service needs but also part of diversity.

Research Question 3:

What factors do BMITE division instructors predict to be most influential in educational practice?

The comparative influence of the three factors identified in the factor analysis was examined by calculating a factor score for each participant on each of the three factors. These scores were calculated by taking the sum of the Likert-style influence ratings assigned to the individual items by each participant. Only the items with loadings of ≥.40 on each factor were used: Factor 1, items b, i, j, k, l; Factor 2, items a, c, d, e, f; Factor 3, item g and f. Consequently, only primary or strong secondary items were included in the factor score calculations.

To determine the ∑FactorScore for each factor, the individual factor scores for each participant were summed. The average factor score for each factor (Mean∑Factor) was calculated by dividing ∑FactorScores by the number of respondents (*N*) who rated all items to allow for missing data and unequal numbers of items on the factors. Table 5 shows the ∑FactorScores, Mean∑FactorScores and the rank of each factor based on the Mean∑FactorScores.

Table 5

Sum of Factor Scores (∑Factor Scores), Mean∑Factors Scores, and Rank Ordering for Three Influence Factors (N=146)

Influence Factor Number and Name	∑FactorScores	*N*	Mean ∑FactorScores	Rank Based on Mean ∑Factor Scores
1 Competitiveness	2702	127	21.28	2
2 Customer Service	2769	127	21.96	1
3 Diversity	1060	127	8.35	3

Table 5 shows that the study's BMITE participants viewed the factors of Competitiveness and Customer Service as nearly equal in importance for success in the future and the Diversity factor as considerably less important.

Research Question 4:

Are predicted factor influences perceived differently by subgroups of BMITE educators based on generational and other individual characteristics?

Predicted factor influences were examined by three different demographic areas: generational group, gender and the path teachers followed for teacher certification. For the

generational analysis, factor scores were compared for three generations as defined by Howe and Strauss (2000) as Booms (*n*=48), Generation Xers (*n*=78), and Millenials (*n*=5).

Factor scores were also compared for the males (*n*=20) and females (*n*=114) and what teaching certification path participants followed: alternative (*n*=44), standard (*n*=78), Provisional T & I (*n*=4) or certified in a different area (*n*=7).

The mean factor scores for the three factors were computed for each group. A one-way analysis of variance (ANOVA) procedure was used to determine if there were statistically significance differences in factor scores for the three generational categories and the four certification path categories. The results of the analysis showed no significant differences between categories for either the generation or certification path groups. An independent sample *t*-test procedure was used to determine if there were statistically significant differences in factor scores between male and female participants. The analysis indicated that there were significant differences for Factor 1 ($t = -2.170$, $df = 18.05$, $p = .044$) with females ($M = 21.68$, $SD = 2.35$) having higher scores than males ($M = 18.89$, $SD = 5.45$). Factors 2 and 3 were non-significant between male and female. Table 6 below shows the descriptive statistical data on which the *t*-tests were based. These data and the *t*-test indicate that females view the Competitiveness factor as more influential on future success than do males.

Table 6

Influence Mean Factor Scores by Demographic Groups

		Factor 1 Competitiveness		Factor 2 Customer Service		Factor 3 Diversity	
Demographic Group	*N*	Mean Factor Score	SD for Factor Scores	Mean Factor Score	*SD* for Factor Scores	Mean Factor Score	*SD* for Factor Scores
Generational Group							
Boom	48	20.82	3.63	22.00	2.28	8.62	1.21
Generation X	78	21.65	2.60	21.65	2.61	8.18	1.32
Millennials	5	20.40	2.70	22.40	2.70	8.60	1.95
Gender							
Male	20	18.83	5.48	21.28	2.19	7.89	1.45

Female	114	21.68*	2.35	21.89	2.50	8.42	1.26
Certification Path Followed							
Alternative	44	21.48	3.05	22.12	2.37	8.31	1.47
Standard	78	21.43	2.51	21.77	2.50	8.37	1.23
Provisional T & I	4	21.75	2.63	21.50	2.08	7.50	1.00
Certified in a different area	7	18.14	7.06	20.43	2.70	8.86	.90

Notes: * = Difference statistically significant at $p \leq .05$

Research Question 5:

What are the similarities and differences between the predictions about the future of BMITE and the general population's baseline study predictions about the future of American public education?

Comparing the BMITE and the general population's predictions about the strongest influences on future educational success, the highest concern for both was *keeping up with current technology*. Other influences that both groups ranked closely (±1 ranking) were *gaining adequate funding, promoting technology literacy skills, providing for on-job training, continuing education, and lifelong learning and being services oriented.* Influences ranked in the ±2 to ±3 range included *providing access to education anyplace, anytime, meeting individual learner needs, meeting new federal, state, and local legislative mandates, demonstrating positive return-on-investment for money spent, promoting understanding of ethical considerations related to technology, social, and global issues, and serving a culturally diverse population.* The largest differences in rankings were *competing with new non-traditional types of educational providers,* and *making technology available to everyone,* Mean ratings for the BMITE teachers and the general population, along with ∑RankPoints for both groups and overall rank by each group are outlined in Table 7.

Table 7

Rating and Ranking Points Descriptive Statistics for 13 Influences by all Sample Groups

Influences	Mean Rating BMITE Teachers	Mean Rating General Population	∑ Rank Points BMITE Teachers	∑ Rank Points General Population	Overall Rank BMITE Teachers	Overall Rank General Population	Rank Difference
Keeping up with current technology	4.60	4.40	521	1412	1	1	0
Gaining adequate funding	4.54	4.36	280	1074	2	3	-1
Promoting technology literacy and skills	4.38	4.22	236	993	3	4	-1
Providing access to education anyplace, anytime (such as through	4.13	3.83	233	750	4	6	-2

on-line courses)							
Meeting individual learner needs	4.31	4.12	228	1099	5	2	3
Providing for on-job training, continuing education, and life-long learning.	4.29	4.09	203	683	6	7	-1
Competing with new non-traditional types of educational providers (such as on-line universities, alternative schools, home schooling, charter schools, etc.)	4.20	3.48	187	232	7	13	-6
Meeting new federal, state, and local legislative mandates.	4.24	3.72	160	360	8	11	-3
Making technology available to	4.35	4.15	149	875	9	5	4

everyone

Demonstrating positive return-on-investment for money spent.	4.17	3.68	136	333	10	12	-2
Being service oriented	4.14	3.64	79	377	11	10	1
Promoting understanding of ethical considerations related to technology, social, and global issues.	4.01	3.79	68	446	12	9	3
Serving a culturally diverse population.	4.04	4.03	61	664	13	8	5

Summary of Findings

In summary, the BMITE educators and the general population found *keeping up with current technology* as the most important influence on the future of BMITE education. Customer service, competitiveness and diversity represented the identifiable factors in which the influences clustered. Demographic groups were consistent on their views of these factors except for females viewing factor 1 (competitiveness) as more significant than males. Overall, BMITE educators perceived the influences as more important than the general population. Both groups gave similar rankings for four influence areas (± 1) with the remaining eight influences having differences from ± 2 to ± 6.

Conclusions and implications will be discussed in Chapter 5.

CHAPTER V

CONCLUSIONS, DISCUSSION AND RECOMMENDATIONS

Summary of the Study

There has been considerable focus on the need for business education programs to change their business models. This focus, however, has primarily been directed toward higher education MBA programs. Although CTE BMITE programs are subjected to volatile change—mainly due to disruptive technologies—little is known about other influences which may affect these programs. The purpose of this study was to describe Oklahoma CTE BMITE teachers' predictions about influences they perceive will shape 21st century CTE Business, Marketing and Information Technology Education and to compare the predictions of BMITE teachers to those of a more general population. For this study, only BMITE teachers that teach in CTE-funded, full-time programs were asked to participate. Of the population of 436 full-time teachers, 146 teachers responded to the survey.

This is a diverse group of participants, representing instructors that teacher a variety of career clusters ranging from business and marketing to finance and information technology. The study used survey methodology and descriptive quantitative research design to gather data and describe the results of full-time BMITE teachers throughout Oklahoma at middle schools, high schools, and career and technology centers. This study addressed BMITE teachers' perceived influences for BMITE education's future. The following research questions guided this study:

1. What influences do Oklahoma BMITE division instructors predict will have the strongest effects on the future of CTE business education?
2. How do the individual influences identified by BMITE Division instructors cluster into identifiable factors?
3. What factors do BMITE Division instructors predict to be most influential in educational practice?
4. Are predicted factor influences perceived differently by subgroups of BMITE educators based on generational and other individual characteristics?
5. What are the similarities and differences between the predictions about the future of BMITE and the general population's baseline study predictions about the future of American public education?

Conclusions and Discussions

Several conclusions can be drawn from the findings of this study. Conclusions supported by the data include the following:

The first conclusion is that all 13 influences were considered relatively strong influences by BMITE educators on the future of BMITE education. On a 5-point Likert-type scale, mean ratings ranged from 4.01 to 4.60. The strongest predicted influence was *keeping up with current technology*. *Gaining adequate funding* was the second highest influence followed closely by *promoting technology literacy and skills, providing access to education anyplace, anytime, and meeting individual learning needs*. The remaining of the top six influences of importance were *providing for on-job training, continuing education, and life-long learning*.

The next conclusion is that the 13 influences clustered into three factors. The three factors were: Factor 1—Competitiveness; Factor 2—Customer Service; and Factor 3—Diversity. Both Factor 1 and Factor 2 received similar ratings indicating the importance of both these factors to the group. Factor 2—customer service was rated slightly higher overall. Factor 3—Diversity was the lowest rated factor.

The study revealed Factor 2—*Customer Service* –was the most influential factor. In order to determine the most influential factors on the future of BMITE education, the individual factor scores from each participant was summed (∑FactorScore). The Mean∑FactorScores were calculated by dividing the ∑FactorScores by the number of respondents (*N)* who rated all items. Factors 1 (Competitiveness) and Factor 2 (Customer Service) were rated very closely with Mean∑FactorScores of 21.28 and 21.96, respectively. Factor 3 (Diversity), with a Mean∑FactorScore of 8.35, was considered considerably less important.

The overall high score for Factor 1, Competitiveness, showed instructors considered *competing with new non-traditional types of educational providers* and *meeting new federal, state and local legislative mandates* very strong influences. The growing number of online schools and courses may be seen by BMITE instructors as competition for students (customers). Too, BMITE programs are evaluated on completion/retention factors, and non-traditional types of educational providers may affect enrollments negatively. In addition, meeting federal, state and local legislative mandates is a concern for many instructors. Federal mandates such as No Child Left Behind and financial aid requirements are constant concerns for instructors. Furthermore, current state mandates in Oklahoma are requiring students to complete 23 credit hours:

four years of language arts, three years of science, three years of math, three years of social studies and two units of arts. These mandates for high school students may affect the student's ability to take electives offered in the BMITE area not only at the high school level, but also at career and technology centers. Students attempting to meet the additional credit requirements often find themselves with little leeway to take extracurricular activities such as sports, band, etc. and eliminate business electives from their schedules. Other mandates may occur at the local level school district that may require more than the 23 hours required by the state (Education, 2012).

Another conclusion is that the high rating of Factor 2, *Customer Service,* showed instructors perceived *making technology available to everyone* and *promoting technology literacy and skills* as primary influences in the future of CTE business education.

Students consider technology access important and often question whether institutions have wireless access and technology prior to enrolling (Bonig, 2012). Prensky (2009) noted that we should be concerned about students' wanting or needing access to technology and not being able to get it. However, he further expressed that we should make it our business as educators to see that every student has "enough" access—rather than equal access.

Changing technology brings with it the evolving changes in technology literacy and the skills needed to use these changing technologies. While describing Millenials, Oblinger and Oblinger (2005) found Millenials information literacy skills unacceptably weak, especially with respect to judging the quality of information obtained on the Internet. The importance placed on teaching students technology literacy and skills was shown by the number 3 ranking given this influence. This issue is a necessity for 21st

century learning skills as evidenced by organizations such as the International Society for Technology Education (ISTE) (2008) and the Southern Regional Education Board (SREB) (1998), creating standards and guidelines to assist educators and students.

Twenge (2006) offered another viewpoint on the need for promoting technology literacy:

> Having grown up with widespread access to technology, the New Gen is able to intuitively use a variety of IT devices and navigate the Internet. Although they are comfortable using technology without an instruction manual, their understanding of the technology or source quality may be shallow (p. 25)

Keeping up with current technology, being service oriented and *meeting individual learner needs* were also considered important to instructors for meeting the customer needs.

Factor 3, *Diversity,* was not perceived as influential on the future of BMITE. One strong loading was received for *serving a culturally diverse population.* Other influences which had a strong loading for this factor included *meeting individual learner needs* and *promoting understanding of ethical considerations related to technology*. *Social and global issues* received moderate loadings within this Factor. The low perceptions of these two influences could be caused by the ethnicity/racial makeup of the BMITE group. Eighty percent of the teachers are Caucasian/White. However, this low ranking could be caused by the teachers being forced to rank the 13 influence items and their viewing these influences as less important or urgent.

The next conclusion is that predictions for the three demographic groups in this study are similar with the exception of one; Factor 1 (*Competitiveness)* was dependent on gender. The females placed significantly more importance on this factor than did males. Although the BMITE instructors were from three different generational cohorts (Baby Boomers, Generation X, and Millennials), any differences due to their experiences, age or sharing of life events was not reflected in this study. One explanation for this is that the 21st century BMITE instructor has utilized computers throughout his or her educational experience and is comfortable with mobile technologies and electronic communications tools (Diaz, et al., 2009). Furthermore, the path these teachers took—or are undertaking—to obtain a teacher's certificate did not indicate any differences in how they viewed the 13 influence items. Consequently, their educational preparation for teaching did not indicate any differences in their perceptions.

The final conclusion resulting from this study is that both the BMITE instructors and the general population ranked *keeping up with current technology* as the number one influence of the 13 items. Four influences, received similar ratings between the two groups: *gaining adequate funding, promoting technology literacy and skills, providing for on-job training, continuing education, and life-long learning,* and *being service oriented.*

Differences between the BMITE teachers and the general population were shown for *serving a culturally diverse population* and *promoting understanding of ethical considerations related to technology, social and global issues.* While the BMITE teachers ranked these at the bottom, 12th and 13th respectively, the general population ranked these 8th and 9th. The underlying reason for the BMITE instructors' low ranking of this influence is a concern and may warrant additional investigation. With over half of the

increase in the United States' population increase between 2000 and 2010 being Hispanic population (Census Briefs, 2011) the makeup of the customer will obviously change. Ensuring BMITE adapts to this diverse population is essential. Twenge (2006) reported in a recent poll 53 percent of GenMe mothers agreed with the statement that a person's main responsibility is to themselves and their children rather than making the world a better place whereas only 28 percent of Boomer mothers agreed. Of course this is only one poll, but the need to provide education focusing on this area should be considered.

One other influence that showed a wider differentiation between the two groups was *competing with new non-traditional types of educational providers (such as on-line universities, alternative schools, home school, charter schools, etc.).* Ranked 7th overall by the BMITE teachers, the general population ranked this influence last (13th).

Overall, the BMITE instructors indicated the 13 items had a stronger role in determining the future of BMITE education than the general population felt the items influenced American public education. None of the 13 items were rated by BMITE educators below 4.01 in mean importance on a 5-point scale while the general population's lowest mean rating was 3.48. Ausburn et al. (2011) stated, "Because factor scores were based on participants rating of influence items, high Mean∑FactorScores could be interpreted as representing greater predicted influence on the future of public education".

An additional study of Oklahoma career teachers and their Net generation students was conducted by Etienne (2011). This study also used the Ausburn et al. study as a baseline for comparison of the 13 influence items with the general population.

Etienne's study also found the number one influence by both CTE teachers and Net Gen students to be *keeping up with technology.*

Clearly, *keeping up with technology,* is of critical importance as indicated by the ranking and rating data by all groups studied. Nichelson (2012) projects:

> "If you want to compete in today's business world, then it's important to keep up with technology in order to get the most out of the technology you have, to keep abreast of emerging new technology, and to find the information that will help you make the right buying decisions." (para. 3)

Have we passed the time that we can keep up with technology? The critical nature placed on this influence by all three studies is cause for thought. Earlier, we cited Kurzweil's (2005) prediction indicating humans will have to enhance themselves with artificial intelligence in order to keep up with rapidly evolving intelligent machines. He predicted that information-based technologies will encompass and surpass all human knowledge in what he calls *singularity* Scople blogged in Utopia 2045 (2012) however that intelligent machines have already surpassed human intelligence and we can't signal the arrival of singularity with a date such as 2045. Have we entered singularity?

Other influences considered equally important by both the CTE teachers and BMITE teachers *gaining adequate funding;* and *providing access to education anyplace, anytime.* Both were ranked No. 2 and No. 4 respectively and may signify teachers' apprehensiveness regarding funding issues.

Both the CTE teachers and the BMITE teachers found funding to be a major concern which reflects Oklahoma's education funding climate. Twenty-two years ago HB 1017 was passed which enacted many reforms for Oklahoma's education including increasing funding per pupil and upping teacher pay. At the time, Oklahoma was 46th in estimated student expenditures (Delcour, 2012). The reforms of HB 1017 did not last long—today Oklahoma ranks 49th in student expenditures and the forecasted budget is causing many school districts to consider additional teacher layoffs. These budgetary issues due to this lack of funding for Oklahoma education may have driven this rating for this influence.

Implications for Theory

Theory U works well for studies predicting or *sensing* the emerging future because it is a transformative process which requires suspending old patterns of thinking and behaving. Pine (1993) provided this observation, "Very mature businesses either try to prop up their declining life-cycle curve with marginal improvements, or they evolve fundamentally different ways of conducting business" (p. xii). Utilizing this social technology allows BMITE educators to have their perceptions processed collectively.

Several studies (Gies, 2010; Rodriguez, 2011; Martin, 2012) and corporations such as Hewlett Packard, Royal Dutch Shell, Daimler, Price Waterhouse, and Fujitsu have explored or utilized the methods of Theory U to implement change (Scharmer, 2008). One study, conducted by Beck (2011) used Theory U in an Army project determining the need for cultural awareness training. Beck (2011) found, ". . . the idea of presensing, illustrated an understanding that embracing the past will become increasingly

ineffective over the next few years thereby making it necessary to embrace change and look to the future without fear of change in order to achieve success" (p. 101).

This study allowed participants to think about change and to connect to a deeper level of operating, open will—"the capacity to let go of old identities and intentions and to tune in to an emerging future field of possibility" (Scharmer, 2009, p. 244). McMillan (2012) stated, "It is the responsibility of leaders to know the changing nature of the river they are in and not to assume that today's river is the same as yesterday's…. It's simply paying attention" (p. 11). BMITE educators--through the process of Theory U--observed and paid attention to their voices and defined emerging influences that can change their programs in the future.

Implications and Recommendations for Practice

With the rapid changes occurring in the BMITE sector, addressing the influences identified by BMITE instructors is critical. Since four of the top six influences were related to customer service, these should be given special focus. A paradigm shift happening in BMITE and in higher education (Bonig, 2012) is that the true *customer* is the student. *Providing access to education anyplace, anytime* was an influence clustered under the customer service factor. In 2009, Sloan Consortium reported 1,030,000 or 2 percent of the K-12 population of students taking online or blended learning classes—compared to 700,000 in 2007. Secondary students represented 70 percent of these enrollments (Sloan Consortium, 2009). Online access and increased usage is not restricted to the K-12 environment. A 2011 report (Babson Survey Research Group, 2011) that surveyed 2500 colleges and universities found the growth rate for online

courses increased 10 percent, compared to 1 percent growth for the overall higher education student population (p. 4). These influences tie in with the competition influences identified as factors for BMITE's future. Career tech programs have long been aware of the need to compete—whether for funding dollars or students. "Technology for the student experience and not just for the management of the institution has become a major differentiator. . . . Any institution not keeping up, or at least not keeping close, may lose its competitive edge" (Bonig, 2012, p. 57). Partnering among educational institutions to utilize and/or combine technological resources should be considered. Providing additional course options such as online courses and blended courses—courses which offer online and face-to-face instruction—could provide flexibility for the customer base and, at the same time, achieve greater operational efficiency. This may provide needed options for students and consequently reduce logistical issues for student access to area career tech centers.

Another consideration could be improved data mining processes. After previous economic downturns in Oklahoma, implementation of better accountability methods for CTE programs provided increased ROI data. BMITE programs complete follow-up reports each year which provides information on retention of students, placement of students in related jobs, education, or military, and wages earned. Although this reporting did provide accountability and program data, better data mining methods could provide valuable information to further develop programs to meet the needs of the future.

Implications and Recommendations for Further Research

Based on the results of this survey, further research into gaining adequate funding could be warranted. Partnerships with corporations and consortiums of school districts may be beneficial in obtaining resources and technologies for the division.

It is recommended that further studies into administrators' perceptions of the 13 influence items would be beneficial in sensing and shaping the future of BMITE. Administrators are a "power" stakeholder—necessary to accomplish change. Their buy-in is a vital element of developing BMITE's future. Determining the administrators' perceived influences for BMITE's future and comparing these to this study's findings could open discourse and provide additional validation of the influences.

Findings in this study revealed BMITE teachers' lower ratings for promoting understanding of ethical considerations related to technology, social and global issues. Further research in this area may be beneficial for developing curriculum or providing additional training or assistance to instructors to ensure these issues are being addressed.

Recommendations for further research on this topic with this population include incorporating additional demographic information and characteristics about the sample under study. Additional variables and more detailed demographic information such as age-levels of students served, whether the BMITE teachers' classes include secondary and post-secondary students, along with the length of time they have taught in a funded CTE BMITE program may provide a better description of the sample. This information could provide a richer sense for the reasoning behind the responses.

Significance of the Study

This study provided insight into how BMITE teachers view the future of Business, Marketing and Information Technology Education and to how their insights are similar or different to the general population. A significant finding was that keeping up with technology agreed with the general population was the No. 1 influence for the future of BMITE and American public education. This study offered an opportunity for BMITE educators to sense the future as it is trying to emerge using Theory U as a social technology.

REFERENCES

Arthur, W. B., Day, J., Jaworski, J., Jung, M., Nonaka, I., & Scharmer, C. O. (2002). Illuminating the blind spot: Leadership in the context of emerging worlds,

Ausburn, L. J. (2003). Beyond the inflection point: The softer side of learning's new digital landscape. Scholar Practitioner Quarterly, 2(1), 79-97.

Ausburn, L., Ellis, A., & Washburn, E. (2011, December). Predictions for the future of American public education: Voices from classrooms. *Scholar-Practitioner, 5*(1).

Babson Survey Research Group (2011). *Going the distance: Online education in the United States, 2011.* Babson Survey Research Group. Retrieved April 28, 2012 from http://sloanconsortium.org/publications/survey/going_distance_2011.

Beck, J. G. (2011). *Transformative change in army training: A case study.* Capella University). *ProQuest Dissertations and Theses,* Retrieved from http://search.proquest.com/docview/887905642?accountid=3320

Berg, G. A. (2005). *Lessons from the edge: For-profit and nontraditional higher education in America.* Westport, CT: Praeger/American Council on Education Series in Higher Education.

Blatt, D. (2012, February 22). *Budget Education*. Retrieved May 28, 2012, from OKPolicyBlog: http://okpolicy.org/blog/education/stuck-in-a-hole-what-flat-funding-means-for-the-common-education-budget/#more-17202

Bonig, R. (2012) . Latest trends in student information systems: Driven by competition. *EDUCAUSE REVIEW, 47*(3).

Boulos, M. N., & Wheeler, S. (2007). The emerging Web 2.0 social software: an enabling suite of sociable technologies in health and health care education. *Health Information and Libraries Journal, 24*(1), 2-23. doi:10.1111/j.1471-1842.2007.00701.x

Canton, J. (1999). *Technofutures: How leading-edge technology will transform business in the 21st century.* Carlsbad, CA: Hay House, Inc.

Career Tech. (2012). *BMITE Teacher Certification*. Retrieved November 21, 2011, from CareerTech: http://www.okcareertech.org/educators/business-marketing-and-information-technology-education/teacher-certification

Christensen, C. M. (1997). *The Innovator's Dilemma.* Boston: Harvard Business School.

Christensen, C. M., Aaron, S., & Clark, W. (2002). Disruption in education. *The Internet and the University: Forum 2001*. *EDUCAUSE*, 19-44.

Cordeniz, J.A. (2002). Recruitment, retention, and management of Generation X: A focus on nursing professionals. *Journal of Healthcare Management, 47*, 237-249. Retrieved October 13, 2007, from Research Library database (Document ID: 133168961).

Costello, A. B., & Osborne, J. W. (2005, July). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment Research & Evaluation, 10*(7). Retrieved April 1, 2012, from http://pareonline.net/getvn.asp?v=10&n=7

Cross, J. (2007). *Informal learning: Rediscovering the natural pathways that inspire*

innovation and performance. San Francisco, CA: John Wiley & Sons.

Cuban, L.; Kirkpatrick, H.; and Peck, C. (2001). High access and low use of technologies in high school classrooms: Explaining an apparent paradox. *American Educational Research Journal.* Winder 2001. *38*(4), pp. 813-834.

Darling-Hammond, L. (2010). *The flat world and education: How America's commitment to equity will determine our future.* New York: Teachers College Press.

Delcour, J. (2012). Public education takes a pummeling. *The Tulsa World.* Retrieved from: http://www.tulsaworld.com/opinion/article.aspx?subjectid=214&articleid=20120603_214_G1_CUTLIN837353

Diaz, V., Garrett, P. B., Kinley, E. R., Moore, J. F., Schwartz, C., & and Kohrman, P. (2009). Faculty Development for the 21st Century. *EDUCAUSE Review, 44*(3), 46=55. Retrieved from http://www.educause.edu/EDUCAUSE+Review/EDUCAUSEReviewMagazineVolume44/FacultyDevelopmentforthe21stCe/171776

Easton, A., & Easton, G. (2010). Demystifying Mashups. *Proceedings of Informing Science & IT Education Conference (InSITE) 2010*, (pp. 479-486). Retrieved August 11, 2011, from http://proceedings.informingscience.org/InSITE2010/InSITE10p479-486Easton836.pdf

Education, O. S. (2012). *Oklahoma High School Graduation Requirements*. Retrieved April 22, 2012, from Oklahoma State Department of Education: http://ok.gov/sde/oklahoma-high-school-graduation-requirements

Egan, K. (2008). *The future of education: Reimagining our schools from the ground up.* New Haven, CT: Yale University Press.

Eisner, S. P. (2004). Teaching generation Y college students: Three initiatives. *Journal of College Teaching and Learning, 1*(9), 69-84.

Ertmer, P. A., & Ottenbreit-Leftwich, A. T. (2010). Teacher technology change; How knowledge, confidence, beliefs, and culture intersect. *Journal of Research on Technology in Education, 42*(3), 255-284. Retrieved from www.iste.org/jrte

Etienne, R. (2011). *Concerns about the future for Oklahoma career and technical education teachers and their net generation students.* Oklahoma State University. ProQuest Dissertations and Theses. Retrieved from http://search.proquest.com/docview/889251903?accountid=332

Evans, J. (2011). *Project Tomorrow.* Retrieved September 2, 2011, from http://www.tomorrow.org

Fraenkel, J. R., & Wallen, N. E. (2003). *How to design and evaluate research in education* (5th ed.). New York, NY: McGraw-Hill.

Frey, T. (2007, March 7). *The Future of Education.* Retrieved December 29, 2011, from FuturistSpeaker.com: http://www.futuristspeaker.com/2007/03/the-future-of-education/

Friedman, T. L. (2007). *The world is flat: a brief history of the twenty-first century.* New York: Farrar, Straus and Giroux.

Gardner, H. (2006). *Five Minds for the Future.* Boston: Harvard Business School Press.

Gay, L., Mills, G. E., & Airasian, P. (2006). *Educational Research: competencies for analysis and applications* (8th ed.). Upper Saddle River, NJ: Pearson Merrill Prentice Hall.

Gentile, B., Twenge, J., & Campbell, W. (2010). Birth cohort differences in self-esteem, 1988-2008. *Review of General Psychology, 14*(3), 261-268. doi:10.1037/a0019919

Gies, E. A. (2010). *A case study of cultural competency: The transformation of individuals and collective perception and practice.* Cardinal Stritch University). *ProQuest Dissertations and Theses,* Retrieved from http://search.proquest.com/docview/828353768?accountid=3320

Green, S. B., & Salkind, N. J. (2011). *Using SPSS for Windows and Macintosh: Analyzing and understanding data* (6 ed.). (J. marshall, Ed.) Upper Saddle River: Prentice Hall.

Hayashi, A. (2010, March). Feminine Principle and Theory U. *Oxford Leadership Journal, 1*(2), 1-4. Retrieved April 26, 2011, from http://www.presencing.com/docs/publications/articles/FeminninePrincipleTU.pdf

Howe, N. (2010). The lineup of generations. *School Administrator, 67*(1), 20-21. Retrieved February 21, 2012, from http://search.ebscohost.com.ezproxy.osu-tulsa.okstate.edu/login.aspx?direct=true&db=tfh&AN=47241308&site=ehost-live

Howe, N., & Nadler, R. (2010). *Millennials in the workplace: Human resource strategies for a new generation: implications for educators, employers, and policy makes*. Great Falls, VA, USA: LifeCourse Associates.

Howe, N., & Strauss, W. (2000). *Millennials rising: The next generation.* New York: Vintage Books.

Howe, N., & Strauss, W. (2003). *Millennials go to college.* USA.

Howe, N., & Strauss, W. (2007). The next 20 years: How customer and workforce attitudes will evolve. *Harvard Business Review, 85*(7/8), 41-52. Retrieved from http://search.ebscohost.com.ezproxy.osu-tulsa.okstate.edu/login.aspx?direct=true&db=buh&AN=25351868&site=ehost-live

Intel. (n.d.). Retrieved August 10, 2011, from Moore's Law Inspires Intel Innovation: http://www.intel.com/content/www/us/en/silicon-innovations/moores-law-embedded-technology.html

Internet Users in North America. (2011, March 31). Retrieved August 20, 2011, from Internet World Stats: http://www.internetworldstats.com/stats.htm

ISTE.NETS t (2008). *Advanced Digital Age Teaching.* Retrieved from ISTE-Internatinal Society for Technology Education: http://www.iste.org/Libraries/PDGs/Nets/NETS-T.standards.sflb.ashx

Johnson, L. A. (2011). *The NMC horizon report: 2011 K-12 edition.* Austin: The New Media Consortium.

Kachigan, S. K. (1991). *Multivariate statistical analysis: A conceptual introduction* (2nd ed.). New York, New York: Radius Press.

Kupperschmidt, B. R. (2000). Multigeneration employees: Strategies for effective management. *The Health Care Manager, 19*(1), 65-76. Retrieved March 23, 2009, from http://p2048-web.ebscohost.com.ezproxy.osu-tulsa.okstate.edu.ezproxy.osu-

tulsa.okstate.edu/ehost/pdf?vid=3&hid=13&sid=9a2d59a2-1dbd-4842-9288-e438ac2a617b%40sessionmgr2

Kurzweil, R. (2005). *The singularity is near: When humans transcend biology.* Viking Adult.

Kurzweil, R. (2011, December 9). *Essays - Singularity Q & A*. Retrieved May 29, 2012, from Kurzweil Acccelerating Intelligence: http://www.kurzweilai.net/singularity-q-a

Mannheim, K. (1996). The problem of generations. In W. Sollors (Ed.), *Theories of ethnicity: A classical reader* (p. 499). Washington Square, New York: New York University Press.

Martin, C. A., & Tulgan, B. (2002). *Managing the Generational Mix: From collision to collaboration.* Amherst, MA: HRD Press.

Martin, C. A., & Tulgan, B. (2006). *Managing the generation mix: From urgency to opportunity.* Amherst, MA: HRD Press, Inc.

Martin, K. A. (2012). *Exploring a holistic approach for transformative change, learning, leadership & culture utilizing presencing as a vehicle: A case study.* Capella University). *ProQuest Dissertations and Theses,* Retrieved from http://search.proquest.com/docview/1019234367?accountid=3320

Marx, G. (2006). *Sixteen trends, their profound impact on our future: Implications for students, education, communities, countries, and the whole of society.* Alexandria, VA: Educational Research Services.

McMillan, M. A. (2012). Clients get it, so must we. *EDUCAUSE REVIEW, 47*(1) (January/ February 2012)

Meyer, K. A. (2010). The Role of Disruptive Technology in the Future of Higher Education. *EDUCAUSE Quarterly Magazine, 33*(1). Retrieved July 31, 2011, from http://www.educause.edu/EDUCAUSE+Quarterly/EDUCAUSEQuarterlyMagazineVolum/TheRoleofDisruptiveTechnologyi/199378

NSF Task Force on Cyberlearning. (2008). *Fostering learning in the networked world: The cyberlearning opportunity and challenge.* National Science Foundation. Retrieved December 28, 2010, from http://www.nsf.gov/pubs/2008/nsf08204/index.jsp

Nichelson, B. J. (2012). *Keeping up with technology: Four steps and some resources*. Retrieved November 24, 2011, from About.com Money Entrepreneurs: http://entrepreneurs.about.com/cs/beyondstartup/a/keepinguptech.htm

Nunnally, J. (1978). *Psychometric Theory* (2nd ed.). New York, New York: McGraw-Hill.

Oblinger, D., & Oblinger, J. (Eds). (2005). *Educating the Net generation.* Retrieved August 18, 2010, from EDUCAUSE web site: www.educause.edu/ir/library/pdf/pub7201.pdf

Oklahoma CTE State Profile. (2009, March 20). Retrieved October 1, 2011, from ACTE: Association for Career and Technical Education: http://www.acteonline.org/profile_ok.aspx

Oklahoma Department of Career and Technology Education. (2011). *Annual Report 2011*. Retrieved May 28, 2012, from http://www.okcareertech.org/about/annual-report-fast-facts

Partnership for 21st Century Learning (2007). *Framework for 21st century learning.* Retrieved May 10, 2010, from http://www.p21.org/tools-and-resources/publications

Pedhuzer, E. J. (1991). *Measurement, design, and analysis: An integrated approach.* Lawrence Erlbaum Associates.

Pendergrast, D. (2009). Generational Dynamics: Y it matters 2 U and me. *International Journal of Home Economics, 2*(2), 67-84. Retrieved July 14, 2009, from <http://search.informit.com.au/documentSummary;dn=721754809024870;res=IELHSS> ISSN: 1999-561X. [cited 30 Apr 11].

PEW/INTERNET. (2009). *Generations Online in 2009.* Pew Internet & American Life Project. Retrieved October 31, 2011, from http://www.pewinternet.org/Reports/2009/Generations-Online-in-2009.aspx

PewResearchCenter. (2010). *Millennials, a portrait of Generation Next: Confident. Connected. Open to change.* Retrieved May 20, 2012, from http://pewresearch.org/pubs/1501/millennials-new-survey-generational-personality-upbeat-open-new-ideas-technology-bound

Phillips, J. J., & Phillips, P. P. (2007). *Show me the money: How to determine ROI in people, projects, and programs.* San Francisco, CA: Berrett-Koehler Publications.

Pine II, B. J. (1993). *Mass customization: The new frontier in business competition.* Boston, MA: Harvard Business School Press.

Pinsonneault, A., & Kraemer, K. L. (1993). Survey research methodology in management information systems: An assessment [Special section: Strategic and competitive information systems]. *Journal of Management Information Systems, 10*, 75-105.

Prensky, M. (2001). Digital Natives, Digital Immigrants Part 1. *On the Horizon, 9*(5), 1-6.

Prensky, M. (2009). Let's be "Digital Multipliers". *Educational Technology* January/February 2009. Retrieved December 26, 2009, from http://www.marcprensky.com/writing/Prensky-Lets_Be_Digital_Multipliers-ET-01-09.pdf

Prensky, M. (2010). *Teaching digital natives: Partnering for real learning.* Thousand Oaks: A SAGE Company.

Project Tomorrow. (2011). *Learning in the 21st century: 2011 trends update.* Project Tomorrow.

Ptolemy, B. (2011). *The Transcendent Man: The Life and ideas of Ray Kurzweil.* (Video). Ptolemaic Productions.

Reeves, T. C. (2006) *Do generational differences matter in instructional design?* Retrieved from: *it.coe.uga.edu/itforum/Paper104/ReevesITForumJan08.pdf*

Rodriguez, S. H. (2011). *Co-creating alignment between women, organizations, and society to support women's career success: An exploratory Case study of transformational change.* Capella University.

Rogers, M. (2009). *Boomers and technology: An extended conversation.* AARP and Microsoft. Retrieved March 20, 2012, from http://www.aarp.org/technology/innovations/info-12-2009/boomers_and_technology_radio.html

Scharmer, C. O. (2008, Winter). Uncovering the Blind Spot of Leadership. *Leader to Leader, 47*(Winter), 52-59. doi:10.1002/ltl.269

Scharmer, C. O. (2009). *Theory U: Leading from the future as it emerges; the social technology of presencing* (First ed.). San Francisco: Berrett-Koehler Publishers, Inc.

Scharmer, C. O. (2010, June 7). Theory U: From ego to eco-systems. *ALIA Authentic Leadership Conference.* Retrieved November 31, 2011, from http://www.ottoscharmer.com/publications/presentations.php

Scharmer, C. O. (2012). *Otto Scharmer.* Retrieved March 24, 2012, from Otto Scharmer: http://www.presencing.com/sites/default/files/page-files/Theory_U_Exec_Summary.pdf

Schmidt, E. (2010, April 12). Mobile Is The Future, And There's No Such Thing As Communication Overload. (Q. Hardy, Interviewer) Retrieved January 2, 2012, from http://techcrunch.com/2010/04/12/eric-schmidt-mobile-is-the-future-and-theres-no-such-thing-as-communication-overload/

Senge, P., Scharmer, C., Jaworshi, J., & Flowers, B. (n.d.). *Presence: Exploring profound change in people, organizations, and society.* New York: Doubleday.

Sheskin, D. J. (2007). *Handbook of parametric and nonparametric statistical procedures.*

Singularity 2045. (2012) *Singularity Utopia* [Blog post]. Retrieved from http://singularity-2045.org/colossal-century-of-progress.html. *(4th ed.). Boca Raton, FL: Chapman & Hall/CRC, Taylor & Francis Group.*

Sloan Consortium (2009). *K-12 learning: A 2008 follow-up of the survey of U.S. school district administrators.* Retrieved April 15, 2012, from: http://sloanconsortium.org/publications/survey/k-12online2008

SREB (1998). *Technology Standards for Teachers*. Retrieved June 28, 2012 from ttp://www.sreb.org/page/1380/98t11_technology_standards_for_teachers

Strauss, W., & Howe, N. (1991). *Generations: The history of America's future, 1584-2069.* New York: William Morrow & Company.

Strauss, W., & Howe, N. (1997). *The fourth turning: An American prophecy.* New York: Broadway Books.

Tapscott, D. (1998). *The Net generation and the school*. Retrieved December 24, 2007 from www.mff.org/edtech/article.taf?_function=detail&Content_uid1=109.

Tapscott, D. (2009). *grown up digital: how the net generation is changing your world.* New York City, New York: McGraw-Hill.

Tapscott, D., & Williams, A. D. (2007). *Wikinomics: How mass collaboration changes everything.* New York: Penguin Group.

Taylor, M. (2007). Generation NeXt goes to work: Issues in workplace readiness and performance. In *Higher Learning Commission Collection of Papers, 2007.* Retrieved April 1, 2008, from http://www.taylorprograms.org/images/Gen_NeXt_article_HLC_07.pdf

Throckmorton and Kaminski (2008). Retrieved from http://www.e-hresources.com/Articles/Sept2007.htm

Tulgan, B. 1997. *The manager's pocketguide to generation X*. Amherst, MA: HRD.

Twenge, J. M. (2006). *Generation me: Why today's young Americans are more confident, assertive, entitled—and more miserable than ever before.* New York: Free Press.

Twenge, J. M. (2009). Generational changes and their impact in the classroom: Teaching Generation Me. *Medical Education, 43*(5), 398-405. doi:10.1111/j.1365-2923.2009.03310.x

U.S. Census Bureau, Public Information Office (2006, January 3). *Facts for features.* Retrieved April 9, 2008, from http://www.census.gov/Press-Release/www/releases/archives/facts_for_features_special_editions/006105.html

U.S. Census Bureau (2011). *Overview of race and hispanic origin: 2010.* 2010 Census Briefs. Retrieved from: *www.**census**.gov/prod/cen**2010**/briefs/c**2010**br-02.pdf*

VisualEconomics. (2012, May 7). Retrieved from VisualEconomics: http://visualeconomics.creditloan.com/how-the-world-spends-its-time-online_2010-06-16/

Walker, J. T., Martin, T., White, J., & Elliott, R. (2006). Generational (age) differences in nursing students' preferences for teaching methods. *The Journal of Nursing Education*, *45*(9), 371. Retrieved from http://proquest.umi.com/pqdweb?did=1121916291&Fmt=7&clientId=65345&RQT=309&VName=PQD

Weinstein, J. (2010). *Applying social statistics: An introduction to quantitative reasoning in sociology.* Blue Ridge Summit: Rowman & Littlefield Publishing Group.

Zemke, R. R. (2000). *Generations at work: Managing the clash of Veterans, Boomers, Xers, and Nexters in Your Workplace.* New York: AMA Publications.

Zemke, R., Raines, C., & Filipczak, B. (1999, November). Generation gaps in the classroom. *Training*, *36*(11), 48-54. Retrieved November 9, 2007

Zemke, R., Raines, C., & Filipczak, B. (2000). *Generations at work: Managing the clash of veterans, boomers, xers, and nexters in your workplace.* New York: AMA Publications.

APPENDICES

APPENDIX A

SOLICITATION E-MAIL

OKLAHOMA DEPARTMENT OF CAREER
AND TECHNOLOGY EDUCATION

January 17, 2012

Dear BMITE Instructor:

The BMITE division has formed a collaboration with Beverly (Roden) McAnally, a doctoral student at Oklahoma State University and one of our instructors at Tri County Technology Center, on a survey to examine current BMITE predictions about influences that will shape BMITE education in the 21st century. In addition, this survey will examine the preparation status of BMITE instructors.

If you are willing to participate by answering a few questions for us, please click on the link provided and it will take you to a brief survey (15–20 minutes or less) for you to complete. Your individual answers are **confidential and anonymous** and your name or identity **will not** be associated with your responses in any way.

Your response will help us look at certification in all 4 cluster areas and **your feedback** will help make decisions about any changes in curriculum for the Business Education Degree Plan.

Let me know if you have any questions.

Sincerely,

Linnie Berkenbile, State Program Administrator

https://okstatecoe.us2.qualtrics.com/SE/?SID=SV_5c2FW4hQ9r1TCS0

APPENDIX B

IRB APPROVAL LETTER

Oklahoma State University Institutional Review Board

Date	Wednesday, January 11, 2012
IRB Application No	ED122
Proposal Title	Predictions for the Future of Career and Technical Business Education in Oklahoma
Reviewed and Processed as:	Exempt

Status Recommended by Reviewer(s): Approved Protocol Expires: 1/10/2013

Principal Investigator(s):

Beverly McAnally
303 Oak Street
Chelsea, OK 74016

Lynna Ausburn
257 Willard
Stillwater, OK 74078

The IRB application referenced above has been approved. It is the judgment of the reviewers that the rights and welfare of individuals who may be asked to participate in this study will be respected, and that the research will be conducted in a manner consistent with the IRB requirements as outlined in section 45 CFR 46.

☒ The final versions of any printed recruitment, consent and assent documents bearing the IRB approval stamp are attached to this letter. These are the versions that must be used during the study.

As Principal Investigator, it is your responsibility to do the following:

1. Conduct this study exactly as it has been approved. Any modifications to the research protocol must be submitted with the appropriate signatures for IRB approval.
2. Submit a request for continuation if the study extends beyond the approval period of one calendar year. This continuation must receive IRB review and approval before the research can continue.
3. Report any adverse events to the IRB Chair promptly. Adverse events are those which are unanticipated and impact the subjects during the course of this research; and
4. Notify the IRB office in writing when your research project is complete.

Please note that approved protocols are subject to monitoring by the IRB and that the IRB office has the authority to inspect research records associated with this protocol at any time. If you have questions about the IRB procedures or need any assistance from the Board, please contact Beth McTeaman in 219 Cordell North (phone: 405-744-5700, beth.mcteaman@okstate.edu).

Sincerely,

Shelia R. Kennison

Shelia Kennison, Chair
Institutional Review Board

APPENDIX C

CONSENT TO PARTICIPATE

Oklahoma State University

College of Education
School of Teaching & Curriculum Leadership

Predictions for the Future of Career and Technical Business, Marketing, and Information Technology (BMITE) in Oklahoma

You are invited to participate in a research study conducted by Beverly McAnally (formerly Roden) a graduate student at Oklahoma State University to learn about the predictions for the future of CareerTech's BMITE in Oklahoma. You are being asked to participate because you are a Career and Technical BMITE instructor in a comprehensive high school, career tech or skill center in Oklahoma.

Your participation is voluntary and you may discontinue the survey at any time without reprisal or penalty. Your decision of whether or not to participate will not affect your current or future relations with Oklahoma State University, Oklahoma CareerTech, or your employer.

The participation will involve filling out a questionnaire. This one-time survey/questionnaire will take approximately 15 to 20 minutes or less. The records of this survey will be submitted to the Oklahoma State's Qualtrics server and kept private. Any written results will discuss group findings and will not include information that will identify you. Research records will be stored securely and only the researcher and individuals responsible for research oversight will have access to the records.

There are no known risks associated with this project which are greater than those ordinarily encountered in daily life.

The benefit of this research is the identification of future needs and areas to address in BMITE in Oklahoma, including curriculum and certification needs. Individual participants will benefit personally by contributing information helpful in meeting these needs, and professionally through improvements to curriculum and certification resulting from this study.

Data will be stored on a locked passworded CD. Research records will be stored securely and only the researcher will have access to the records. The duration of storage will be 5 years in a locked, secure file cabinet in the researcher's home office at 303 Oak St., Chelsea, OK 74016 and will only be accessible by the researcher.

You may contact the researcher or the researcher's advisor with any questions:

Beverly McAnally, email: bmcanal@okstate.edu, Phone: 918.636.4794
Dr. Lynna Ausburn, email: 99Lynna.ausburn@okstate.edu , Phone: 405.744.8322

If you have questions about your rights as a research volunteer, you may contact Dr. Shelia Kennison, IRB Chair, 219 Cordell North, Stillwater, OK 74048, 405-744-3377 or irb@okstate.edu.

Sincerely,

Researcher: Beverly McAnally

Agree to Participate

Decline to Participate

>>

APPENDIX D

SURVEY

Your gender is:

- Male
- Female

I am,

0 years old.

Which of these indicates your highest educational attainment?

- No additional work past high school.
- Attended college but did not get a degree.
- Basic 15.
- Completed 2-year Associates Degree.
- Completed 4-year Bachelors Degree
- Completed a Graduate Degree (Masters or Higher).

>>

Is your program located at a:

- Career Tech Center
- High School / Middle School
- Skill Center

When do you plan to retire?

- 0 - 5 years
- 6 - 10 years
- 11 years or more

Which of the following certification paths did you follow?

- Alternative
- Standard
- Provisional T&I
- Certified in a different area

What is your ethnic or racial group?

- Caucasian/White
- Native American
- Hispanic or Latino
- African American
- Asian
- Multiracial
- Other

Are you a National Board Certified Teacher?

- Yes
- No
- Applied

What cluster do you teach? ***Check all that apply.***

- Business, Management & Administration
- Finance
- Marketing, Sales & Service
- Information Technology

>>

Influences on the Future of Career and Technical Business, Marketing, and Information Technology Education (BMITE) in Oklahoma.

Rate each factor listed below according to how important or influential you believe it will be in determining the future of BMITE in the 21st century.

Click to write the question text

	No Influence	Minor Influence	Moderate Influence	Major Influence	Extreme Influence
Keeping up with current technology.					
Providing access to education anyplace, anytime (such as through on-line courses).					
Promoting technology literacy and skills.					
Making technology available to everyone.					
Being service orientated					
Meeting individual learner needs.					
Serving a culturally diverse population.					
Providing for on-job training, continuing education, and life-long learning.					
Gaining adequate funding.					
Demonstrating positive return-on-investment for money spent.					
Competing with new non-traditional types of educational providers (such as on-line universities, alternative schools, home schooling, charter schools, etc).					
Meeting new federal, state, and local legislative mandates.					
Promoting understanding of ethical considerations related to technology, social, and global issues.					

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Please rank these 6 influences in order of importance with 1 being most important and 6 being least important.

The one thing that concerns me most about the future of people and society is:

The one thing that concerns me the most about the future of Business, Marketing, and Information Technology Education is:

If I could recommend one thing to Business, Marketing, and Information Technology Education that would help make it more successful in the future, it would be:

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VITA

Beverly McAnally

Candidate for the Degree of

Doctor of Philosophy/Education

Thesis 21st CENTURY BUSINESS EDUCATION: PREDICTIONS FROM OKLAHOMA CTE BUSINESS EDUCATORS

Major Field: Occupational and Adult Education

Biographical:

Education:

Completed the requirements for the Doctor of Philosophy/Education in Occupational and Adult Education at Oklahoma State University, Stillwater, Oklahoma in July, 2012.

Completed the requirements for the Master of Science in Occupational and Adult Education at Oklahoma State University, Stillwater, Oklahoma, in 2000.

Completed the requirements for the Bachelor of Science in Business Education at Oklahoma State University, Stillwater, Oklahoma, in 1975.

Experience:
Currently employed as an instructor for Tri County Technology Center in Bartlesville, Oklahoma in Business and Computer Technology; Adjunct instructor for Rogers State University, Claremore, Oklahoma, in the Computer Science area.

Professional Memberships:
Omicron Tau Theta, Charter Member, Oklahoma State University
Association for Career and Technical Education
Oklahoma Association for Career and Technical Education
BITE Teachers Association
Association for Career and Technical Education Research

Name: Beverly McAnally Date of Degree: July, 2012

Institution: Oklahoma State University Location: Stillwater, Oklahoma

Title of Study: 21st CENTURY BUSINESS EDUCATION: PREDICTIONS FROM OKLAHOMA CTE BUSINESS EDUCATORS

Pages in Study: 104 Candidate for the Degree of Doctor of Philosophy

Major Field: Occupational and Adult Education

Scope and Method of Study: This study described the predictions of 146 (n = 146) full-time CTE BMITE teachers about the greatest influences on the future of Business, Marketing and Information Technology Education. A quantitative descriptive survey research design was implemented for the study using a sample of teachers in middle schools, high schools and career and technology centers. All predictions were based on 13 concepts derived from future-oriented literature. The BMITE predictions were compared to a baseline sample study of the general population. Theory U and Generational Theory were used as the framework for this study.

Findings and Conclusions:

The results of the study indicated teachers had similar perceptions of the influences affecting the emerging future for the Business Marketing and Information Technology program. The overall top predictive influences included: Keeping up with technology, gaining adequate funding, promoting technology literacy and skills, providing access to education anyplace, anytime, meeting individual learner needs and providing for on-job training, continuing education, and life-long learning

ADVISER'S APPROVAL: Dr. Lynna Ausburn